

# BC Housing 2012 Carbon Neutral Action Report



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Photos from cover:  
Skwachàys Healing Lodge in Vancouver  
Rock Bay Landing, LEED Gold in Victoria

# Executive Summary

## Our Mandate

BC Housing develops, manages, and administers a wide range of subsidized housing options across the province. We partner with private and non-profit housing providers, other levels of government, health authorities, and community groups to provide affordable housing for British Columbians in greatest need.

BC Housing also helps bring about improvements in the quality of residential construction and helps strengthen consumer protection for buyers of new homes. Through our responsibilities under the *Homeowner Protection Act*, we also play an important role in homeownership by licensing residential builders, administering owner-builder authorizations, overseeing the third-party home warranty insurance system, and carrying out research and education to improve the quality of residential construction in British Columbia.

Many of our initiatives over the past five years have focussed on providing new affordable housing in combination with support services to help vulnerable people maintain successful tenancies, lead healthier lives and participate more fully in their communities. We directly manage more than 7,100 public housing units and approximately 58,000 units are managed through our partnerships with over 800 housing providers, mostly non-profit societies. BC Housing owns or leases more than 1,500 buildings including group homes, single room occupancy hotels, and other types of non-profit housing.

## Commitment to Sustainability

BC Housing is at the forefront of energy conservation among public housing providers in North America. In 2012 we saw significant reductions in energy use in our buildings, driven primarily by efficiencies gained in our directly managed portfolio, where we used 25 per cent less energy in 2012 than we did in our baseline year of 2005. Our new buildings are significantly more energy efficient with lower GHG emissions.

Our commitment to sustainability goes beyond our own building stock. In partnership with BC Non-Profit Housing Association and BC Hydro we have developed the Energy Efficiency Retrofit Program funding small scale energy retrofits for non-profit housing providers.

In addition to our focus on energy conservation, BC Housing has made a broader commitment to sustainability. Last year 'leadership in sustainability' was identified as a one of six strategic priorities in our Service Plan. Key strategies include:

1. Carrying out sustainable asset planning and implementation for the maintenance, capital improvement, redevelopment and energy management of the public housing stock;
2. Implementing initiatives through our *livegreen* Housing Sustainability Plan to promote environmental sustainability in our work and more broadly within the housing sector; and
3. Expanding our approach to sustainability to leverage both environmental and social benefits to create a more deliberate and holistic approach to corporate social responsibility.

## Executive Summary *(continued)*

In 2008 we set ambitious targets for our greenhouse gas emission reductions, and are committed to communicating and reporting on our progress in our Annual Report, *livegreen* plan, as well as this report.

### Key Achievements

BC Housing's major opportunity for leadership in sustainability lies in the area where we have the greatest environmental impact – in our large and diverse housing portfolio.

In the last few years, we have undertaken a number of initiatives to reduce our greenhouse gas emissions. Over 75 per cent of our building portfolio has undergone building envelope renovations and/or energy retrofits. This and other work has led to a 22 per cent reduction in greenhouse gas (GHG) emissions in 2012, compared to 2005, and annual utility cost savings of almost \$2 million.

Energy efficiency has also been a focus in new construction. Together with our non-profit housing partners, we have over 40 buildings registered with the Canadian Green Building Council (CaGBC), including some of the first LEED Gold buildings in northern B.C.

We are also seeking a higher level of engagement in sustainability and energy conservation with our public housing tenants and have provided training materials and a toolkit for non-profit housing providers and community partners. This work will continue in 2013/14 with a broader goal to garner greater utility savings and reduced GHG emissions, and increased tenant satisfaction based on their collaborative efforts to improve sustainability in their housing development.

Sincerely,



**Dan Maxwell**

*VP Corporate Services & Chief Financial Officer*

April 30, 2013

# 2012 Greenhouse Gas Emissions

## BC HOUSING'S 2012 GHG EMISSIONS BY SOURCE

EMISSION SOURCE	GHG EMISSIONS (TONNES OF CO <sub>2</sub> e)	2012 RESULTS COMPARED TO THE BASELINE	2012 RESULTS COMPARED TO 2011
<b>Buildings</b> (Stationary Combustion)	<b>25,785</b>	<b>22% Decrease</b> (2005 Baseline)	<b>5% Decrease</b>
Fleet & Maintenance equipment (Mobile Combustion)	279	53% Increase (2010 Baseline)	55% Increase
Paper (Supplies)	32	41% Decrease (2005 Baseline)	23% Increase
Total	26,096		

In 2012 our total GHG emissions were 26,096 tonnes of CO<sub>2</sub> equivalent. The most significant emission source is energy used in our buildings for heating space and water, and electricity.

The 22 per cent decrease in emissions from our housing stock (Buildings / Stationary Combustion in the table above) can be attributed to extensive building upgrades and energy retrofits in over 100 buildings, as well as increased energy efficiency in new buildings.

The increase in emissions related to our fleet is due to an increase in the number of vehicles, as well as the addition of two mobile bed bug heat treatment trailers.

In 2012 we maintained significant emission reductions related to paper use compared to 2005, but increased our overall paper use and emissions compared to 2011.

Stationary fugitive emissions from air conditioning at BC Housing's offices do not comprise more than 0.01 per cent of total emissions and have been deemed out-of-scope and are not included in BC Housing's total greenhouse gas emissions profile.

