

BC Housing 2013 Carbon Neutral Action Report



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Photos from cover:
MacLean Park in Vancouver
Stamps Place in Vancouver

Executive Summary

OUR MANDATE AND COMMITMENT TO SUSTAINABILITY

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 options for British Columbians in greatest need. In 2014/15 more than 100,000 households will benefit from social housing.

Though our Homeowner Protection Office (HPO), BC Housing also helps bring about improvements in the quality of residential construction and ensures that B.C.'s system of builder licensing and home warranty insurance continues to provide the strongest consumer protections in Canada.

Leadership in sustainability and residential construction is one of four strategic priorities outlined in our 2014 – 17 Service Plan and the reduction of greenhouse gas (GHG) emissions within our housing portfolio, new construction, and operations is a key performance indicator.

The vast majority of social housing buildings in the province are owned and operated by more than 700 non-profit housing societies. BC Housing recognizes the expertise and dedication they bring to the development and management of affordable housing, emergency shelters, and outreach services and their in-depth knowledge of the communities and population groups they serve. As required by the *Greenhouse Gas Reduction Targets Act* and Carbon Neutral Government Regulation, this report focuses on buildings that BC Housing owns and operates, and buildings under operational leases to the non-profit sector.

Over the last few years we have made renovation improvements and energy retrofits at more than 100 social housing sites funded through the federal-provincial Housing Renovation Partnership, and various energy-efficiency programs offered by BC Hydro and FortisBC. As a result of these initiatives, BC Housing's portfolio of directly managed buildings, group homes and non-profit-operated buildings used nine per cent less energy in 2013 compared to our baseline of 2005. That translates into a 24 per cent reduction in GHG emissions across the portfolio and significant annual savings in our utility costs.

Our future plans include collaborating with the BC Non-Profit Housing Association on a joint capital-planning initiative and energy-management program to support non-profit housing providers. BC Housing's HPO will continue to provide the construction industry with research and education that promotes building durability and energy efficiency. We will also maintain our broader sustainability commitments including programs to increase staff and tenant engagement as described in our *livegreen* Housing Sustainability Plan.



Shayne Ramsay
Chief Executive Officer

May 28, 2014

2013 Greenhouse Gas Emissions

This section provides a summary of BC Housing's 2013 GHG emissions with brief comments on the results for each of the emission sources. More detailed descriptions of actions and factors that influenced these results are included in the following sections of the report.

BC HOUSING'S 2013 GHG EMISSIONS BY SOURCE

In 2013 our total GHG emissions were 23,172 tonnes of CO₂ equivalent. The most significant emission source was energy used in our buildings for heating space and water, and electricity use. Table 1 below presents our 2013 results by source.

TABLE 1. OVERALL 2013 GHG EMISSIONS

EMISSION SOURCE	2013 GHG EMISSIONS (TONNES OF CO ₂ e)	2013 RESULTS COMPARED TO THE 2005 BASELINE	2013 RESULTS COMPARED TO 2012
Buildings (Stationary Combustion)	22,819	24% Decrease	12% Decrease
Fleet & Maintenance Equipment* (Mobile Combustion)	330	Not available	Not available
Paper (Supplies)	23	58% Decrease	39% Decrease
Total	23,172		

* In 2013 PHH began providing fleet management services for BC Housing. This new partnership resulted in more accurate reporting. Previously the fleet emissions were based on estimates, but since last year they are based on the actual fuel consumption. However, this does not allow for an accurate comparison with the previously reported emissions.

The 24 per cent decrease in emissions from buildings (Buildings/Stationary Combustion in the table above) can be attributed to extensive upgrades and energy retrofits in over 100 buildings conducted in the last few years, as well as increased energy efficiency in new buildings¹.

We have also made significant improvements in the building commissioning process to ensure that new buildings operate efficiently and as designed. There were a few additional factors that influenced our results:

¹ See the graph below illustrating the relationship between our portfolio changes and building energy efficiency in the Buildings section of this document.

2013 Greenhouse Gas Emissions *(continued)*

- BC Hydro has changed GHG emission factors to reflect an increase in clean energy mix for the province in 2013. This contributed favourably to our GHG reductions.
- Demolition of one of our larger sites – Little Mountain (which originally had 37 buildings) has contributed to about an eight per cent reduction in our overall emissions.
- Transfer of approximately 500 housing sites to the Aboriginal Housing Management Association reduced our total emissions by about five per cent.

