



**fraserhealth** Better health.  
Best in health care.

# 2012 Carbon Neutral ACTION REPORT



A document from the department of  
**Lower Mainland Facilities Management**  
**Energy & Environmental Sustainability**  
the home of GreenCare

## EXECUTIVE

# SUMMARY

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**Dr. Nigel Murray**

*President and Chief Executive Officer*

Fraser Health is proud to provide our 2012 Carbon Neutral Action Report and announce that we are carbon neutral for the third consecutive year.

The key to reducing our carbon footprint is conservation, mechanical upgrades, and innovation. Maintaining this critical balance during a time of rapid population growth, continued demands for capacity and rising costs is the result of a collaborative effort across the Authority.

With an emphasis on healthy design, Fraser Health has become the leader in green built systems in British Columbia and across Canada.

In 2012 Fraser Health:

- **Reduced our energy consumption** by 1.5 GWh and 10,419 GJ
- **Reduced waste** by implementing a recycling renewal program at 3 sites
- **Increased staff engagement** through the Green+Leaders recruitment of 60 staff volunteers

We are proud to announce that in the fall of 2012 Fraser Health was recognized by BC Hydro with the Power Smart Excellence Award for Leadership.



**Peter Goldthorpe**

*VP Capital Projects, Real Estate & Facilities*

There is much evidence linking environmentally sustainable behaviours to healthy communities and ultimately to the health of the individuals we serve. As a provider of health services for the citizens of British Columbia...but also a material contributor to greenhouse gas emissions, we must demonstrate leadership and continually seek ways to reduce our ecological footprint to

improve population health. In other words, we must practice what we preach. To this end, our Energy & Environmental Sustainability team has created a strong vision for reducing the health sector's environmental impact. The 2012 Carbon Neutral Action Report highlights many of the initiatives that are currently underway to accomplish this goal.

Please join us in this quest to transform health care into a more environmentally-responsible sector focused on both human and environmental health. Please take a moment to check out our vision at the GreenCare Community website <[bcgreencare.ca](http://bcgreencare.ca)>. We welcome your feedback and your active participation!

# ABOUT FRASER HEALTH

We are British Columbia's largest health authority by population and serve some of Canada's fastest growing communities

Fraser Health is one of the Province's six health authorities. We serve a region that spans from the Vancouver suburb of Burnaby to White Rock and east to Boston Bar in the Fraser Canyon.

## We provide integrated health services

Our 21,874 staff, which includes 13,606 full-time equivalent employees, provide the following:

- **Primary health care**
- **Community home care**
- **Residential care**
- **Acute medical and surgical services**
- **Mental health and addiction services**

## Twelve hospitals including B.C.'s oldest

Among our twelve acute care sites is the Royal Columbian Hospital, the oldest hospital in British Columbia, which celebrates its 150<sup>th</sup> anniversary in 2012. Located in New Westminster, it's one of Fraser Health's busiest hospitals, too.

The 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 acute care hospitals and related services.

This new growth provides us with opportunities to build to greener LEED standards. In 2012 the Jim Pattison Outpatient Care and Surgery Centre in Surrey became the third LEED Gold certified health care site within Fraser Health.



## Quick Facts

**1.6 million**

Population served

**\$2.6 billion**

Operating budget 2012/13

**12 hospitals**

From Burnaby to Hope

**7,760 beds**

In residential care facilities

**22,000 staff**

Full-time, part-time, casual

**2,500 doctors**

In acute & primary care settings

## Our Communities

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

# CHANGES IN OUR OPERATIONS

We created a new Energy & Environmental Sustainability group dedicated to reducing the environmental impact of all the Lower Mainland health authorities

## Four health organizations are working together

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

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

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

Facilities Management was one of the ten administrative and clinical support services areas consolidated. Now, the new Lower Mainland Facilities Management 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 & Environmental Sustainability (EES) group in 2010 within the Lower Mainland Facilities Management department. This has presented new opportunities to coordinate our environmental and sustainability work across Fraser Health, PHC, PHSA and VCH for greater impact.

## Advisory Committees

Fraser Health is a part of two groups dedicated to collaborating on energy & environmental sustainability work across the health care sector.

### Environmental Sustainability Advisory Committee (ESAC)

The ESAC group is made up of various Health Authority key leaders across the lower mainland. These individuals provide strategic council and key decisions on energy & environmental sustainability work within health care.

### Provincial Environmental Tech Team (PETT)

The PETT group is made up of key stakeholders across all BC Health Authorities, the Ministry of Health, and the Climate Action Secretariat. This group provides strategic collaboration and sharing of best practices to enable more efficient energy & environmental sustainability work within health care.

## Net Space +1.3%

Even though our site portfolio and square meters of space increased by 1.3% in 2012, Fraser Health still strives to reduce our carbon footprint in line with our target reduction goals.

### Building Space Change

	2010	2011	2012
Distinct FHA Buildings	132	143	149
% Owned	82%	82%	82%
% Leased	18%	18%	18%
Usable Square Meters	667,654	677,965	686,512
Full-Time Employee Equivalents	13,626	14,900	13,660



# ENERGY AND ENVIRONMENTAL SUSTAINABILITY



We consider energy and environmental sustainability to be important components of organizational, human and environmental health

## Reducing our environmental impact

Our Energy & Environmental Sustainability (EES) group includes Energy Managers and Sustainability Managers tasked with reducing the waste and environmental impact of our health organizations.

It's the goal of this EES group to unite all four organizations in their commitment towards Economic Stewardship, Environmental Stewardship, and Health & Social Stewardship.

## Increasing our staff's environmental stewardship

Fraser Health is committed to reducing health care's impact on the environment, while increasing the health and wellbeing of British Columbians by maintaining the important link between health and the environment.

Fraser Health has endorsed an Environmental Sustainability Policy, along with the other Lower Mainland health organizations, that includes a Vision Statement and Conservation Goals.

## Creating a conscious work culture

**Mission Statement:** Promote a health care community that is actively aware and engaged in creating sustainable and environmentally-conscious health care delivery.

## GreenCare

GreenCare is the brand name for all the environmental sustainability activities across the Lower Mainland health organizations. This includes work done through our EES group, our Green+Leaders staff champions, our recycling program, and through our online GreenCare community website [www.bcgreencare.ca](http://www.bcgreencare.ca).

## 10 Focus Areas

Our EES group aims to create greater sustainability in ten key areas of focus:

1. Culture of Stewardship
2. Energy Conservation & Climate Neutral
3. Zero Waste
4. Active Transportation
5. Regenerative Design
6. Water Conservation & Restoration
7. Sustainable Procurement
8. Zero Toxicity
9. Healthy Land & Food
10. Transparent Reporting

## Our Sustainability Goals

	2015	2020
Energy Reduction	10%	20%
Green House Gas Reduction	15%	33%
Water Reduction	7%	10%
Alternate Commute Increase	10%	20%
Staff Engagement (GreenCare)	40%	75%
Waste Diversion (Recycling) *	70%	80%
Waste Reduction (Biomedical)	10%	20%

\* Goals aligned to Metro Vancouver targets.

Targets use a 2009 baseline, except Green House Gas Emissions which uses 2007.

# Facilities Commitment

Fraser Health is committed to designing, constructing, and operating all facilities to a minimum of LEED standards and current best practices.

# GREEN BUILDINGS

Construction projects on new or existing facilities are built to sustainability standards: LEED (Leadership in Energy and Environmental Design) for new builds, and BOMA BEST (Building Environmental Standards) for existing buildings

## Two buildings are rated BOMA BEST

- **Certified Level 1**
  - 8521 198A Street, Langley
  - 520 W. 6<sup>th</sup> Avenue, Vancouver

## Nine sites are LEED Certified

- **Gold: 4**
- **Silver: 1**
- **Certified: 4**

Five new buildings have been built to LEED and are awaiting certification. Two new buildings are in construction and have been registered for LEED.