# Offsets Applied to Become Carbon Neutral in 2012

BC Housing purchased carbon offsets from the Pacific Carbon Trust for the equivalent of 26,021 tonnes of CO<sub>2</sub>e to obtain carbon neutral status for 2012.

Seventy-five tonnes of CO<sub>2</sub>e emissions from the combustion of biomass and biomass-based fuels were reported as part of our greenhouse gas emissions profile in 2012. However, while CO<sub>2</sub>e emissions from these sources must be reported, they do not require offsets.

## **CHANGES TO GREENHOUSE GAS EMISSIONS AND OFFSETS REPORTING FROM PREVIOUS YEARS**

We reported 27,244 tonnes of CO<sub>2</sub>e emissions in 2011. Following the release of BC Housing's 2011 Carbon Neutral Action Report, it was determined that the total emissions were under reported by 257 tonnes and that the required offsets were under reported by 256 tonnes. The difference in required offsets has been purchased and applied against our 2013 emissions.

# Actions Taken to Reduce Greenhouse Gas Emissions in 2012

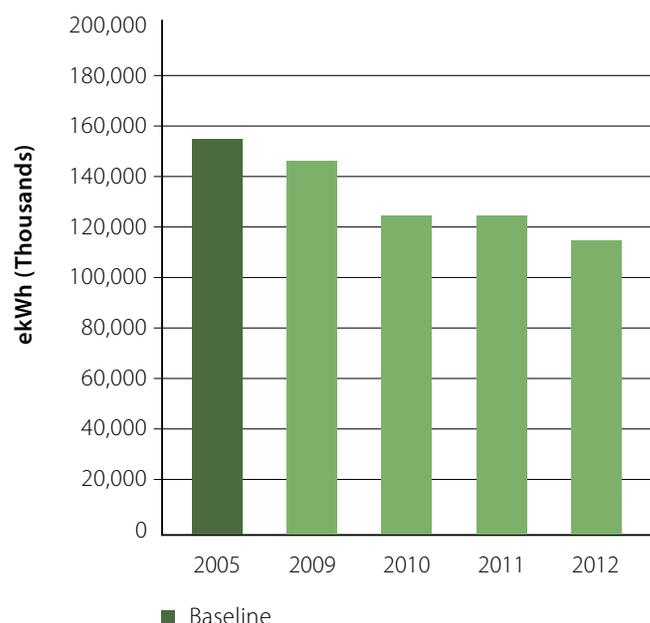
## BUILDINGS

BC Housing's building portfolio includes more than 1,500 buildings made up of mainly multi-unit residential buildings comprising more than 1,014,000 square meters. Some of the buildings that we own or lease are managed directly by BC Housing, while others are operated by our non-profit housing partners in about 200 communities across the province.

In 2012 we added 24 development sites to our property portfolio through new construction or the purchase of buildings, as well as site redevelopments comprising 26 buildings, with 742 individual housing units, covering 46,000 square meters. We also transferred 75 single family homes to the Aboriginal Housing Management Association and divested seven buildings that included 54 units and 3,600 square meters.

Energy for heating and electricity is the primary source for housing related greenhouse gas emissions. Our directly managed buildings represent 60 per cent of the total floor area of all the buildings owned or leased by BC Housing. In the last few years a number of energy reduction measures within this portfolio have lead to a 25 per cent reduction in energy use in 2012, and a corresponding 32 per cent reduction in GHG emissions and a 24 per cent reduction in utility costs<sup>1</sup>. Energy savings within these buildings had a significant impact on our overall level of emissions.

### Annual Energy Consumption – Directly Managed Buildings



### BUILDINGS – GHG RESULTS

In 2012 total GHG emissions related to energy use for heating and electricity in all buildings owned or leased by BC Housing was 25,718 tonnes of CO<sub>2</sub>e. This represented a 22 per cent reduction from the 2005, exceeding our Service Plan target of 10 per cent despite an increase in the size of the portfolio. Since 2005 total floor area has increased by over 13 per cent. Most of the new housing is managed by non-profit providers.

<sup>1</sup> All reductions are measured against 2005 baseline.

## Actions Taken to Reduce Greenhouse Gas Emissions in 2012 *(continued)*

### GHG RESULTS FOR BUILDINGS

BUILDINGS	CHANGE IN ABSOLUTE GHG EMISSIONS IN 2012 (AGAINST 2005 BASELINE)	POSITIVE OR NEGATIVE TREND	CHANGE IN GHG EMISSIONS IN 2012 PER FLOOR AREA (AGAINST 2005 BASELINE)	POSITIVE OR NEGATIVE TREND
Directly Managed	- 32 %	Positive	- 31%	Positive
Non-directly Managed	0.3 %	Negative	- 30%	Positive
Offices	16 %	Negative	- 9%	Positive
All Buildings	- 22%	Positive	- 30%	Positive

The emission reductions can be attributed to the multi-year building upgrades and energy retrofits conducted under the Housing Renovation Partnership program mainly within the directly managed portfolio, and high energy efficiency standards of our new buildings. The retrofit work included upgrades to heating and lighting systems, window replacements and building envelope repairs.

It is important to note that while the absolute emissions for the non-profit operated sites show a similar level to 2005 (a 0.3 per cent increase), the floor area of the portfolio increased by 44 per cent, while the emissions per floor area decreased by 30 per cent due to the energy efficiency of new social housing.

The results are based on absolute emissions and have not been corrected for the impact of weather conditions. However, with additional analysis we determined that 2012 was a colder year than our baseline year 2005, and warmer than the previous year. The impact of weather on our results is estimated to be in the range of four to six per cent.