As required by the *Greenhouse Gas Reduction Targets Act* and Carbon Neutral Government Regulation, the results are based on absolute emissions and have not been corrected for the impact of weather conditions.

In 2013 we reached a new record in reducing GHG emissions related to paper use with a 58 per cent reduction compared to the 2005 baseline. This significant achievement was a result of focused efforts to create a paperless organizational culture, changes in our procurement practices, and a highly successful employee program, the Paper Challenge.

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

Offsets Applied to Become Carbon Neutral in 2013

BC Housing purchased carbon offsets from the Pacific Carbon Trust for the equivalent of 23,142 tonnes of CO₂e to obtain carbon neutral status for 2013.

Thirty tonnes of CO₂e emissions from the combustion of biomass and biomass-based fuels were reported as part of our GHG emissions profile in 2013. However, while CO₂e 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 26,096 tonnes of CO₂e emissions in 2012. Following the release of BC Housing's 2012 Carbon Neutral Action Report, it was determined that the total emissions for 2012 were under reported by 170 tonnes and that the required offsets were under reported by 168 tonnes. The difference in required offsets has been purchased and applied against our 2013 emissions.

Actions Taken to Reduce Greenhouse Gas Emissions in 2013

BUILDINGS

Social housing programs in B.C. respond to a wide range of housing need including: housing for independent adults and families; supportive housing for the homeless or people living with mental health and addictions issues; Aboriginal housing; transitional housing for women and children fleeing abuse; assisted living housing for frail seniors and the disabled; emergency shelters; and rent assistance in the private market for independent seniors and working families.

As stated earlier, the greater majority of social housing is owned and operated by non-profit housing societies. The scope of this report is focused on buildings that BC Housing owns and operates, and properties under short-term operational lease to the non-profit sector. In 2013 this included over 1,000 individual buildings, with more than 1,011,000 square meters of floor space.

Energy used for heating and electricity are the primary sources for housing GHG emissions. Our directly managed buildings represent 62 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 were undertaken within directly managed portfolio. The results: a 24 per cent reduction in energy use in 2013; a 33 per cent reduction in GHG emissions; and a nine per cent reduction in utility costs². Energy savings within these buildings had a significant impact on our overall level of emissions.

The section below, *Highlights of Energy and GHG Improvements* provides a few examples of the impact that energy efficiency measures had at particular sites.

² All reductions are measured against the 2005 baseline.

Actions Taken to Reduce Greenhouse Gas Emissions in 2013 *(continued)*

HIGHLIGHTS OF ENERGY AND GHG IMPROVEMENTS

The energy savings and GHG reductions at the four sites listed below demonstrate the successful results of the renovation and energy retrofit program conducted by BC Housing over the last few years. Below each table is a list of the energy efficiency measures that were implemented.

STAMPS PLACE

YEAR	2005	2012	2013	% CHANGE 2013 VS. 2005	% CHANGE 2013 VS. 2012
GHG Emissions (tCO ₂ e)	2,144	1,405	1,336	-38%	-5%
Energy Consumption (eGJ)	47,714	32,658	31,770	-33%	-3%



Solar photo voltaic panels installed, new high-efficiency boilers, CFL lighting, low-flow fixtures (shower heads and aerators)

SKEENA TERRACE

YEAR	2005	2012	2013	% CHANGE 2013 VS. 2005	% CHANGE 2013 VS. 2012
GHG Emissions (tCO ₂ e)	1,219	764	647	-47%	-15%
Energy Consumption (eGJ)	28,843	19,344	17,321	-40%	-10%



CFL lighting, new windows, high-efficiency boilers, low-flow fixtures (shower heads and aerators), and solar hot-water panels

MACLEAN PARK

YEAR	2005	2012	2013	% CHANGE 2013 VS. 2005	% CHANGE 2013 VS. 2012
GHG Emissions (tCO ₂ e)	536	344	320	-40%	-7%
Energy Consumption (eGJ)	12,568	8,591	8,236	-34%	-4%



CFL lighting, new windows, mid-efficiency boilers, low-flow fixtures (shower heads and aerators)

Actions Taken to Reduce Greenhouse Gas Emissions in 2013 *(continued)*

CHAMPLAIN PLACE

YEAR	2005	2012	2013	% CHANGE 2013 VS. 2005	% CHANGE 2013 VS. 2012
GHG Emissions (tCO ₂ e)	374	270	222	-41%	-18%
Energy Consumption (eGJ)	9,229	7,354	6,618	-28%	-10%



Lighting upgrades, switched from mainly gas heating to air-source heat pumps for townhouses, high-efficiency boilers and, low-flow fixtures (shower heads and aerators)

OPERATIONAL CHANGES IN 2013

In 2013 ten housing development sites were added to the BC Housing's portfolio of buildings through new construction or the transfer of buildings from non-profit societies. Two sites were divested from the portfolio.