Fraser Health

LEED Building Site	City	Targeted / Achieved Certification	Status	Certification Date
Mission Memorial Complex Care Centre	Mission	Gold	(construction)	TBD
Surrey Memorial Hospital Acute Care Tower	Surrey	Gold	(construction)	TBD
Cypress Lodge CTR	Coquitlam	Gold	(operational)	TBD
Langley Memorial Cottage	Langley	Certified	(operational)	TBD
Czorny Alzheimer Centre - Phase 2	Surrey	Silver	(operational)	TBD
Maternity Ward Renovation, Peace Arch Hospital	White Rock	Certified	(operational)	TBD
Creekside Health and Housing Centre	Surrey	Certified	(operational)	TBD
Maxxine Wright Place	Surrey	Gold	(operational)	11/10/2012
Creekside Withdrawal Management Centre	Surrey	Certified	(operational)	11/10/2012
Jim Pattison Outpatient Care & Surgery Centre	Surrey	Gold	(operational)	19/09/2012
Chilliwack Hospital Redevelopment	Chilliwack	Certified	(operational)	19/04/2011
Good Samaritan Canada, Victoria Heights Assisted Living	New Westminster	Certified	(operational)	23/06/2010
Czorny Alzheimer Centre	Surrey	Certified	(operational)	19/03/2010
Abbotsford Regional Hospital and Cancer Centre	Abbotsford	Gold	(operational)	10/09/2009
CareLife Maple Ridge	Maple Ridge	Silver	(operational)	17/12/2008
Cottonwood Lodge - A FH Residential Mental Health Facility	Coquitlam	Gold	(operational)	14/09/2007

# 2012 GREEN HOUSE GAS EMISSIONS

Fraser Health is committed to setting aggressive targets for the reduction of Greenhouse Gas Emissions

## Our Goal: An 18% drop in GHG emissions by 2016

As a government funded organization Fraser Health must abide by the Provincial Government of British Columbia's *Greenhouse Gas Reduction Targets Act* (Bill 44), passed in 2007.

Under the Act, our Green House Gas emissions are to be reduced below our 2007 levels as follows:

- **18% by 2016**
- **33% by 2020**
- **80% by 2050**

The Act also laid the foundation for the *Emission Offsets Regulation* and the *Carbon Neutral Government Regulation*, both enacted in December 2008, which guides Fraser Health.

## Our 2012 carbon footprint: 41,351 tCO2e

Fraser Health has calculated our 2012 carbon footprint, in accordance with the Greenhouse Gas Reduction Targets Act (as reported in SMARTTool), to be 41,351 tonnes. This represents a slight reduction from our 2011 footprint.

As seen from the table below, the vast majority of our carbon emissions are generated from our buildings. **These emissions are not adjusted for weather temperature variations.** Our region is located in an environment that predominately requires heating, thus cold shoulder and winter seasons will inevitably result in higher energy use and carbon emissions.

*“Individual staff decisions have a huge impact on the environment. Food choices, composting, and commuting are just a few examples of areas where we can, and should, make a difference.”*

Shefali Raja, RD  
Community Health Specialist  
The Langleys, Fraser Health



## Our Carbon Footprint (in tCO2e) <sup>1</sup>

	2010	2011 <sup>2</sup>	2012 <sup>2</sup>
Mobile Fuel Combustion (Fleet & other mobile equipment)	126	139	96
Stationary Fuel Combustion & Electricity (Buildings)	36,233	40,501	40,190
Supplies (Paper)	1,056	1,081	1,065
<b>Total Carbon Footprint (tCO2e)</b>	<b>37,424</b>	<b>41,721</b>	<b>41,351</b>
Emissions per Full-Time Employee	2.75	2.80	3.03
Emissions per Meter Square Facility Space	0.056	0.062	0.060

<sup>1</sup> It was estimated that Fugitive Emissions from cooling equipment do not comprise more than 0.01% of FH'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.

<sup>2</sup> Carbon Footprint adjusted for 2011 in 2012, due to building data corrections from the Climate Action Secretariat.



# CARBON OFFSETS

In 2012  
we were  
carbon  
neutral  
for the third  
year in a row

Our total carbon offsets decreased this year due to an increased focus on energy reduction in Fraser Health's facilities.

## Offsets applied to be carbon neutral in 2012

Fraser Health Authority was carbon neutral in 2012. We achieved this through our commitment to reducing our in-scope emissions and by purchasing offsets.

The offsets, purchased from the Pacific Carbon Trust (PCT) in 2012, for in-scope emissions, amounted to \$1,105,283. This figure is based upon the reported emission of 41,340 tCO<sub>2</sub>e, plus an additional 766 tCO<sub>2</sub>e from the 2011 reporting year, due to building data corrections from the Climate Action Secretariat.

## Carbon Footprint since 2011

Despite a further increase in floor space, the reported emissions from Fraser Health reduced in 2012. The **2.1% reduction** in emissions, per meter square of floor space have, been achieved by mechanical and electrical energy retrofits, policy development, and behavior change programs.

### Our Carbon Offsets

	2010	2011 <sup>3</sup>	2012 <sup>3</sup>
Carbon Footprint in tCO <sub>2</sub> e	37,424	41,721	41,351
Emissions Which Do Not Require Offsets <sup>1</sup>	0	-11	-11
Carbon Footprint (needing offsetting) in tCO <sub>2</sub> e	37,424	41,710	41,340
Purchased Carbon Offsets <sup>2</sup>	\$ 933,720	\$ 980,975	\$ 1,052,650
<b>Purchased Carbon Offsets +HST / GST</b>	<b>\$ 1,045,947</b>	<b>\$ 1,098,692</b>	<b>\$ 1,105,283</b>

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

<sup>2</sup> Purchased carbon offsets for 2011 include payment credit and space adjustments from 2010.

<sup>3</sup> 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.





## Energy Saved

Fraser Health completed **17** Energy projects in 2012 which led to big savings for us...and the environment.

**1,488,205 kWh**

Electricity saved

**10,419 GJ**

Fuel saved

**557 tCO<sub>2</sub>e**

Greenhouse gas reduction

**\$166,688**

Energy bill reduction

## EMISSIONS REDUCTION

# ACTIVITIES 2012

Fraser Health continued to take strides to reduce our carbon footprint, undertaking multiple projects, including the following highlights of 2012

## ENERGY CONSERVATION & CLIMATE NEUTRAL: We improved efficiency

- **Various energy retrofits** have been carried out in 2012. Resulting in energy savings of 15,777 GJ (4.4 eGWh) and GHG savings of 557 tCO<sub>2</sub>e. As these projects were completed at different times during the year, the prorated estimated savings are 9,568 GJ (2.7 eGWh) and 329 tCO<sub>2</sub>e.
- **Seven gas meters** for buildings across the region were added to our Pulse/Energy Management Information System as part of the Fortis BC EnerTracker program.
- **Boiler replaced with condensing type** in the Charles Barnham Pavilion and the domestic hot water system was upgraded to a gas fired instantaneous system at Surrey Memorial Hospital.
- **Solar Hot water system**, complete with electric hot water tanks, installed to replace an inefficient gas fired system at Queens Park Care Centre.
- **Condensate recovery system** installed at Ridge Meadows Hospital.
- **Various ventilation upgrades** started in 2011 were fully completed in 2012 at Chilliwack General, Eagle Ridge and Mission Memorial Hospitals
- **Major lighting retrofit** started at Langley Memorial Hospital.
- **7 minor lighting retrofits** carried out at various locations as part of the BC Hydro Power Smart Express program, including fluorescent upgrades, CFL and LED conversions.
- **Virtualization of servers** within the Lower Mainland Health Authorities is in progress. This will affect 8 FHA core sites with a potential annual electrical savings of 1 GWh.
- **Energy use data for leased buildings** (only utility accounts managed by FHA) added to utility management database.
- **A Spot the Energy Savings Workshop** was coordinated with the help from NRCan and Prism Engineering, aimed specifically at Facilities Maintenance and Operations (FMO) staff within our sites.

## Clean Commuter Challenge

During May of 2012, as part of our new GreenCare Community at [bcgreencare.ca](http://bcgreencare.ca), we ran a Clean Commuter Challenge and asked Lower Mainland staff at Fraser Health, the Provincial Health Services Authority, Providence Health Care and Vancouver Coastal to commit to taking actions to reduce their personal commuting carbon footprint.