The section below describes actions taken by BC Housing to reduce our greenhouse gas emissions in such areas as: energy conservation programs, training and education, staff resources, and standards and tools.

### ENERGY CONSERVATION PROGRAMS FOR BUILDINGS

- Implemented the Energy Conservation Assistance Program with BC Hydro and Fortis BC for all group homes across the province. Group homes account for only four per cent of the building portfolio, but create eight per cent of our overall GHG emissions. Through this program approximately 193 tonnes of CO<sub>2</sub>e were eliminated last year compared with the previous year.

## Actions Taken to Reduce Greenhouse Gas Emissions in 2012 *(continued)*

- Launched the Energy Efficiency Retrofit Program in partnership with BC Non-Profit Association and BC Hydro. The program aims to help non-profit housing providers make energy upgrades to enhance tenant comfort and safety, realize energy savings, and reduce greenhouse gas emissions. It builds on the BC Hydro Power Smart Partner Express program and provides funds for housing providers to complete small scale energy retrofits on items such as light fixtures.
- Launched the Single Room Occupancy Renewal Initiative with the Habitat Housing consortium to upgrade 13 single room occupancy hotels over the next several years by improving amenities such as heat and hot water availability; restoring the heritage appearance of the buildings; and ensuring the properties continue to provide safe, affordable homes for those in need for many decades to come. This project is expected to contribute greatly to our GHG reduction targets in the years ahead.

### ENERGY STANDARDS AND TOOLS

- Participated in BC Hydro's new construction ENERGY STAR appliance program, which promotes energy savings through the incentivized purchase of ENERGY STAR-rated refrigerators, dishwashers, exhaust fans, lights and clothes washers.
- Developed guidelines to assist staff with budgeting and project management for renovations and HVAC upgrade projects to enhance GHG reductions, increase the energy performance and tenant comfort.
- Developed and implemented tools to make the purchase and maintenance of the most widely used appliances and equipment more cost-effective and easier by providing specification documents with links to make and model information based on ENERGY STAR, Fortis BC and NRCan ratings.

### ENERGY CONSERVATION TRAINING AND EDUCATION

- Initiated the Building Operations Training program for public and non-profit housing providers jointly with the BC Non-Profit Housing Association. The work included developing program goals that foster an energy management culture among building operations staff, build capacity, enhance energy and greenhouse gas savings, promote tenant engagement, and identify specific training needs through surveys and focus groups.
- Delivered 26 Building Smart seminars in 23 communities, 2012 Code Changes: Safety, Efficiency and Sustainability. The seminar highlighted key changes to Part 9 of the BC Building Code and the Vancouver Building By-law. More than 1,800 professionals involved in residential construction attended to learn about the impact the new requirements will have on construction practices.
- Organized a half day window installation conference on building enclosure and window installation requirements for thermal performance in new and retrofit buildings. Key discussion themes included insulation strategies and energy efficiency standards. Over 200 builders, designers, engineers and manufacturers attended this event to learn about recent research results and best installation practices.

## Actions Taken to Reduce Greenhouse Gas Emissions in 2012 *(continued)*

- Conducted training for community developers and community partners on strategies to promote energy conservation with tenants. Activities are currently underway at 12 BC Housing sites and four non-profit housing sites. The training is based on BC Housing's toolkit, Tenant Engagement on Energy Conservation and Sustainability that achieved a five per cent reduction in energy consumption and contributed to increased tenant satisfaction in its pilot year.

### STAFF RESOURCES

In 2010 BC Housing established the Smart Buildings and Energy Management team that works closely with our partners BC Hydro and Fortis BC to identify new opportunities for energy and emissions savings. The team is tasked with working on the demand side management efforts of both partners by participating in their incentive and design programs. The team plays a key role in creating a culture of energy conservation within the organization. They support other staff in making the most sustainable and energy efficient decisions in their work, be it a decision to replace old appliances at an existing site, or choosing an innovative heating system on a new construction project.

### NEW CONSTRUCTION

- In the last several years BC Housing has adopted high environmental standards and energy performance standards for building construction, such as Optimized Energy Performance points for the LEED rating systems for large buildings, EnerGuide 82 for small buildings, and caps on maximum energy use from fossil fuels.

BC Housing and its non-profit housing partners have 40 buildings registered with CaGBC, and to date 12 have received certification.

1. Friendship Lodge, Prince George (LEED Gold)
2. Victoria Heights, New Westminister (LEED Certified)
3. Gateway of Hope, Langley (LEED Gold)
4. Terrace Ksan, Terrace (LEED Gold)
5. Haven Gardens, Cranbrook (LEED Gold)
6. Warmland House, Duncan (LEED Gold)
7. Maxxine Wright Centre, Surrey (LEED Gold)
8. Rhoda Kaellis Residence, New Westminister (LEED Gold)
9. BC Housing Home Office, Burnaby (LEED Gold, Commercial Interiors)
10. HPO Office, Burnaby (LEED Gold, Commercial Interiors)
11. Twin Feathers, Kamloops (LEED Gold)
12. Rock Bay Landing, Victoria (LEED Gold)

# Case Study: From Vision to Reality



With its unique architecture, Skwachàys Healing Lodge in downtown Vancouver makes a bold architectural statement. The name, Skwachàys was given to the building by Chief Ian Campbell of the Squamish Nation. It reflects the traditional name of the area, and means a place of transformation. The building, operated by Vancouver Native Housing Society (VNHS), was designed to incorporate both heritage conservation and facilitate Aboriginal cultural practice and art. It provides 24 supportive housing apartments and a Healing Lodge with 13 apartments for Aboriginal people travelling to Vancouver for medical services.