In 2012 BC Housing signed an agreement with the Aboriginal Housing Management Association (AHMA) to transfer the administration of operating agreements and housing stock for Aboriginal social housing. In 2013 more than 500 Rural and Native Housing sites were transferred to AHMA. This change in BC Housing's housing portfolio contributed to reducing our GHG emissions by about five per cent compared with the previous year.

In 2013 our energy conservation work focused on using partnership opportunities with the utilities sector and non-profit service providers, as well as initiatives targeting behavioural changes of our site staff and tenants.

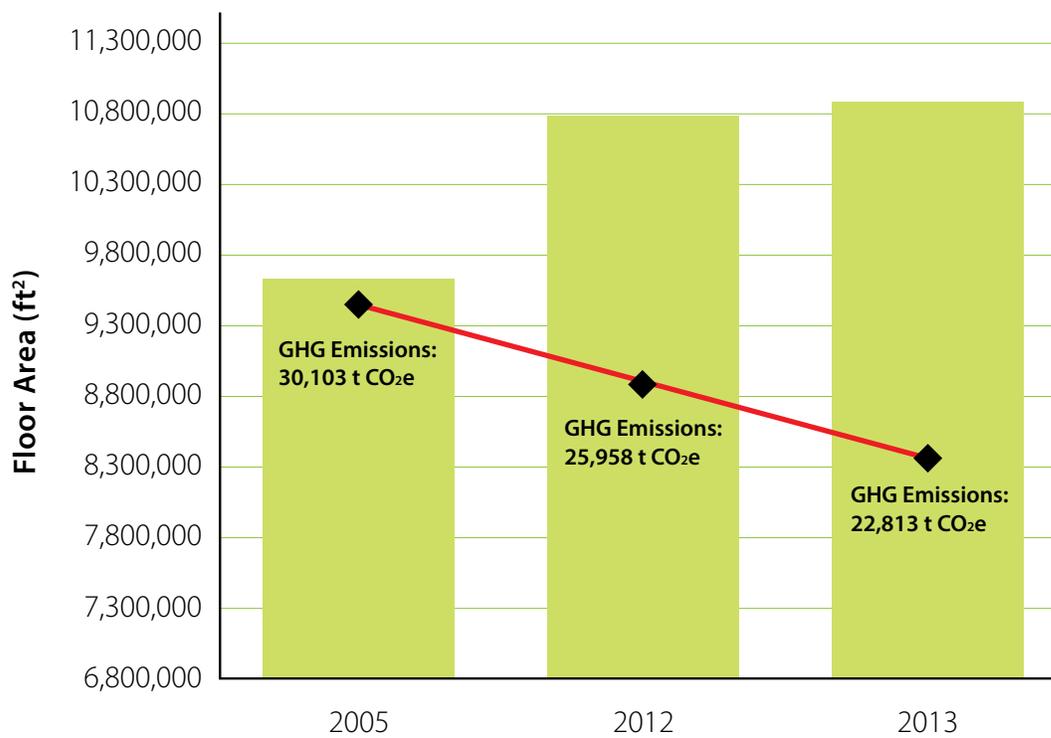
In addition, energy conservation was an integral part of the Single Room Occupancy Renewal initiative to renovate and restore 13 provincially owned single room occupancy hotels in Vancouver, which began in 2012.

INCREASED ENERGY EFFICIENCY

The reductions in energy use and GHG emissions were achieved despite a significant increase in our total floor area in the last nine years. This was due to both the energy retrofit program in our existing buildings, as well as increased energy efficiency requirements for new construction.

Figure 1 below illustrates these changes.

FIGURE 1. GHG EMISSIONS REDUCTIONS AGAINST THE FLOOR AREA INCREASES



Since the baseline year of 2005, our floor area has increased by 13 per cent. Despite this increase, our overall energy consumption and GHG emissions have been reduced.

The increase in the energy efficiency of non-profit-operated buildings³ which includes most of the housing units built in the last few years including some LEED Gold buildings is particularly notable. Within this group, energy efficiency has increased by over 20 per cent since 2005. See table 2 below for energy intensity information within each building group.

³ Only buildings owned or leased by BC Housing are included in this report. Buildings owned by non-profit housing providers or under a long-term lease from BC Housing are not within the scope of this report.