The Clean Commuter Challenge by numbers:

**40% reduction**

in kilometers driven by Fraser Health staff

**11 teams**

participated in the challenge

**48% reduction**

in participating staff's commuting carbon footprint

**249 goals**

made by staff to support sustainable commuting

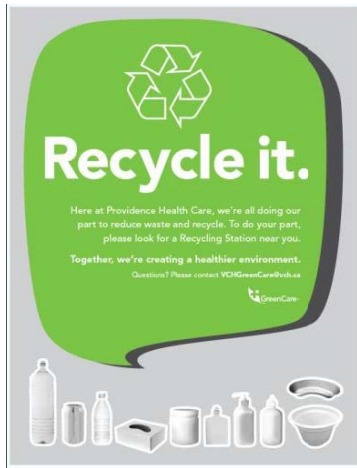


## ACTIVE TRANSPORTATION: We facilitated greener commutes

- **We collaborated with VCH, PHSA, and PHC to conduct a Clean Commuter Challenge**, which encouraged staff to become more active in their commutes to work. Staff formed teams and competed to see who could reduce their commute carbon footprint the most.
- **IPS created a position for a Transportation Demand Management Coordinator** to improve the travel options from site to site with a prime focus to promote and establish alternative transportation solutions. Position to be filled in early 2013.

## CULTURE OF STEWARDSHIP: We engaged staff

- **Issued a "Green Playbook"** document to provide sustainability principles and guidelines to the Lower Mainland Facilities Management (LMFM) teams.
- **Over 2,956 Lower Mainland staff, including 905 Fraser Health employees, signed up for our new GreenCare Community website and campaign.** In the first year, they committed to take actions that would reduce over 500 tonnes of carbon emissions.
- **We recruited 34 more volunteers for our Green+Leaders program.** Now we have over 60 Fraser Health staff volunteers to champion and run behavior change campaigns at their hospitals, care facilities and offices focusing on:
  - **waste and paper reduction**
  - **energy reduction**, and
  - **sustainable transportation.**
- **Staff have access to real-time power usage per hospital** through our online GreenCare Community and our partnership with Pulse Energy. This builds awareness of the success of initiatives and retrofits.
- **As part of the BC Hydro Workplace Conservation Agreement (WCA),** Energy Awareness fairs were organized during 2012 at 5 core FH sites. These fairs included BC Hydro and a focus to "switch off" equipment when not in use.
- **A Stairway to Health Challenge was launched.** An initiative encouraging everyone to use the stairs more often at work, with the goal of not only savings energy, but to also promote and improve daily physical activity and social connection.



## Recycle Renewal

Fraser Health has implemented a new recycling program for the goal of standardizing recycling processes across all health care sites.

The Recycling Renewal program accepts **4** streams: Mixed Paper, Beverage Containers, Plastics (soft and rigid) and Tin.

The Recycle Renewal program has been rolled out at **3** acute health care sites.

**26%** of all sites have enabled the Recycling Renewal program.

## 21% Diversion Rate

Cardboard, Batteries, metal, and electronics are also recycled through separate recycling streams.

## ZERO WASTE: We reduced waste to landfill

- **A draft GreenCare Strategic Framework** has been created with a target to reduce waste to landfill/increase waste diversion by 35% by 2012.
- **The roll out of the Recycling Program** continued at Surrey Memorial Hospital, Czorny Alzheimer Centre and Fleetwood Care facility.
- **Pre recycling waste audits** were completed at Jim Pattison Outpatient Care and Surgery Centre and Surrey Memorial Hospital.
- **Post recycling waste audits** were completed at Burnaby Hospital and Surrey Memorial Hospital.
- **The Green + Leaders program** launched a new tool to get rid of bottled water.
- **Composting of food waste** has been rolled out at all FHA core sites with kitchens, except Fraser Canyon Hospital.
- **For biomedical waste**, Stericycle was engaged by the Business Initiatives and Support Services (BISS) team to carry out audits in several facilities. They also carried out some ad-hoc education and developed standardized waste segregation signage.



## SUSTAINABLE PROCUREMENT:

### We prioritize sustainability in procurement

- Health Shared Services BC (HSSBC) developed sustainability criteria for consumables and equipment RFPs. The department also initiated a scanning project involving 4 million documents to digitize processes for accounts payable and receivable, records, and benefits. Customers can now view documents online rather than printing everything out.

# EMISSION REDUCTION GOALS 2013-14

## Our plans to continue reducing greenhouse gas emissions 2013-2014

The four Lower Mainland health organizations, Fraser Health, the Provincial Health Services Authority, Providence Health Care, and Vancouver Coastal Health, will continue to coordinate, collaborate and integrate energy and environmental initiatives within all our operational clinical and non-clinical work.

As part of those efforts, the following is a list of tasks to be achieved by Fraser Health in 2013/4.

## ENERGY CONSERVATION & CLIMATE NEUTRAL: We will improve efficiency

**Add owned buildings to the Energy Star Portfolio Manager** as a pilot initiative. Pilot to launch in Canada in June 2013.

**Boiler damper controls and isolation strategies** to be installed for the boiler plant at Peace Arch Hospital.

**Complete various HVAC upgrades** as part of the BC Hydro Continuous Optimization program (COp) at Royal Columbian, Burnaby, Delta, Chilliwack General, Ridge Meadows and Fraser Canyon Hospitals, plus three Care/Residential facilities.

**Complete Major Lighting Retrofit** at Langley Memorial Hospital, including the external parking lots.

**Lighting retrofit** to be completed at Burnaby Hospital, including the upgrade of the remaining T12 fluorescents light fixtures to T8.

**Develop a Lighting Strategy and Standard document** to enforce the use of energy efficiency solutions related to lighting upgrades in the Lower Mainland Health facilities.

**Control upgrades and adjustment** to be completed at Burnaby, Delta and Royal Columbian Hospitals as part of the BC Hydro COp.

**BC Hydro COp investigation studies** to be completed at 5 sites and implementation of the

approved energy conservation measures will commence.

**Implement a Fault Diagnostic Detection software tool** at Mission Memorial Hospital as a pilot project.

## ACTIVE TRANSPORTATION: We will facilitate greener commutes

**Install electric car charging stations** at Royal Columbian, Burnaby and Ridge Meadows hospitals.

**Run a Clean Commuter Challenge** for staff.

## CULTURE OF STEWARDSHIP: We will engage staff

**Continue agreement with BC Hydro** and participate in their Workplace Conservation Program.

**Continue growing the Green+Leaders program**

**Rebrand and re-launch the staff engagement website. The Cut the Carbon Community (C3) will transform to become the GreenCare Community (GCC)**, which will continue to be a website that offers stories, tips, challenges, incentives, and collaboration for staff around energy and environmental conservation.

**Launch a “badge” program where staff, on the GCC, can earn badges**, which are awarded for various commitments in energy & environmental conservation.



Energy Conservation



Walk, Bike, Ride



LEED & Living Building Design



**ZERO WASTE:** We will reduce garbage

**Continue to roll out the Recycling program across the region.** The next sites will be Jim Pattison Outpatient Care and Surgery Centre, Peach Arch Hospital, Langley Memorial Hospital and Queen's Park Care Centre.

**Continue to support** the catering vendors and the Business Initiatives and Support Services (BISS) team on the composting initiative.

BISS has developed a **biomedical waste reduction initiative** with a waste reduction target of 10% by April 2014. Funding was granted for a Hazardous Waste Coordinator to implement the program.