The project was envisioned by VNHS Executive Director Dave Eddy and became a reality through a committed partnership that included VNHS, Department of Canadian Heritage, the City of Vancouver, the Government of B.C. and BC Housing.

Skwachàys is on the site of the former Pender Hotel, one of 24 single room occupancy hotels the Government of B.C. purchased to preserve existing affordable housing in the area. The hotel was demolished, but the building's facade was carefully preserved and incorporated into the new development. A traditional longhouse – the first longhouse built in downtown Vancouver since before European contact – presides over the top of the building and is distinguished by a carved 40.5-foot story pole above the streetscape.

The building also includes a commercial kitchen, a Fair Trade art gallery and a basement workshop, as well as a sweat lodge and smudge room that provide culturally appropriate spaces for spiritual cleansing and healing.

The project was designed to preserve the city's early heritage, provide culturally appropriate services for Aboriginal people and was built to high energy conservation and environmental standards.

## Case Study: From Vision to Reality *(continued)*

Skwachàys sustainability features include:

- Reduced pollution from construction activity
- High efficiency boilers
- Natural light from windows where possible
- Occupancy sensors for lighting
- Additional wall and roof insulation
- Efficient glazing
- Low flow water fixtures
- Energy efficient appliances

Unique heritage and cultural enhancements include:

- Retention and integration of the Pender Hotel façade into the new construction
- Integration of a carved totem pole and aboriginal carvings above each unit's doorframes
- Amenities such as a Smudge Room, a sweat Lodge and a common lounge
- Workspace and gallery for artists

# Fleet

BC Housing has 51 fleet vehicles, most of which are trucks and vans used by grounds and building maintenance staff. Office pool vehicles include Smart Cars and hybrid vehicles. Whenever possible new vehicles added to the fleet are fuel efficient. Last year 24 per cent of our fleet vehicles were fuel efficient.

## FLEET – GHG RESULTS

FLEET	CHANGE IN ABSOLUTE GHG EMISSIONS IN 2012 (AGAINST 2010 BASELINE)	POSITIVE OR NEGATIVE TREND	CHANGE IN GHG EMISSIONS PER KM TRAVELED IN 2012 (AGAINST 2010 BASELINE)	POSITIVE OR NEGATIVE TREND
	53%	Negative	55%	Negative

The increase in emissions related to Fleet is due to the addition of eight new vehicles since 2010, as well as the addition and extensive use last year of two mobile bed bug heat treatment trailers. Most of the new vehicles were for the new compliance officers from the Homeowner Protection Office.

Actions taken in 2012:

- BC Housing joined the E3 Fleet program (Energy, Environment, Excellence) and conducted a Fuel Smart Driving presentation to 80 per cent of our drivers.
- The three new vehicles purchased in 2012 were hybrids, with 24 per cent of the fleet comprised of energy efficient vehicles.
- We have partnered with PHH to improve our fleet management and capture more accurate data about fuel efficiency to introduce efficiency programs and measure results for individual vehicles.

Employee programs also help reduce GHG emissions from commuting by promoting teleworking and carpooling; discounts for bikes and bike accessories; secure bike parking; shower facilities; storage and route planning for cyclists; cost reductions for transit passes; taxi vouchers in emergency situations; and a Green Rewards program to further encourage sustainable behaviours.

# Paper

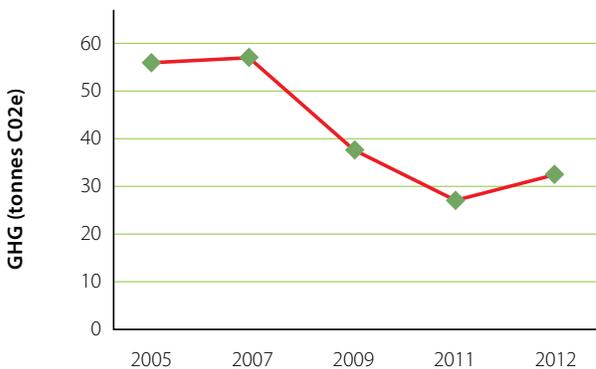
In the last several years BC Housing has been reducing its use of paper, resulting in reduced greenhouse gas emissions.

## OFFICE PAPER – GHG RESULTS

PAPER	CHANGE IN ABSOLUTE GHG EMISSIONS IN 2012 (AGAINST 2005 BASELINE)	POSITIVE OR NEGATIVE TREND	CHANGE IN GHG EMISSIONS PER EMPLOYEE IN 2012 (AGAINST 2005 BASELINE)	POSITIVE OR NEGATIVE TREND
	- 41%	Positive	- 67%	Positive

Through a number of initiatives such as switching to paperless meetings, employee educational campaigns and changes in our procurement practices we have reduced the total amount of paper used in 2012 by nine per cent compared to 2005. This was achieved despite a 70 per cent increase in our staff over the same time period and resulted in a 41 per cent reduction in greenhouse gas emissions related to paper use in 2012 compared to 2005, as well as a significant reduction of the number of trees used in 2012 (60 trees), when compared to 2005 (527 trees).