Actions Taken to Reduce Greenhouse Gas Emissions in 2013 *(continued)*

TABLE 2. ENERGY CONSUMPTION PER FLOOR AREA PER BUILDING PORTFOLIO

ENERGY CONSUMPTION PER FLOOR AREA (ekWh/ft ²)	2005	2012	2013	% CHANGE 2013 VS. 2005	% CHANGE 2013 VS. 2012
Directly Managed	23	18	17	-24%	-5%
Group Homes	24	23	23	-4%	0%
Non-Profit Operated	25	20	20	-21%	1%
Offices	24	18	20	-16%	9%
SROs	30	32	29	-6%	-10%
Strata Units		4	5	N/A	29%
Total	24	21	19	-20%	-8%

The section below describes specific actions taken by BC Housing last year to reduce our GHG emissions in areas such as energy conservation, training and education, staff resources, and standards and tools.

ENERGY CONSERVATION PROGRAMS FOR BUILDINGS

- Implemented the Energy Conservation Assistance Program with BC Hydro and FortisBC 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 12,000 gigajoules (GJ) were saved.
- Conducted an evaluation (level 1 ASHRAE audit⁴) of overall building energy use for seven buildings, which were selected based on several factors, including the Building Energy Performance Index (BEPI)⁵, location, timing and availability of staff to support the assessment teams. The information collected from these audits will be used to help prioritize capital upgrades for energy and GHG reductions, and to better inform building staff about operating and maintaining equipment.
- Incorporated energy conservation measures in the Single Room Occupancy Renewal Initiative to upgrade 13 single room occupancy hotels. Work started at three of these buildings last year and included heating, lighting and water system upgrades. This project is expected to contribute significantly to our GHG reduction targets in the years ahead.

⁴ ASHRAE is an industry standard for energy audits.

⁵ BEPI - is the equivalent kilowatt hours per square metre per year, or equivalent kilowatt hours per square foot per year used in a building. All energy types are combined using common units and divided by the building's floor area.

Actions Taken to Reduce Greenhouse Gas Emissions in 2013 *(continued)*

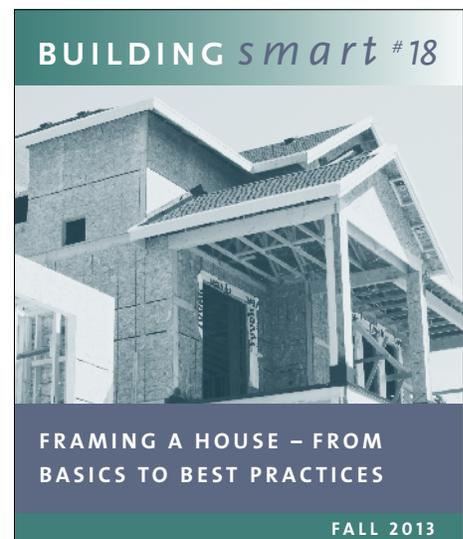
- Introduced the Energy Efficiency Retrofit Program in partnership with BC Non-Profit Housing Association and BC Hydro. The program helps non-profit housing providers make energy upgrades to enhance tenant comfort and safety, realize energy savings, and reduce GHG emissions. It builds on the BC Hydro Power Smart Partner Express program and provides funds to enable housing providers to complete small scale energy retrofits on items such as light fixtures. Last year the program led to a saving of approximately 1.1 gigawatt hours (GWh) and 7,000 GJ, compared to 2012.

ENERGY STANDARDS AND TOOLS

- Continued to participate in BC Hydro's new construction ENERGY STAR appliance program, which promotes energy savings through the incentivized purchase of ENERGY STAR refrigerators, dishwashers, exhaust fans, lights and clothes washers.
- Distributed guidelines to assist staff with budgeting and project management for renovations and heating and ventilation projects to support GHG reductions and increase energy performance.
- Developed and distributed 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, FortisBC and NRCan ratings.