**REGENERATIVE DESIGN:** We will improve building efficiency

**All New Construction projects** will ideally be designed and built to LEED Gold standards.

**Evaluate using Perkins Will Precautionary List and the Living Building Challenge's Red List** for all project design.

**HEALTHY LAND & FOOD:** We are healthier with our land & food usage

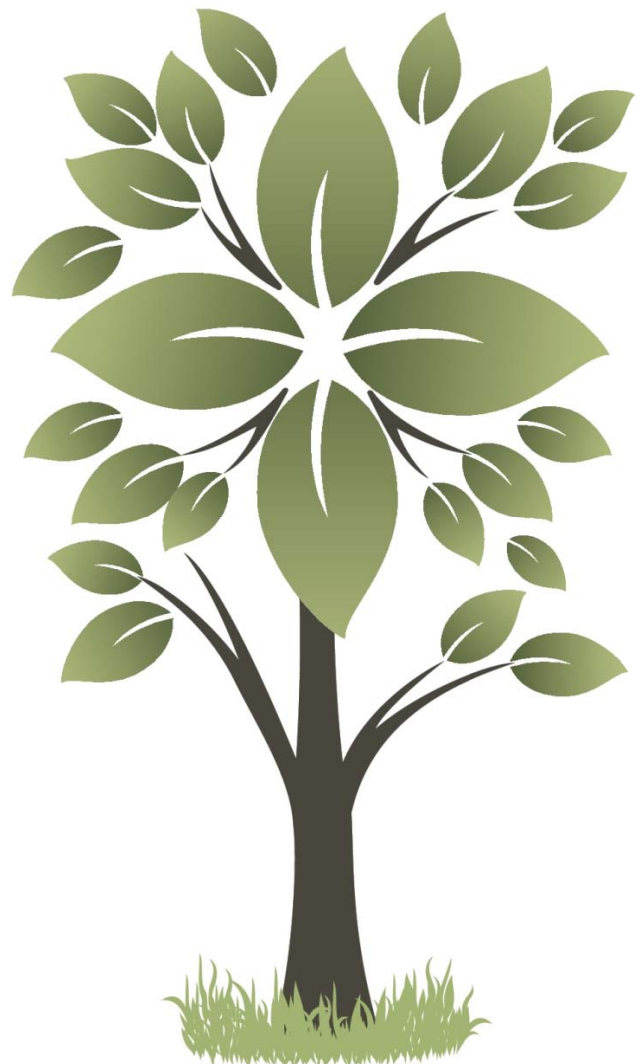
**Pilot 2 community gardens**, and integrate them into health care services with the intention of community engagement and enhanced health care.

**WATER CONSERVATION & RESTORATION:** We will reduce water waste

**Plan and coordinate water use audits** throughout region.

**Complete a full survey for the 'once through' water refrigeration systems** and include financial analysis to determine return on investment and project implementation.

**Rainwater harvesting opportunities** to be identified.



# ASSURANCES AND RESOURCES

## Health Authority Resources

- **Fraser Health**  
<http://www.fraserhealth.ca>
- **Providence Health Care**  
<http://www.providencehealthcare.org>
- **Provincial Health Services Authority**  
<http://www.phsa.ca>
- **Vancouver Coastal Health**  
<http://www.vch.ca/>
- **GreenCare Community**  
[www.bcgreencare.ca](http://www.bcgreencare.ca)

## External Resources

- **LiveSmart BC: 2010 Carbon Neutral Action Reports: Health Authorities**  
[http://www.livesmartbc.ca/government/carbon\\_neutral/health\\_authorities.html](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](http://www.leg.bc.ca/38th3rd/1st_read/gov44-1.htm)
- **Canadian Green Building Council LEED description**  
<http://www.cagbc.org/>
- **ASHRAE 189.1 standard for new buildings and renovations**  
<http://www.ashrae.org/resources-publications/bookstore/standard-189-1>
- **BOMA BEST Environmental Certification**  
<http://www.bomabest.ca/>

## Partner Resources

- **Fortis**  
<http://www.fortisbc.com>
- **BC Hydro**  
<http://www.bchydro.com/>

## Assurances

As part of meeting the Carbon Neutral Government Regulations, all Public Sector Organizations (POS) are now required to annually self-certify, i.e. declare that the data entered into SMARTTool is accurate and complete.

Beginning in 2012, each year a cross section of PSOs will undergo an independent verification process.

In 2011, our Energy and Environmental Sustainability team volunteered for the Climate Action Secretariat's pilot self-certification program.

Feedback from the auditors was good, indicating the Lower Mainland Health Authorities' new process for self-certification is sound.



## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

### Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the Greenhouse Gas Reduction Targets Act.

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Mobile Fuel Combustion (Fleet and other)</b>					
<b>Behaviour change program</b>					
Provide fleet driver training to reduce fuel use	Not Yet Evaluated				No End Date (Continuous)
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Completed (in Previous Year)				No End Date (Continuous)
Encourage carpooling in fleet vehicles	Not Yet Evaluated				No End Date (Continuous)
<b>Vehicle fuel efficiency</b>					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	No new action steps in 2012.	As and when a replacement becomes necessary (a vehicle that is 10 years old and/or not maintainable anymore). Replacing with more fuel efficient model is one of the priorities for selection.	2008	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	No new action steps taken in 2012.	The purchase of a fleet vehicle is initially selected primarily for its use and then fuel efficiency is the next priority. This practice will continue.	2008	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	All fleet vehicles were maintained throughout 2012 as per manufacturers schedule.	Continue to maintain fleet vehicles to ensure fuel efficiency and vehicle life expectancy.	2008	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity</b>					
<b>Behaviour change program</b>					
Help staff reduce personal energy use through "workstation tune-ups"	Not Yet Evaluated				No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	As part of the BC Hydro Workplace Conservation Agreement (WCA), Energy Awareness fairs were organized during 2012 at 5 core FH sites. These fairs included BC Hydro and a focus to "switch off" equipment when not in use.  The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the energy reduction campaign the volunteers were supplied an energy audit tool and form which focused on unplugging and switching off equipment.  Our online Cut the Carbon Community (C3) provides tips and encouragement for staff to unplug and switch off electrical equipment.	Continue to utilise our 3 behaviour programs (WCA, Green + Leaders & Cut the Carbon) to provide education to staff for unplugging and switching off electrical equipment.	2009	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	As part of the BC Hydro Workplace Conservation Agreement (WCA), Energy Awareness fairs were organized during 2012 at 5 core FH sites. These fairs included BC Hydro and a focus to "switch off" equipment when not in use.  The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the energy reduction campaign the volunteers were supplied an energy audit tool and form which focused on unplugging and switching off equipment.  Our online Cut the Carbon Community (C3) provides tips and encouragement for staff to unplug and switch off electrical	Continue to utilise our 3 behaviour programs (WCA, Green + Leaders & Cut the Carbon) to provide education to staff for unplugging and switching off electrical equipment.	2009	No End Date (Continuous)

## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

### Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the Greenhouse Gas Reduction Targets Act.

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		equipment.			
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress	As part of the BC Hydro Workplace Conservation Agreement (WCA), Energy Awareness fairs were organized during 2012 at 5 core FH sites. These fairs included displays and information on heating and cooling demands and how they can be reduced, by closing blinds for example.	Continue to utilise our 3 behaviour programs (WCA, Green + Leaders & Cut the Carbon) to provide education regarding window blinds and their effect on heating/cooling demands.	2009	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress	Tips and information provided on the Cut the Carbon (C3) website.	The new version of the C3 tool will be launched in May 2013 and renamed The GreenCare Community to reflect the evolution from campaign based to project based communication. The site is being redesigned, will use more innovative engagement and behavioural change strategies.	2011	No End Date (Continuous)
Encourage use of stairs instead of elevators	Ongoing/In Progress	A Stairway to Health Challenge was launched. An initiative encouraging everyone to use the stairs more often at work, with the goal of not only savings energy, but to also promote and improve daily physical activity and social connection.	To roll out the initiative across the FH region.	2012	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	As part of the BC Hydro Workplace Conservation Agreement (WCA), Energy Awareness fairs were organized during 2012 at 5 core FH sites. These fairs included BC Hydro and a focus to "switch off" lights.  The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the energy reduction campaign the volunteers were supplied an energy audit tool and form which focused on switching off lights. They were also supplied with "lights off" posters and stickers to use in their departments.  Various stories posted on our online Cut the Carbon Community (C3) site with reminders on the energy conservation benefit to switching off lights.	Continue to utilise our 3 behaviour programs (WCA, Green + Leaders & Cut the Carbon) to provide education to staff for turning off lights.	2009	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress	As part of the BC Hydro Workplace Conservation Agreement (WCA), Energy Awareness fairs were organized during 2012 at 5 core FH sites. These fairs included Fortis BC and a the focus area to reduce hot water use.  Also as part of the BC Hydro WCA, an education workshop was arranged for Facilities Maintenance and Operations (FMO) staff and one of the topics improving was hot water boiler efficiencies.  Our online Cut the Carbon Community (C3) includes content and tips on water conservation (including hot water).	Engage Fortis BC to carry out their Energy Assessments of applicable sites throughout the FH region. This will provide us with a better understanding of our hot water use and how we can promote hot water conservation.  Continue to utilise our 3 behaviour programs (WCA, Green + Leaders & Cut the Carbon) to promote hot water conservation.	2009	No End Date (Continuous)
<b>IT power management</b>					
Install power management software which shuts down computers outside of regular business hours	In Development	No new action steps in 2012.	Under review by Customer Technology & Service department of the Health Shared Services BC (HSSBC).	2012	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	Virtualization of servers within the Lower Mainland Health Authorities is in progress. This will affect 8 FHA core sites with a potential annual	Virtualization project to continue and will hopefully be complete in 2013.	2009	No End Date (Continuous)



## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

<b>Actions Towards Carbon Neutrality</b>					
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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		electrical savings of 1 GWh. An end of year progress report from Health Shared Services BC (HSSBC) indicates that they are 30% complete.			
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	No new action steps in 2012. All monitors have a default auto-sleep setting of 20 minutes.	Under review by Customer Technology & Service department of the Health Shared Services BC (HSSBC).	2009	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices as part of a print management strategy	Ongoing/In Progress	No new action steps in 2012.	A refresh program will be initiated to reduce printers and copiers by Customer Technology & Service department of the Health Shared Services BC (HSSBC).	2008	No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-function devices	Completed (in Reporting Year)	All new devices are equipped with this function.		2008	2012
Replace computers with ENERGY STAR models during regular computer upgrades	Completed (in Previous Year)				No End Date (Continuous)
<b>Leased buildings</b>					
Establish energy performance baseline for leased buildings	In Development	Energy use data for leased buildings (only utility accounts managed by FHA) added to utility management database.	Performance baselines to be discussed with the Lower Mainland Real Estate team.	2011	2014
Lease space with operations and maintenance performance labelling/certification (e.g., LEED EB:O&M)	Ongoing/In Progress	No new action steps in 2012. Two existing buildings (8521 198A Street in Surrey and 520 West 6th Av in Vancouver) are certified level 1 buildings with the Building Owners & Managers Association (BOMA), Building Environmental Standards (BEST).	Due to the high potential cost of leasing space with green certification, this will only be considered if Fraser Health owns the land or has some other equity in the project.	2010	No End Date (Continuous)
Lease space with commercial interiors performance labelling/certification (e.g., LEED CI)	Not Yet Evaluated				No End Date (Continuous)
Lease space in buildings with new construction performance labelling/certification (e.g., LEED NC)	Ongoing/In Progress	No new action steps in 2012.	Due to the high cost, LEED NC leased space will only be considered if Fraser Health owns the land or has some other equity in the project.	2008	No End Date (Continuous)
Develop a green lease policy that requires green features to conserve energy be included in all lease negotiations	Ongoing/In Progress	No policy, but the Tenant Improvement Handbook, created in 2011, is being used by our Real Estate team. This handbook references High Performance Buildings and LEED requirements to help embed energy conservation into facilities planning.	Real Estate will continue to use the Tenant Improvement Handbook for potential retrofit projects in lease buildings and for lease negotiations.	2011	No End Date (Continuous)
<b>Other Stationary Fuel Combustion</b>					
Implementation of a Strategic Energy Management Plan	Ongoing/In Progress	The Strategic Energy Management Plan (SEMP) was updated in 2012, complete with reduction targets until 2020. SEMP approved by BC Hydro and Lower Mainland Facilities Management.	Continue to implement SEMP and carry out planned actions to reduce our energy consumption.	2009	No End Date (Continuous)
Facilities Maintenance and Operations Education Energy Savings Workshops	Ongoing/In Progress	A Spot the Energy Savings Workshop was coordinated with the help from NRCAN and Prism Engineering, aimed specifically at Facilities Maintenance and Operations (FMO) staff within our sites.	Education events for FMO staff to continue.	2012	No End Date (Continuous)
Issue of an Energy & Environmental Sustainability Green Guidelines (Playbook)	Ongoing/In Progress	The Lower Mainland Facilities Management (LMFM) Energy and Environmental Sustainability team created and issued a "Green Playbook" document to provide sustainability principles and guidelines to the all LMFM teams.	To continue to promote and encourage the use of the Green Playbook within LMFM.	2012	No End Date (Continuous)
<b>Owned buildings</b>					
Establish energy performance baseline for owned buildings	Completed (in Previous Year)				No End Date (Continuous)
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	In Development	LEED EB:O&M has not been fully evaluated yet. However, initial discussions have taking place amongst the Lower Mainland Health Authority Energy & Environmental Sustainability team to access and utilise the Energy Star Portfolio Manager tool as hosted by NRCAN.	To add several buildings in the Fraser Health region to the Energy Star Portfolio Manager as a pilot initiative, when the program is launched in Canada in June 2013.	2012	No End Date (Continuous)

## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Register for performance labelling/certification for commercial interiors of owned buildings (e.g., LEED CI)	In Development	No new action steps in 2012. Still waiting for the certification of the LEED CI registered Maternity Ward Renovation at Peace Arch Hospital.	Review funding challenge barriers with the Lower Mainland Facilities Management Strategic Planners and Capital Project Managers.	2009	No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	The Jim Pattison Outpatient Care & Surgery Centre facility in Surrey was Gold Certified in September. The Creekside Withdrawal Management Centre in Surrey was Certified in October.	All New Construction projects will ideally be designed and built to LEED Gold standards. Several completed buildings are awaiting certification. Two new buildings are in construction (Critical Care Tower at Surrey Memorial Hospital and the Complex Care Residential facility at Mission Memorial Hospital) and are both registered with LEED.	2008	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	Various energy retrofits (detailed below) have been carried out in 2012. Resulting in energy savings of 15,777 GJ (4.4 GWh) and GHG savings of 557 tCO <sub>2</sub> e. As these projects were completed at different times during the year, the prorated savings have been estimated as 9,568 GJ (2.7 eGWh) and 329 tCO <sub>2</sub> e.	Energy retrofits to continue as identified through energy studies and inefficient practices.	2008	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Not Yet Evaluated				No End Date (Continuous)
<b>Planning/management</b>					
Reduce office space (square meters) per employee	Ongoing/In Progress	An increase in clinical and office space occurred in 2012 to meet the increasing healthcare demands in an ever increasing populated region.	The Lower Mainland Health Authority Real Estate team will continue to review all leased space and reduce accordingly.	2009	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	Seven gas meters for buildings across the region were added to our Pulse/Energy Management Information System as part of the Fortis BC EnerTracker program.	Continue to add sub-metering as part of planned electrical upgrades, large equipment replacements and general building/area upgrades, subject to funding availability.	2008	No End Date (Continuous)
<b>Retrofit details for owned buildings</b>					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	Boiler replaced with condensing type in the Charles Barnham Pavilion and the domestic hot water system was upgraded to a gas fired instantaneous system at Surrey Memorial Hospital.  Solar Hot water system, complete electric hot water tanks, installed to replace an inefficient gas fired system at Queens Park Care Centre.  Condensate recovery system installed, to utilise the return condensate from the steam distribution system at Ridge Meadows Hospital.  Various ventilation upgrades started in 2011 were fully completed in 2012 at Chilliwack General, Eagle Ridge, Langley Memorial & Mission Memorial Hospitals.	Boiler damper controls and isolation strategies to be installed for the boiler plant at Peace Arch Hospital.  Various HVAC upgrades, currently in progress, will be complete at Royal Columbian, Burnaby and Delta Hospitals, as part of the BC Hydro Continuous Optimization program (COp).  Various HVAC upgrades will be identified as part of the COp, at Chilliwack General, Ridge Meadows and Fraser Canyon Hospitals, plus three Care/Residential facilities.	2008	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	Major lighting retrofit started at Langley Memorial Hospital. The 3 Extended Care Buildings were complete as part of the first phase and Acute building (phase 2) is in progress.  Seven minor lighting retrofits carried out at various locations as part of the BC Hydro Power Smart Express program, including	Complete the retrofit at Langley Memorial Hospital, including the external parking lots.  Minor lighting retrofit to be completed at Burnaby Hospital, including the upgrade of the remaining T12 fluorescents light fixtures to T8.	2008	No End Date (Continuous)

## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		<p>fluorescent upgrades, CFL and LED conversions.</p> <p>External lighting study completed at Peace Arch Hospital.</p>	<p>Continue to work with the Facilities Maintenance &amp; Operations electrical teams to identify lighting retrofit opportunities.</p> <p>Start developing a Lighting Strategy and Standard document to enforce the use of energy efficiency solutions related to lighting upgrades in the Lower Mainland Health facilities.</p>		
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	<p>Major controls retrofit/replacement completed at Eagle Ridge and Mission Memorial Hospitals.</p> <p>Controls adjustments &amp; minor changes implemented at Langley Memorial Hospital as part of the BC Hydro Continuous Optimization program (COp).</p> <p>Control upgrades and adjustment in progress at Burnaby, Delta and Royal Columbian Hospitals as part of the BC Hydro COp.</p>	<p>Control upgrades and adjustment to be completed at Burnaby, Delta and Royal Columbian Hospitals as part of the BC Hydro COp.</p> <p>BC Hydro COp investigation studies to be completed at 5 sites and implementation of the approved energy conservation measures will commence.</p> <p>Working with a specialist vendor to implement a Fault Diagnostic Detection software tool at Mission Memorial Hospital as a pilot project.</p>	2008	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	<p>The building envelope was improved at the Timber Creek building as part of the BC Hydro new Construction program. The thermal rating of the insulation was increased for the roof and walls and the windows were upgraded to low-e windows.</p> <p>Quotations obtained for building performance envelope assessments to be carried out at several sites.</p>	<p>Funding to be identified to enable building performance envelope assessments to be carried out across the region.</p>	2008	No End Date (Continuous)
<b>Supplies (Paper)</b>					
<b>Behaviour change program</b>					
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress	<p>A standard service support guideline is available on the FH Intranet.</p>	<p>Practise to continue.</p>	2008	No End Date (Continuous)
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress	<p>The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the paper/waste reduction campaign the volunteers were supplied with Paperless Meeting toolkit.</p> <p>Our online Cut the Carbon Community (C3) site includes content and provides tips on promoting paperless meetings.</p>	<p>Continue to utilise our 2 behaviour programs (Green + Leaders &amp; Cut the Carbon) to provide education regarding paperless meetings.</p>	2008	No End Date (Continuous)
<b>Electronic media in place of paper</b>					
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Completed (in Previous Year)				No End Date (Continuous)
Use electronic document library for filing common documents	Completed (in Previous Year)				No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Completed (in Previous Year)				No End Date (Continuous)
<b>Paper Type</b>					
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	<p>No new positive action steps in 2012, but there was a change in the</p>	<p>HSSBC are looking to renegotiate a new contract and provide the</p>	2008	No End Date

## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

### Actions Towards Carbon Neutrality

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
	Progress	reporting process from Health Shared Service BC (HSSBC). They provided reports based upon distribution (use) from their central warehouse rather than bulk warehouse purchasing from the vendor/s.	option for employees to buy direct from the approved vendor. This new suggested process may finally allow the Lower Mainland Energy and Environment Sustainability team to promote the purchasing of recycled paper.		(Continuous)
Purchase 40% post-consumer recycled paper	Ongoing/In Progress	No new positive action steps in 2012, but there was a change in the reporting process from Health Shared Service BC (HSSBC). They provided reports based upon distribution (use) from their central warehouse rather than bulk warehouse purchasing from the vendor/s.	HSSBC are looking to renegotiate a new contract and provide the option for employees to buy direct from the approved vendor. This new suggested process may finally allow the Lower Mainland Energy and Environment Sustainability team to promote the purchasing of recycled paper.	2008	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	No new positive action steps in 2012, but there was a change in the reporting process from Health Shared Service BC (HSSBC). They provided reports based upon distribution (use) from their central warehouse rather than bulk warehouse purchasing from the vendor/s.	HSSBC are looking to renegotiate a new contract and provide the option for employees to buy direct from the approved vendor. This new suggested process may finally allow the Lower Mainland Energy and Environment Sustainability team to promote the purchasing of recycled paper.	2008	No End Date (Continuous)
<b>Printer/document settings</b>					
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	All new printers and photocopies rolled out in 2012 were defaulted to double sided printing, unless they were for clerical form printing.	Practise to continue as part of the IT roll out program.	2008	No End Date (Continuous)

## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

### Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the Greenhouse Gas Reduction Targets Act. Public sector

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Business Travel</b>					
<b>Behaviour change program</b>					
Train staff in web-conferencing	Completed (in Previous Year)				No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress	<p>Greencare Fairs were organised and held at several large sites, including representation from Translink (Travel Smart).</p> <p>The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the Sustainable Transportation campaign the volunteers were provided with a number of tools to encourage alternative transportation, including virtual attendance, for work related events.</p>	The G+L will continue to promote and encourage this behaviour change.	2008	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress	<p>Greencare Fairs were organised and held at several large sites, including representation from Translink (Travel Smart).</p> <p>The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the Sustainable Transportation campaign the volunteers were provided with a number of tools to encourage alternative transportation, such as carpooling, for meetings.</p>	The G+L will continue to promote and encourage this behaviour change.	2008	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress	<p>Greencare Fairs were organised and held at several large sites, including representation from Translink (Travel Smart).</p> <p>The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the Sustainable Transportation campaign the volunteers were provided with a number of tools to encourage alternative transportation, such as biking and public transit, for meetings.</p> <p>The online Cut the Carbon (C3) ran a second Clean Commuter Challenge event. The concept was to challenge Health Authority employees out of single-occupancy vehicles and into public transit, carpools or other forms of more sustainable commuting like biking or walking. The outcome was very successful, and participation was up by 200% compared to 2011.</p>	<p>Continue to utilise our 2 behaviour programs (Green + Leaders &amp; Cut the Carbon) to provide education regarding alternative transportation.</p> <p>The Clean Commuter Challenge will continue in 2013 and 2014.</p>	2008	No End Date (Continuous)
<b>Other Business Travel Actions</b>					
Employ a dedicated Travel Demand Coordinator	Ongoing/In Progress	A regional Travel Demand Coordinator was employed in fall of 2012, to improve the travel options from site to site with a focus to promote alternative transportation solutions.	The Coordinator will work closely with the Lower Mainland Energy and Environment Sustainability team to continue working towards our alternative transportation objectives.	2011	No End Date (Continuous)
Provide electric car charging stations	In Development	Planning discussions initiated to install 4 dedicated electric car park charging stations/spaces at Royal Columbian, Burnaby and Ridge Meadows Hospital.	Installation of the 4 dedicated electric car park charging stations/spaces will be completed by March 2013. Other sites to be reviewed.	2012	No End Date (Continuous)
<b>Policy and budgeting</b>					
Create a low-carbon travel policy or travel reduction goal	In Development	Active Transportation is one of the focus topics for the Lower Mainland Facilities Management Energy & Environmental	To implement Active Transportation and continue to engage internal and external key stakeholders.	2012	No End Date (Continuous)

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### Actions to Reduce Provincial Emissions and Improve Sustainability