**Total GHG Emission Related to Office Paper Use**



**Number of Trees Used**



There is no question that when comparing our office paper use to seven years ago that we have made significant progress. However, in 2012 we experienced a slight reverse of this long-term positive trend. In 2012, for the first time since 2008, we increased our paper use over the previous year and increased our paper related GHG emissions by 20 per cent. Thus, increasing the number of trees used in paper production from 26 trees in 2011 to 60 trees in 2012. We also doubled the use of paper with 30 per cent recycled content, and purchased some paper with no recycled content.

We plan to continue the trend to reduce paper use through new employee awareness campaigns and other initiatives.

# Other Actions

BC Housing not only strives to reduce the environmental impact from its operations, but also actively encourages employees to make more sustainable decisions at work, at home, and in their neighbourhoods through a number of employee engagement programs such as the livegreen Employee Council and Community Connections program.

BC Housing's livegreen Employee Council is made-up of staff members who are elected by their peers to represent their region or work area to identify and conduct sustainability activities within four areas: travel, food, home and work.

The impact on individual behaviour change is measured, evaluated and monitored through the Council's annual livegreen Employee Sustainability Survey. Notably, the Council's 2012 survey suggests we have made significant progress over the past three years in influencing behaviour in many areas including: sustainable modes of commuting, composting, gardening, reusing and recycling, sustainable food choices, using green cleaning products, consuming less meat and reducing paper and energy use.

Community Connections is an employee-driven program that includes fundraising activities and employer supported volunteerism. The four investment pillars chosen by employees include: Early Childhood Intervention, Youth-at-Risk, Mental Health and Addictions, Poverty and Environment. Last year \$144,283 and 2,557 food, toys and household items were donated to various charities.

BC Housing was again named one of BC's Top Employers and 50 Most Engaged Workplaces in Canada in 2012. While we are proud of our achievements we continue to strive to improve employee engagement in a range of sustainability activities.



# Other Actions *(continued)*



Carboneers Team participating in the Cut the Carbon Campaign.



One staffer said, *"The farm does such important work growing fresh food for the Richmond Food Bank, as well as community meal programs for other neighbourhoods in need."*

Following are a few examples of specific actions taken by BC Housing employees:

- A "gameified" Cut the Carbon Campaign promoted increased awareness among employees about various options they could consider for reducing their carbon footprint. Participants were able to measure their personal carbon footprint and look at ways to reduce it. Sixteen per cent of employees participated and pledged to reduce a total of 481 tonnes of greenhouse gas emissions.
- A recycling campaign encouraged employees to divert recyclable waste items from landfills and included batteries, small appliances, computers, electronics, and light bulbs. Over 900 items were collected. Additionally, over 300 clothing items were donated to a non-profit partner through a clothing swap/drive.
- The livegreen Employee Council participated in an e-learning seminar, Introduction to Sustainability by The Natural Step.
- A food sustainability campaign engaged approximately 22 per cent of employees about making more sustainable food choices through activities, such as gardening, canning, Meatless Mondays, purchasing locally, and purchasing organically-grown foods.
- Through the Community Connections employer supported volunteerism program, staff donated 738 hours to charities such as food banks and others, including close to 350 hours to the Sharing Farm in Richmond. The farm experience provides opportunities for team building while learning about growing local, organic food, and contributing to local food banks.

# Plans to Continue Reducing Greenhouse Gas Emissions 2013 – 2014

BC Housing's Sustainability Plan includes short- and long-term goals for reducing our greenhouse gas emissions and other negative environmental impacts, as well as providing leadership in sustainable housing.

Some of the key initiatives planned for the next couple of years include:

- A Building Operations Training program to foster a culture of energy conservation among building operations staff, and to build capacity within the public and non-profit housing sector, enhance energy and greenhouse gas savings, and to promote tenant engagement about energy conservation. A recent study demonstrated that operations training for building maintenance staff can result in a two per cent savings in energy use per building, which translates to a potential saving of 26 equivalent gigawatt hours (eGWh).
- Renovation and restoration of 13 single room occupancy hotels in Vancouver's Downtown East through a public-private partnership spanning several years. This will improve the living conditions for the buildings' 900 residents and restore the heritage value of these buildings. In addition, the project provides for 60 FTE years of skills development and employment training for Downtown Eastside community members over the construction and facilities maintenance life of the agreement.



A map of 13 buildings in Vancouver to be renovated under the Single Room Occupancy Renewal Initiative with the Habitat Housing consortium.

## Plans to Continue Reducing Greenhouse Gas Emissions 2013 – 2014 *(continued)*

- Tenant engagement programs and toolkits with a focus on energy conservation, including training and support for community partners already working with tenants.
- Guidelines for non-profit housing providers undertaking new construction projects that are not required to pursue LEED standards. These will include tools and resources to encourage increase sustainability and energy efficiency.
- Employee engagement campaigns to reduce office paper and energy use.
- Development of two additional recognition and training opportunities for livegreen Employee Council members.
- Development and publication of case studies about energy conservation and the lessons learned from specific projects.
- Building Smart seminars about innovation in construction and building design for licensed residential builders and others involved in the home building industry to provide practical information on the latest in building science and best practices on various topics, including energy efficiency and green buildings.
- Guidelines for effective thermal performance of building assemblies in multi-unit residential, social and institutional buildings.
- Research on wood-frame building envelope systems for net-zero energy-ready buildings, in collaboration with industry organizations and research and educational institutes to improve the design, construction quality and durability of residential buildings.