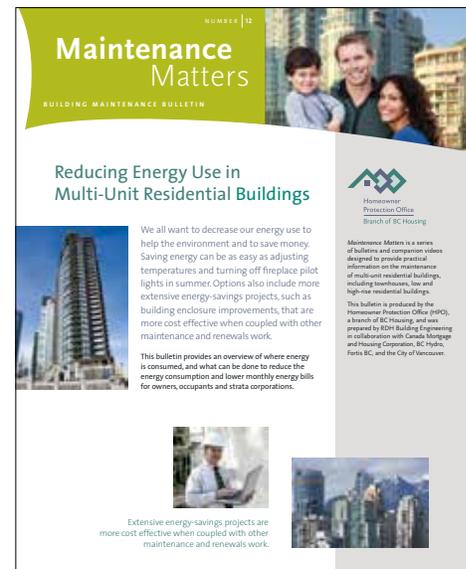
ENERGY CONSERVATION TRAINING AND EDUCATION

- Continued the development of the Building Operations Training program for public and non-profit housing providers jointly with BCNPHA, that included developing an energy management culture among building staff to achieve energy and GHG savings, and promote tenant engagement.
- The Homeowner Protection Office (HPO) developed and delivered two province-wide Building Smart educational seminar. Transitioning to the New BC Building Code explored the impact of the new requirements in Part 9 of the BC Building Code for residential construction and included building materials selection and construction practices. The second seminar, Framing a House – From Basics to Best Practices, focused on the design and construction of houses and townhouses. Additional seminars included a half-day Building Smart with Energy Efficiency seminar, which is also available online. Overall, 45 seminars were delivered to over 3,000 licensed residential builders and others involved in the home building industry in 21 B.C. communities.



Actions Taken to Reduce Greenhouse Gas Emissions in 2013 (continued)

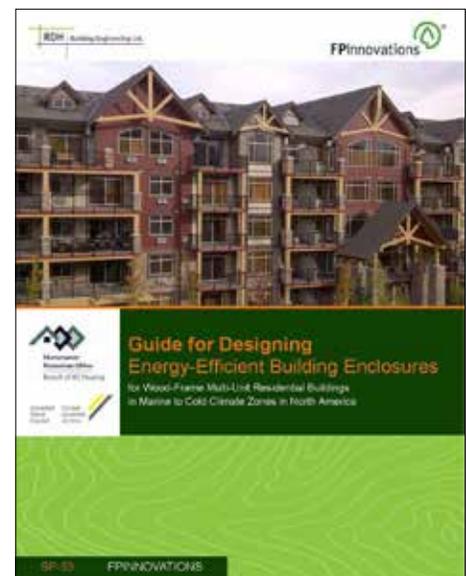
- HPO also worked in partnership with the B.C. residential construction industry and consumer groups to create three new publications: Best Practices for Window and Door Replacement in Wood-Frame Buildings; Maintenance Matters #12 – Reducing your Residential Buildings' Energy Use; and Maintenance Matters #13 – Window and Door Replacement.
- BC Housing conducted educational sessions for our building managers to encourage and support them in playing a leadership role in creating and enhancing a culture of energy conservation at their work sites.
- BC Housing incorporated a focus on energy conservation and other sustainability initiatives in BC Housing's new Community Development Framework, as well as some of our key partnership contracts for service providers working with our tenants.



NEW CONSTRUCTION

The overall energy efficiency of our new buildings has increased significantly in recent years. This has been due to a number of actions described below:

- 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.
- The HPO published a Guide for Designing Energy Efficient Building Enclosures for Wood Frame Multi-Unit Residential Buildings in Marine to Cold Climate Zones in North America.
- BC Housing and its non-profit housing partners have 40 buildings registered with CaGBC, and 14 have received certification.
 1. Friendship Lodge, Prince George (Gold)
 2. Victoria Heights, New Westminster (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)



Actions Taken to Reduce Greenhouse Gas Emissions in 2013 *(continued)*

7. Maxxine Wright Centre, Surrey (LEED Gold)
8. Rhoda Kaellis Residence, New Westminster (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)
13. Springhill Apartments, Kamloops (LEED Gold)
14. Driver House, Dawson Creek (LEED Gold)

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.

ACTIONS TAKEN IN 2013

In 2013 BC Housing partnered with PHH, a fleet management company that enabled us to capture more accurate fuel consumption data and introduce new efficiency educational programs for individual vehicles.

Employee programs and initiatives also helped to reduce GHG emissions from commuting, including: 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 for employees; and a Green Rewards program to further encourage sustainable behaviours.

Paper

Over the last several years BC Housing has taken numerous steps to reduce its use of paper, resulting in lower GHG emissions. Table 3 below presents the overall results.