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		<p>Sustainability (EES) team. A draft GreenCare Strategic Framework has being developed, including the following travel reduction targets:</p> <ol style="list-style-type: none"> <li>25% of the staff will use active transportation to commute to work (minimum of 2 days per week) by 2020.</li> <li>Increase the number of staff who bicycle to work by 2% per annum.</li> <li>Increase the number of staff that sign up for a transit pass by 2% per annum.</li> </ol>			
<b>Virtual meeting technology</b>					
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Completed (in Previous Year)				No End Date (Continuous)
Make desktop web-cameras available to staff	Ongoing/In Progress	As part of the IT refresh roll out in 2011 & 2012 all new Lenovo monitors and laptops have cameras built in.	The IT refresh roll out is a phased program and by 2014 all desktops and laptops will have web cameras.	2011	2014
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Completed (in Previous Year)				No End Date (Continuous)
<b>Education, Awareness, and Engagement</b>					
<b>Awards/Recognition</b>					
Establish a sustainability/green awards or recognition program	Ongoing/In Progress	Annual recognition events are incorporated as part of the Green + Leaders program.	Practise to continue	2011	No End Date (Continuous)
<b>Staff Professional Development</b>					
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress	<p>A Spot the Energy Savings Workshop was coordinated with the help from NRCan and Prism Engineering, aimed specifically at Facilities Maintenance and Operations (FMO) staff within our sites.</p> <p>Training was provided to the Green + Leaders (G+L) and various green education sessions were carried out for the G+L volunteers.</p> <p>The FH Energy Manager achieved the Association of Energy Engineers Certified Energy Manager designation.</p> <p>The FH Energy Coordinator attended a Lighting Workshop dedicated to Healthcare facilities.</p>	<p>The Energy and Environment Sustainability team will continue to work with the Lower Mainland Facilities Management (LMFM) teams to identify training needs.</p> <p>The LMFM has identified the need for Professional Development (PD) within Facilities Management and there is a dedicated team who will be promoting PD opportunities.</p>	2008	No End Date (Continuous)
Include green options in employee performance measurement system	Not Yet Evaluated				No End Date (Continuous)
<b>Staff awareness/education</b>					
Provide education to staff about the science of climate change	In Development	<p>Brief overview of climate change was presented to the Green + Leaders as part of the Energy Reduction launch campaign.</p> <p>As part of the Green + Leaders education sessions a guest speaker from Greenpeace (Bill Darnell - founding member) provided education on the the founding of Greenpeace and how it relates to our work in healthcare today.</p>	The G+L coordinator will continue to schedule education events for the G+L volunteers.	2012	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress	As part of the BC Hydro Workplace Conservation Agreement (WCA), Energy Awareness GreenCare fairs were organized during 2012 at 5 core FH sites.  The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. They were provided with education on energy and waste reduction.  The online Cut the Carbon Community (C3), launched in 2011, continued to provide education on conservation of energy, water and raw materials. Over 100 online community discussions were initiated around the subject of conservation and great resources were shared.	Continue to utilise our 3 behaviour programs (WCA, Green + Leaders & Cut the Carbon) to provide education on conservation.	2009	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress	The Green + Leaders (G+L) coordinator issues monthly electronic newsletters, including green tips, to all G+L.  The online Cut the Carbon Community (C3) site included tips and community discussion around environmental sustainability and energy conservation.	Continue to utilise our 2 behaviour programs (Green + Leaders & Cut the Carbon) to provide green tips in newsletters and websites.	2011	No End Date (Continuous)
Provide sustainability education during new staff orientation	In Development	Discussions took place between the Lower Mainland Facilities Management Sustainability Manager and the VP of Human Resources. A power point presentation has been created to provide sustainability education as part of the staff orientation process.	To continue the discussions with Human Resources and hopefully introduce the presentation for future staff orientation sessions.	2012	No End Date (Continuous)
<b>Team-building</b>					
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	The Green + Leaders (G+L) program recruited 34 more volunteers in 2012 to run behaviour change campaigns including Paper/Waste Reduction, Energy Reduction and Sustainable Transportation. This volunteer program is endorsed by the executive team and is the main behaviour change mechanism for the Lower Mainland Facilities Management Energy and Environment Sustainability team.	Practise to continue with the aim to recruit more G+L dedicated to FH sites.	2010	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	Existing resources already in place as part of the Lower Mainland Facilities Management Energy and Environmental Sustainability team. The team Green + Leader (G+L) Coordinator provides dedicated support to G+L volunteers.	Practise to continue.	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress	The Green + Leaders program, which was rolled out in 2011, provides training on Community-Based Social Marketing (CBSM) and CBSM is integrated into its tools.	Practise to continue.	2011	No End Date (Continuous)
<b>Other Sustainability Actions</b>					
<b>Adaptation to Climate Change</b>					
Assessed whether extreme weather events and/or long term changes in climate will affect the organization's business areas	Not Yet Evaluated				No End Date (Continuous)
Integrated considerations of extreme weather events and/or long term changes in climate into the organization's decision making.	Not Yet Evaluated				No End Date (Continuous)
<b>Building construction, renovation</b>					
Establish a policy to reuse materials where possible and divert	Ongoing/In Progress	The Lower Mainland Facilities Management (LMFM) Energy and	To work with the Capital Projects team to ensure that they are	2012	No End Date

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
construction and demolition debris from landfills and incineration facilities	Progress	Environmental Sustainability (EES) team created and issued a "Green Playbook" document to provide sustainability principles and guidelines to the LMF teams. Included within this document was our commitment to the Metro Vancouver Zero Waste Challenge and the recycling of construction and demolition waste.  Zero Waste is also one of the key focus topics for the GreenCare Strategic Framework.	meeting our requirement of the recycling of construction and demolition waste.		(Continuous)
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress	Lifecycle costing incorporated on new projects in 2012 on an ad hoc basis.	Practise to continue for future projects.	2010	No End Date (Continuous)
<b>Commuting to and from home</b>					
Introduce telework/work from home policy	In Development	No new action steps in 2012.	This initiative is still being investigated.	2010	No End Date (Continuous)
Offer staff a compressed work week	Not Yet Evaluated				No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress	Greencare Fairs were organised and held at several large sites, including representation from Translink (Travel Smart).  The Green + Leaders (G+L) behaviour change program recruited 34 more volunteers in the fall of 2012. As part of the Sustainable Transportation campaign the volunteers were provided with a number of tools to encourage alternative transportation, such as biking and public transit, for meetings.  The online Cut the Carbon (C3) ran a second Clean Commuter Challenge event following the success in 2011. The concept was to challenge Health Authority employees out of single-occupancy vehicles and into public transit, carpools or other forms of more sustainable commuting like biking or walking. The outcome was very successful, and participation was up by 200% compared to 2011.	The G+L will continue to promote and encourage this behaviour change.  The Clean Commuter Challenge will continue in 2013 and 2014.	2008	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Completed (in Previous Year)				No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress	No new action steps in 2012.	Plans to install new bike cages at Langley Memorial Hospital and Queens Park Care Centre.	2008	No End Date (Continuous)
<b>Other Sustainability Actions</b>					
Conduct a repeat of the Environmental Survey previously conducted in 2010.	Ongoing/In Progress	A repeat of the "You and Environmental" Survey was sent out to employees in the fall of 2012.	Results of the survey to be analysed to help with future Sustainability Reporting and Framework.	2010	No End Date (Continuous)
Development of a GreenCare Strategic Framework	In Development	The Lower Mainland Facilities Management Energy & Environmental Sustainability team have created a draft GreenCare Strategic Framework, including the following focus topics: - Culture of Stewardship - Energy Conservation & Climate Neutral - Zero Waste - Active Transportation - Regenerative Design - Water Conservation & Restoration	To finalise the GreenCare Strategic Framework with endorsement from Senior Executives and the Environment Sustainability Advisory Committee.	2012	No End Date (Continuous)



## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

### Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the Greenhouse Gas Reduction Targets Act. Public sector