*For more information, please visit:*

[www.bchousing.org/aboutus/livegreen](http://www.bchousing.org/aboutus/livegreen)

[www.hpo.bc.ca/](http://www.hpo.bc.ca/)

## BC Housing Management Commission - 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	Ongoing/In Progress	Fuel Smart Driving workshop was attended by 80% of the fleet vehicle drivers.	Additional drivers' education sessions	2008	No End Date (Continuous)
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress	Anti-idling was included in the Fuel Smart Driving workshop. Idling report is sent to all fleet drivers daily.	Anti-idling awareness will be included in further driver educational sessions. Idling reports will continue to be sent to all fleet drivers.	2011	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress	Carpooling in fleet vehicles is encouraged on on-going basis through regular communication at staff meetings and through the work of the livegreen employee council.	Carpooling in fleet vehicles will continue to be encouraged on regular basis.	2008	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Transit tickets, hybrid and Smart cars are available for staff as an alternative to fleet vehicle travel. They are being promoted on regular basis through staff communication and activities of the livegreen employee council.	On going encouragement to use alternatives to vehicle travel.	2008	No End Date (Continuous)
<b>Vehicle fuel efficiency</b>					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	24% of vehicles are fuel efficient models 3 new hybrid vehicles were added to the fleet in 2012 BC Housing joined E3 Green Fleet Program	Launch of a new Fleet Management program leading to increased fuel efficiency and more accurate reporting	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	1 larger vehicle was replaced with smaller, hybrid one	Vehicles will continue to be replaced in accordance with the needs of the organization	2008	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	Regular maintenance program is in place	On-going regular maintenance.	2008	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity</b>					
<b>Behaviour change program</b>					
Encourage use of stairs instead of elevators	Ongoing/In Progress	Employees are encouraged to use stairs instead of elevators through the green points program.	Continuation of the program.	2008	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	Employees and tenants at selected sites are reminded to turn off lights through stickers, posters and other engagement initiatives.	Continuation of existing initiatives aiming at energy conservation both within BC Housing offices and public housing buildings.	2008	No End Date (Continuous)
<b>IT power management</b>					
Implement server virtualization	Completed (in Previous Year)				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	Multi-function devices are being used where possible.	On-going identification of needs and opportunities to encourage savings.	2008	No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-function devices	Ongoing/In Progress	On-going application of the auto-sleep settings on all multi-fuction devices.	On-going application of the auto-sleep settings on all multi-fuction devices.	2008	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	All new computers are Energy Star.	On-going application of Sustainable Procurement Policy which requires that all new computers are Energy Star.	2011	No End Date (Continuous)
<b>Leased buildings</b>					
Lease space with commercial interiors performance labelling/certification (e.g., LEED CI)	Completed (in Reporting Year)	Second office received LEED Gold CI certification. They are: the Home Office and the Homeowner Protection Office. Both in Burnaby.		2008	2012
<b>Other Stationary Fuel Combustion</b>					
Engaged social housing tenants on actions leading to energy conservation	Ongoing/In Progress	Tenant Engagement on Energy Conservation program was developed in 2011. In 2012 training and resources related to the program were made available to community partners and non-profit housing providers. Currently there are 10 BC Housing sites and 4 non-profit sites engaging tenants on energy conservation within a	Continuation and expansion of the program within the social housing sector.	2011	No End Date (Continuous)

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### 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
		broader context of community development.			
<b>Owned buildings</b>					
Establish energy performance baseline for owned buildings	Ongoing/In Progress	<p>All of the owned buildings have an established energy performance baseline.</p> <p>In 2012 the Group Home portfolio was reviewed and homes with the highest energy saving opportunities were targeted for energy audits and creation of action plans aiming to improve their energy performance. This included participation in BC Hydro's Energy Conservation Assistance Program.</p> <p>Four of our new buildings have been participating in LEED Measuring and Verification project in order to optimize building performance.</p>	Continuation of existing energy performance monitoring initiatives.	2008	No End Date (Continuous)
Register for performance labelling/certification for commercial interiors of owned buildings (e.g., LEED CI)	Completed (in Reporting Year)	Two of BC Housing offices have been certified LEED Gold for Commercial Interiors.		2008	2012
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	<p>Over 40 projects either owned or leased by BC Housing (27 out of 40) or owned by a non-profit housing provider with significant contributions in construction from BC Housing, are currently registered with the Canadian Green Building Council. These buildings are being built to high energy efficiency and design standards.</p> <p>Sustainable design model is being applied to address decision-making needs, LEED requirements, GHG reduction targets and life cycle of buildings.</p> <p>In 2012 there were 9 buildings already occupied by tenants that have been certified LEED (1 LEED Certified and 8 LEED Gold).</p>	Continuation of building new projects owned or leased by BC Housing to LEED Gold and promotion of high energy efficiency and sustainable design standards for other projects.	2008	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	<p>Mechanical, lighting, and control systems, as well as building insulation upgrades (including windows replacement) were part of the multi-year retrofit program. BC Housing's Capital Planning process incorporates energy use reduction measures with capital renewal measures. They are selected on project by project basis. In 2012 the retrofit program under Housing Renovation Partnership was completed at 71 sites.</p> <p>In 2012 new energy retrofits program was rolled out to the Group Homes portfolio.</p>	<p>Continuation of the energy retrofit program for Group Homes.</p> <p>Energy retrofits are included in Single Room Occupancy (SRO) buildings upgrade in Vancouver.</p>	2009	No End Date (Continuous)
<b>Planning/management</b>					
Reduce office space (square meters) per employee	Completed (in Reporting Year)	Assessment of long term office space needs was planned but due to changes in business priorities has not been executed.		2010	2012
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	Two BC Housing buildings are participating in BC Hydro's Continuous Optimization Program involving installation of additional metering systems.	Two more buildings (to the total of four) will be added to participate in BC Hydro's Continuous Optimization Program.	2012	2014
<b>Retrofit details for owned buildings</b>					
Upgrade mechanical systems (heating, cooling, ventilation) during	Completed (in	Mechanical systems upgrades were part of the Housing Renovation		2008	2012