TABLE 3. GHG RESULTS FOR OFFICE PAPER

PAPER	CHANGE IN ABSOLUTE GHG EMISSIONS IN 2013 (AGAINST 2005 BASELINE)	POSITIVE OR NEGATIVE TREND	CHANGE IN GHG EMISSIONS IN 2012 (AGAINST 2005 BASELINE) PER EMPLOYEE	POSITIVE OR NEGATIVE TREND
	-58%	Positive	-67%	Positive

Through a number of initiatives such as paperless meetings, employee education campaigns and changes in our procurement practices we used the least amount of paper since 2005, while the number of employees increased by 67 per cent. These initiatives led to a 58 per cent reduction in GHG emissions related to paper use in 2013 compared to 2005, as well as a significant reduction in the number of trees used in 2012 (29 trees), when compared to 2005 (527 trees).

FIGURE 2. DECREASE OF GHG EMISSIONS RELATED TO OFFICE PAPER USE SINCE 2005



In 2013 our *livegreen* Employee Council, BC Housing's green team, led a very successful five-week program, the Paper Challenge, to encourage employees to reduce their total amount of office paper, and provided them with video tips on alternatives. The campaign was conducted in a motivating atmosphere of friendly

competition. The winning branch reduced its total paper use by almost 40 per cent, with other branches also contributing to the significant 2013 reductions.

Reduced paper use resulted in other savings. The two charts below show the changes since 2005 in the number of trees used for paper production and overall changes in our paper procurement and use.

FIGURE 3. NUMBER OF TREES USE FOR PRODUCTION OF THE OFFICE PAPER USED

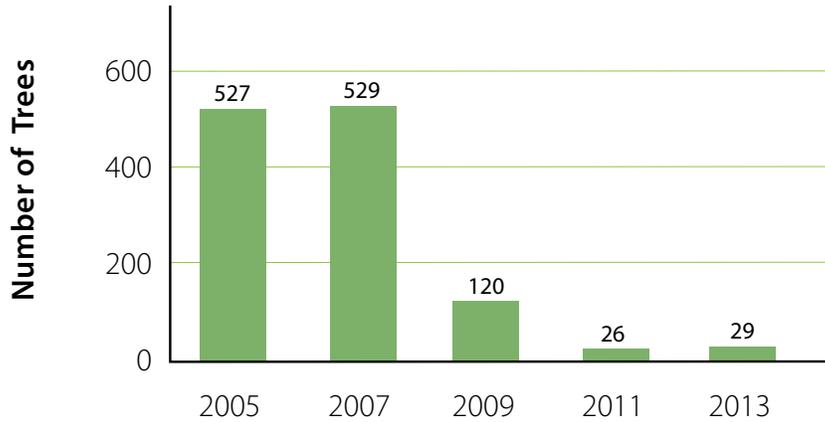
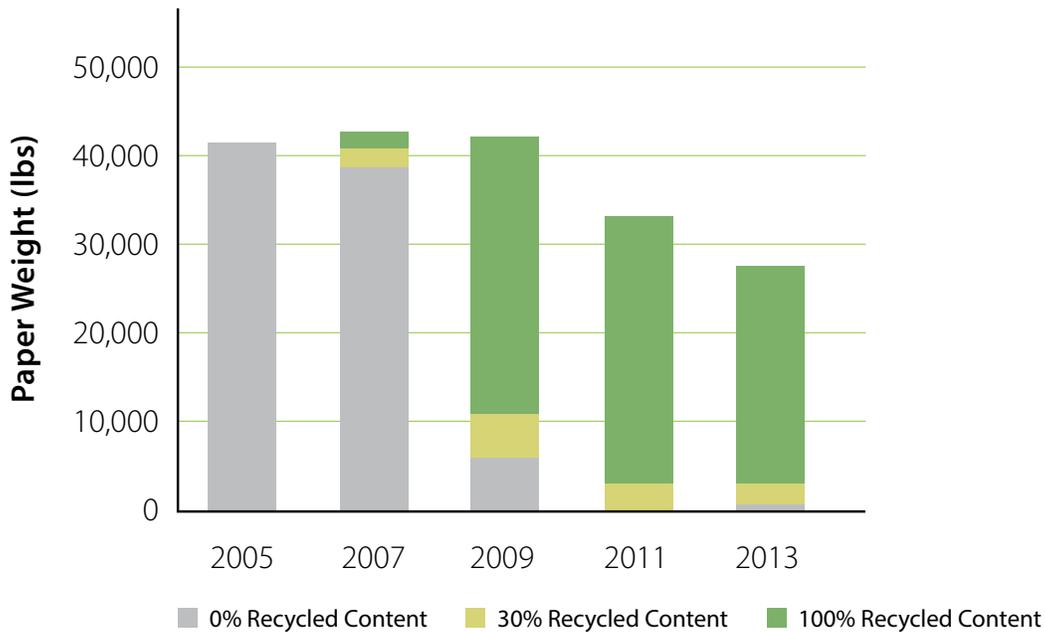


FIGURE 4. TOTAL AMOUNT (WEIGHT) OF OFFICE PAPER USED BY PAPER TYPE, INCLUDING VIRGIN PAPER WITH NO RECYCLED CONTENT, TO 100% RECYCLED CONTENT



Other Actions

In 2013 our focus turned to further integration of sustainability with our core business practices. Our strategic planning and reporting processes now include a number of questions about BC Housing’s sustainability commitment that each of its branches is required to consider.