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		<ul style="list-style-type: none"> <li>- Sustainable Procurement</li> <li>- Zero toxicity</li> <li>- Healthy Land and Food</li> </ul>			
To create and implement Environmental Sustainability Reporting	In Development	The Lower Mainland Environmental Sustainability Manager has carried out research and started working on an Environmental Sustainability Report.	Finalise the report in 2013 and obtain endorsement from Senior Executives.	2012	No End Date (Continuous)
Redevelopment of the Cut the Carbon (C3) website	Ongoing/In Progress	The existing Cut the Carbon (C3) website was evaluated and reviewed with the intention to improve the features.	The new version of the C3 tool will be launched in May 2013 and renamed The GreenCare Community to reflect the evolution from campaign based to project based communication. The site is being redesigned, will use more innovative engagement and behavioural change strategies.	2011	No End Date (Continuous)
<b>Procurement (non-paper supplies)</b>					
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	In Development	Zero Waste and Sustainable Procurement are two of the focus topics for the Lower Mainland Facilities Management Energy & Environmental Sustainability (EES) team. A draft GreenCare Strategic Framework has been created, including goals and targets for both these focus areas.	Engage the Procurement team from Health Shared Services BC (HSSBC) and implement a sustainability procurement program.	2012	No End Date (Continuous)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	In Development	Zero Waste and Sustainable Procurement are two of the focus topics for the Lower Mainland Facilities Management Energy & Environmental Sustainability (EES) team. A draft GreenCare Strategic Framework has been created, including goals and targets for both these focus areas.	Engage the Procurement team from Health Shared Services BC (HSSBC) and implement a sustainability procurement program.	2012	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress	No new action steps in 2012.	Purchasing practices to be reviewed regularly and new green products added where available, pending approval for use in healthcare facilities by Infection Control authorities.	2008	No End Date (Continuous)
<b>Waste reduction/diversion</b>					
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress	<p>Zero Waste is one of the focus topics for the Lower Mainland Facilities Management Energy &amp; Environmental Sustainability (EES) team. A draft GreenCare Strategic Framework has been created with a target to reduce waste to landfill/increase waste diversion by 35% by 2012.</p> <p>The roll out of the Recycling Program continued at Surrey Memorial Hospital, Czorny Alzheimer Centre and Fleetwood Care facility.</p> <p>Pre recycling waste audits were completed at Jim Pattison Outpatient Care and Surgery Centre and Surrey Memorial Hospital. Post recycling waste audits were completed at Burnaby Hospital and Surrey Memorial Hospital.</p> <p>The Green + Leaders program launched a new tool to get rid of bottled water.</p> <p>Composting of food waste has been rolled all FHA core sites with kitchens, except Fraser Canyon Hospital.</p>	<p>The Zero Waste strategy, including a 50% diversion target by 2014, to be endorsed by the Senior Executive.</p> <p>Continue to roll out the Recycling program across the region. The next sites will be Jim Pattison Outpatient Care and Surgery Centre, Peach Arch Hospital, Langley Memorial Hospital and Queen's Park Care Centre.</p> <p>Continue to support the catering vendors and the Business Initiatives and Support Services team on the composting initiative.</p>	2009	No End Date (Continuous)

## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress	<p>For biomedical waste, Stericycle were engaged by the Business Initiatives and Support Services (BISS) team to carry out audits in several facilities. They also carried out some ad-hoc education and developed standardized waste segregation signage.</p> <p>The Energy and Environmental Sustainability (EES) team created and issued a "Green Playbook" document to provide sustainability principles and guidelines to the Lower Mainland Facilities Management (LMFM) teams. Included within this document was our commitment to the Metro Vancouver Zero Waste Challenge and the identification of hazardous waste materials.</p>	<p>BISS has developed a biomedical waste reduction initiative with a waste reduction target of 10% by April 2014. Funding was granted for a Hazardous Waste Coordinator to implement the program.</p> <p>The EES and BISS team will conduct a needs assessment regarding hazardous waste priorities.</p>	2008	No End Date (Continuous)
<b>Water conservation</b>					
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress	<p>Water Conservation is one of the focus topics for the Lower Mainland Facilities Management Energy &amp; Environmental Sustainability (EES) team. A draft GreenCare Strategic Framework has been created, including the following goals and targets:</p> <ol style="list-style-type: none"> <li>10% reduction in water use by 2020 (based on 2010 baseline).</li> <li>10 new rainwater harvesting projects implemented by 2020.</li> <li>4 new grey water reuse projects implemented by 2020.</li> </ol> <p>One of the priority actions to achieve these targets is to upgrade/replace water fixtures.</p>	Plan and coordinate water use audits throughout region.	2011	No End Date (Continuous)
Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features	Ongoing/In Progress	<p>Water Conservation is one of the focus topics for the Lower Mainland Facilities Management Energy &amp; Environmental Sustainability (EES) team. A draft GreenCare Strategic Framework has been created, including the following goals and targets:</p> <ol style="list-style-type: none"> <li>10% reduction in water use by 2020 (based on 2010 baseline).</li> <li>10 new rainwater harvesting projects implemented by 2020.</li> <li>4 new grey water reuse projects implemented by 2020.</li> </ol> <p>One of the priority actions to achieve these targets is to upgrade/replace heavy water use equipment.</p> <p>A pre-survey was carried out across the region to determine the quantity and condition of 'once through' water refrigeration systems. This led to replacement of such a system at Delta Hospital.</p>	Complete a full survey for the 'once through' water refrigeration systems and include financial analysis to determine return on investment and project implementation.	2011	No End Date (Continuous)
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress	Water Conservation is one of the focus topics for the Lower Mainland Facilities Management Energy & Environmental	Rainwater harvesting opportunities to be identified.	2011	No End Date (Continuous)

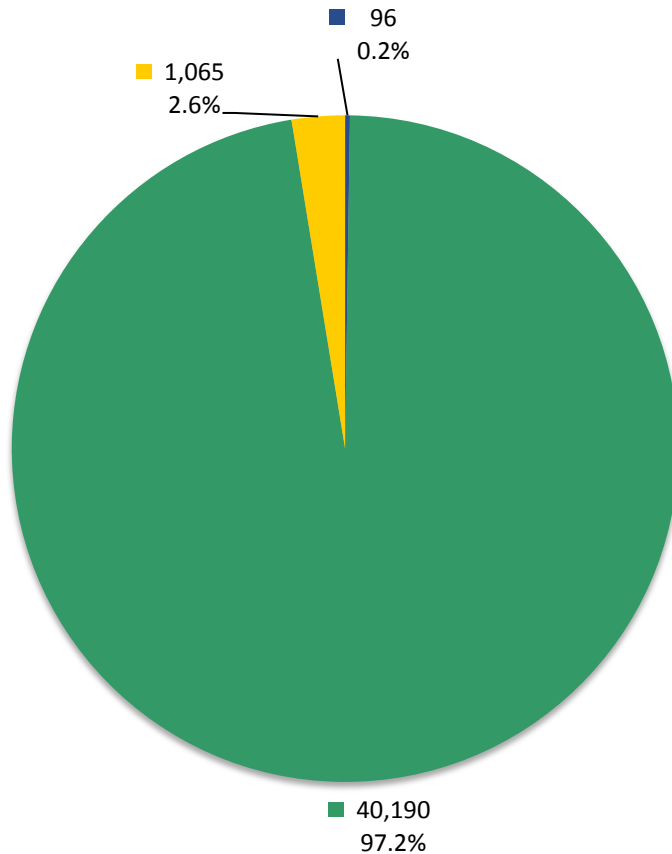
## Fraser Health Authority (FHA) - 2012 Carbon Neutral Action Report

### Actions to Reduce Provincial Emissions and Improve Sustainability

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		<p>Sustainability (EES) team. A draft GreenCare Strategic Framework has being created, including the following goals and targets:</p> <ol style="list-style-type: none"><li>1. 10% reduction in water use by 2020 (based on 2010 baseline).</li><li>2. 10 new rainwater harvesting projects implemented by 2020.</li><li>3. 4 new grey water reuse projects implemented by 2020.</li></ol> <p>One of the priority actions to achieve these targets is to utilise rainwater harvesting.</p>			

**Fraser Health Authority  
Greenhouse Gas Emissions by Source  
for the 2012 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 41,352**

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

**Offsets Applied to Become Carbon Neutral in 2012 (Generated May 27, 2013 11:01 AM)**

Total offsets required: **41,340**. Total offset investment: **\$1,033,500**. Emissions which do not require offsets: **11** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

\*\* Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.