## BC Housing Management Commission - 2012 Carbon Neutral Action Report

<b>Actions Towards Carbon Neutrality</b>					
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
retrofits	Reporting Year)	Partnership retrofit program at 71 sites. Specific upgrades were selected on project by project basis. The program was completed in 2012.			
Upgrade lighting systems during retrofits	Completed (in Reporting Year)	Lighting systems upgrades were part of the Housing Renovation Partnership retrofit program at 71 sites. Specific upgrades were selected on project by project basis. The program was completed in 2012.		2008	2012
Upgrade/adjust control systems during retrofits	Completed (in Reporting Year)	Control systems upgrades were part of the Housing Renovation Partnership retrofit program at 71 sites. Specific upgrades were selected on project by project basis. The program was completed in 2012.		2008	2012
Improve building insulation (including windows) during retrofits	Completed (in Reporting Year)	Building insulation upgrades were part of the Housing Renovation Partnership retrofit program at 71 sites. Specific upgrades were selected on project by project basis. The program was completed in 2012.		2008	2012
<b>Supplies (Paper)</b>					
<b>Behaviour change program</b>					
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development	85% of staff received SLICE - collaborate software training. Note pads available in Home Office are produced from scrap paper	Continuation of existing initiatives	2010	2013
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress	New equipment has been installed in additional meeting rooms to facilitate paperless meetings	Continuation of existing initiatives	2010	No End Date (Continuous)
<b>Electronic media in place of paper</b>					
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development	85% of workstations have SLICE software installed. Not all employees are using it yet.	Finalize SLICE roll-out to all employees	2009	2013
Use electronic document library for filing common documents	Completed (in Reporting Year)	New Content Management System - SLICE has been implemented and is being used by 85% of staff.		2010	2014
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	19% of total office paper purchased had 30% post-consumer recycled content (up from 8% in the previous year). On-going communication about importance of office paper reductions.	Office paper reduction campaign. Communication regarding sustainable office paper purchasing policy in order to ensure higher level of compliance.	2010	No End Date (Continuous)
Purchase 40% post-consumer recycled paper	Ongoing/In Progress	Less than 1% of total office paper purchased had 40% post-consumer recycled content. On-going communication about importance of office paper reductions.	Office paper reduction campaign. Communication regarding sustainable office paper purchasing policy in order to ensure higher level of compliance.	2010	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	81% of total office paper purchased had 100% post-consumer recycled content (down from 91% in the previous year). On-going communication about importance of office paper reductions.	Office paper reduction campaign. Communication regarding sustainable office paper purchasing policy in order to ensure higher level of compliance.	2010	No End Date (Continuous)
<b>Printer/document settings</b>					
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In	Almost all black & white Home Office printers are set to automatic	Review of all black & white Home Office printers to ensure that all are	2009	No End Date

## BC Housing Management Commission - 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
	Progress	double sided printing.	set to automatic double sided printing.		(Continuous)

## BC Housing Management Commission - 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>					
Encourage carpooling to meetings	Ongoing/In Progress	Smart Cars and a Hybrid Car are available at the Home Office for business travel	Continued availability and promotion of car pooling	2008	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Transit tickets are available for staff to use for travel to meetings.	Continued availability and promotion of use of the public transit	2008	No End Date (Continuous)
<b>Policy and budgeting</b>					
Create a low-carbon travel policy or travel reduction goal	Completed (in Previous Year)				No End Date (Continuous)
<b>Virtual meeting technology</b>					
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Completed (in Previous Year)				No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Ongoing/In Progress	Video conferencing units are available to staff.	Continued use of existing technologies.	2008	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	Green points program is available to all employees	Continuation of the program	2008	No End Date (Continuous)
<b>Other Education, Awareness, and Engage</b>					
Sustainability at BC Housing on-line training for employees	In Development	Sustainability at BC Housing on-line training module was designed and developed in 2012. The training covers section on the definition of sustainability and description of how BC Housing's commitment to sustainability related to everyone's job.	Roll-out of the training.	2012	2013
<b>Staff awareness/education</b>					
Provide education to staff about the science of climate change	In Development	Climate change was used as an example in the Sustainability On-line Learning course developed for BC Housing employees.	Roll-out of the course.	2012	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress	Cut the Carbon Campaign for staff included energy conservation educational element.	Energy conservation lunch and learns.	2008	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress	Green tips are being provided on on-going basis.	On-going.	2010	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress	New staff orientation covers topics related to BC Housing's commitment to sustainability.	New staff orientation will be reviewed and materials related to sustainability will be updated.	2008	No End Date (Continuous)
<b>Team-building</b>					
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	livegreen Employee Council creates an annual strategic plan focusing on supporting BC Housing employees to make more sustainable decisions at work and at home. Some of the initiatives led by the Council in 2012 were: Cut the Carbon Campaign, Meatless Mondays, volunteering at the Sharing Farm in Richmond, and others.	Energy conservation at home - lunch and learn. Distribution of green cleaning products. Fair trade off - promotion of fair trade products. Promotion of Commuter Challenge. Turn-it Off campaign.	2008	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	livegreen Council is allocated 12 paid hours per month per each member. Resources were made available to build a website and create a baseline	livegreen Council will continue to receive the necessary support	2008	No End Date (Continuous)