An increasing number of our public tenders include sustainability criteria to encourage bidders’ commitment and actions to reduce negative impacts on the environment and local communities and increase sustainable development and operations. See Table 4 below for details.

TABLE 4. SUSTAINABILITY CRITERIA INCLUDED IN OUR PROCUREMENT PRACTICES

YEAR	TOTAL TENDERS	TENDERS WITH SUSTAINABILITY CRITERIA	TENDERS WITH SUSTAINABILITY CRITERIA (%)
2011	115	0	0%
2012	121	12	10%
2013	76	29	38%

BC Housing’s *livegreen* Employee Council is composed 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/commuting; food; home; and work. The council plays a significant role in terms of employee education and engagement. All activities are aimed at supporting employees to make more sustainable decisions at work, at home, and in their communities.

The impact on individual behaviour change is measured, evaluated and monitored through the council’s annual *livegreen* Employee Sustainability Survey. Notably, the council’s 2013 survey revealed 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.



Our employee-driven community investment initiative, Community Connections, enables employees to donate both time and money to causes they care about. This year, employee contributions increased to a record-breaking \$141,000 (approximately a five per cent increase over the previous year) and employee participation increased via volunteer hours, more than doubling over last year with 1,220 hours logged through employer-supported volunteerism. In response to employee concerns, the parameters of the Community Connections program were expanded to enable staff to donate to the relief efforts in the wake of Typhoon Haiyan in the Philippines, raising \$13,000 in aid, which was matched dollar-for-dollar by the Government of Canada.

Other Actions *(continued)*

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

- Energy Conservation in Your Home was a Lunch & Learn workshop delivered by one of BC Housing's energy advisors.
- The Waste Campaign was a three-week awareness campaign to encourage staff to separate their waste into items that are recyclable, compostable and true trash. The campaign drew enthusiastic participation from throughout the organization. The results of the waste audit indicated an overall 15 per cent improvement for items going into the correct bins. The highest level of improvement was 40 per cent for one of the floors at the Home Office.



BC Housing's Internal Audit team taking on a new role – that of waste auditors with very active support from the *livegreen* Employee Council members.

Plans to Continue Reducing Greenhouse Gas Emissions 2014 – 2015

BC Housing's *livegreen* Housing Sustainability Plan includes short- and long-term goals for reducing our GHG emissions and other negative environmental impacts, as well as providing leadership in sustainable housing. While our plans for next year do not include any projects with significant GHG reduction potential, they do include continuation of energy retrofit initiatives and programs for both BC Housing's buildings and the non-profit sector. Some of these initiatives will result in longer term savings through operational efficiencies; many of these initiatives are multi-year and began in previous years.

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

- Continuation of the 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 GHG savings, and to promote tenant engagement about energy conservation. A recent study demonstrated that training for building maintenance staff can result in a two per cent savings in energy use per building, which translates into a potential saving of 26 equivalent GWh.
- Continued implementation of the renovation and restoration of 13 single room occupancy hotels in Vancouver's Downtown East through a public-private partnership. This will improve the living conditions for about 900 residents and restore the buildings' heritage value. The project agreement includes skills training for 60 people, as well as providing development and employment opportunities in construction and building maintenance for people living in the community.
- Expansion of the tenant and site staff engagement programs and toolkits with a focus on energy conservation, including training and support for community partners already working with tenants.
- Improvements in building commissioning by investigating better ways to commission new buildings to improve energy use over the long term. Opportunities for improvement could include looking at how long our handover period lasts and what additional operator training is needed.
- Better integration of energy planning with capital planning, with potential GHG savings a high consideration for a project's priority ranking.