## BC Housing Management Commission - 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
		survey and facilitated strategic planning process. livegreen Forum has been supported to allocate their time on sustainability related tasks			
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress	Members of the livegreen council participated in Introduction to Sustainability e-learning course developed by the Natural Step. Sustainability library was expanded by a number of new items.livegreen Council members participated in Strategic planning sessions and a number of lunch and learns.	Promotion of livegreen library among all employees (including regions). Lunch and learns on energy conservation, sustainable food and commuting and others.	2008	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	In Development	This action is planned for 2013-14.	Conduct climate change risk assessment and provide recommendations on mitigation strategies, based on best practice research and internal cross-branch analysis.	2013	2014
<b>Building construction, renovation</b>					
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress	The diversion tracking framework has been implemented.	Conduct at least one waste diversion educational opportunity for staff.	2010	No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress	Lifecycle costing is incorporated into the retrofit program	Continue to use lifecycle costing	2008	No End Date (Continuous)
<b>Commuting to and from home</b>					
Introduce telework/work from home policy	Ongoing/In Progress	Telework program continued in 2012	Telework program will be continued	2008	No End Date (Continuous)
Offer staff a compressed work week	Ongoing/In Progress	An option of compressed work week exist to the effect of increased work hours so that every three week an employee can take a flex-day	The program will be continued	2008	No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress	Participation in Bike to Work Week and The Commuter Challenge	More livegreen Council support is planned in terms of promotion of the Commuter Challenge	2008	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress	Shower and bike storage facilities are available at the Home Office for staff who commute by bicycle.	The facilities will continue to be available.	2008	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress	Secure bicycle storage is available for staff at the Home Office.	Bike storage will continue to be available.	2008	No End Date (Continuous)
<b>Other Sustainability Actions</b>					
Monitor GHG emissions from commuting and plan actions to reduce them	Ongoing/In Progress	Conducted employee commuting survey. Shared results and designed a new campaign based on survey results.	Continue to monitor GHG emissions related to commuting based on the annual livegreen employee survey.	2009	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.)	Ongoing/In Progress	Sustainable Procurement Policy was approved and launched.	Implement process changes that result in the collection of contractor performance related information that business areas regularly access, such as location of contractor scope of work and pricing information.	2009	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress	Green cleaning products have been replacing other products at all directly managed sites. They were also made available to employees for personal use at home.	Continuation of the existing green cleaning program.	2008	No End Date (Continuous)

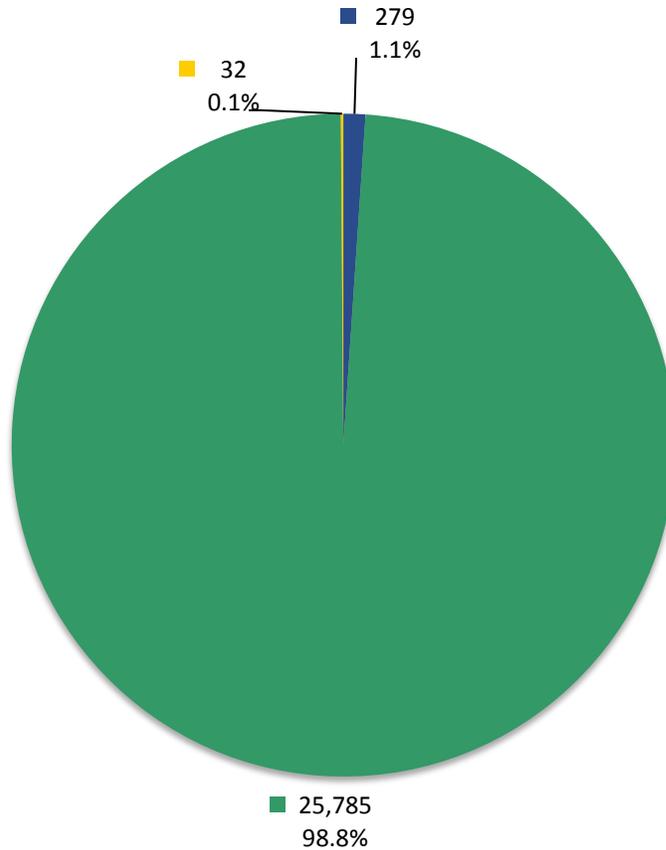
## BC Housing Management Commission - 2012 Carbon Neutral Action Report

### Actions to Reduce Provincial Emissions and Improve Sustainability

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Waste reduction/diversion</b>					
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress	Completed representative sampling and inventory of hazardous materials on additional over 60% of properties owned and directly managed by BC Housing.	Completion of the inventory.	2011	2014

## BC Housing Management Commission Greenhouse Gas Emissions by Source for the 2012 Calendar Year (tCO<sub>2</sub>e\*)



**Total Emissions: 26,096**

- 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 12:02 PM)**

Total offsets required: **26,021**. Total offset investment: **\$650,525**. Emissions which do not require offsets: **75** \*\*

\*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.