Example of a prompt used in the tenant engagement program. BC Housing's Energy Conservation Engagement Toolkit is available at:

www.bchousing.org/Partners/Ongoing/ECET

Plans to Continue Reducing Greenhouse Gas Emissions 2014 – 2015 *(continued)*

- Continuation of the use of guidelines for non-profit housing providers undertaking new construction projects that are not required to pursue LEED. These will include tools and resources for societies to ensure proper operations and maintenance procedures when the building is handed over to ensure energy and GHG savings throughout the building's lifetime.
- Employee engagement campaigns to promote greater reductions in office paper and energy use.
- Development and publication of case studies about energy conservation and the lessons learned from specific projects.
- Building Smart seminars about innovation in construction and 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, including energy efficiency and green buildings.

For more information, please visit:

www.bchousing.org/Initiatives/Sustainability

www.hpo.bc.ca

2013 Carbon Neutral Action Report (CNAR) - Part 2 ACTIONS

Created Monday, February 24, 2014

Updated Wednesday, April 30, 2014

<https://fluidsurveys.com/surveys/cas-z/2013-cnar-form-bps-actions/5fb9a477b957cfaf53f6cf9442b66210/>

Page 1

Please complete the following sections of the 2013 Carbon Neutral Action Report form. Save your work frequently to prevent it from being lost. You can also save a copy for your own use as either a WORD or PDF file using the buttons at the bottom of each page.

This is Part 2 of the Carbon Neutral Action Report form. This section reports on actions taken to reduce emissions during the 2013 calendar year. This information will be included in your final Carbon Neutral Action Report posted on the Ministry of Environment website.

When the form is complete press the submit button on the last page to automatically submit the information to the Climate Action Secretariat (CAS). Do not press submit before you are ready – this may result in a loss of work.

In addition to completing this survey (Part 1 2), you are required to submit your completed Overview (Executive Summary) and Self-Certification Checklist. The 2013 Overview template was included in the email sent and can also be found on the LiveSmart leaders Community.

Please ensure you meet the following reporting deadlines:

A DRAFT 2013 CNAR is due to CAS by March 31, 2014. The draft is comprised of the Overview ONLY (no executive sign-off required).

The FINAL 2013 CNAR is due to CAS by May 30, 2014. The final 2013 CNAR includes Part 1 Part 2 survey form and Overview.

The Self-Certification Checklist is due to CAS by May 15, 2014.

For more information about the Carbon Neutral Government process, please refer to *Becoming Carbon Neutral 2013*, or should you have any questions please contact climateactionsecretariat@gov.bc.ca.

Organization Name

BC Housing

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings):

Indicate which actions were taken in 2013:

Performed energy retrofits on existing buildings

Yes

Built or are building new LEED Gold or other "Green" buildings.

Yes

Undertook an evaluation of overall building energy use.

Yes

Please list any other actions taken to reduce emissions from Buildings:

Mult-year building retrofit program (Housing Renovation Partnership) covering 103 sites conducted in the last few years which had significant impacts on our greenhouse gas reductions, with an annual utility cost savings estimated at over \$700,000.

Specific actions undertaken last year:

- Implemented the Energy Conservation Assistance Program with BC Hydro and Fortis BC for all group homes across the province. Through this program approximately 12,000 GJ were saved.*
- Incorporated energy conservation measures in the Single Room Occupancy Renewal Initiative to upgrade 13 single room occupancy hotels. Last year the work started at three of these buildings and included: heating, lighting and water systems upgrades, 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.*
- Continued to participate 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.*
- Distributed guidelines to assist staff with budgeting and project management for renovations and HVAC upgrades projects to enhance GHG reductions, increase the energy performance and tenant comfort.*
- Conducted an evaluation (level 1 ASHRAE audit) of overall building energy use for seven of our buildings.*
- Incorporated focus on energy conservation and other sustainability related initiatives in BC Housing's new community development framework, as well as some of our key partnership contracts of service providers working directly with our tenants.*

• Conducted educational sessions for BC Housing's building managers to encourage and support them in playing a leadership role in creating and enhancing the culture of energy conservation at their respective sites.

• Rolled out the Energy Efficiency Retrofit Program in partnership with BC Non-Profit Housing 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 to enable housing providers to complete small scale energy retrofits on items such as light fixtures. Last year the program led to approximately 1.1 GWh in electrical and 7,000 GJ savings.

• Continued the development of the Building Operations Training program for public and non-profit housing providers jointly with the BC Non-Profit Housing Association. The work included developing a program that fosters an energy management culture among building operations staff, build capacity, enhance energy and greenhouse gas savings, and promote tenant engagement.

2) Mobile Fleet Combustion (Fleet and other vehicles):

Indicate which actions were taken in 2013:

Do you have a fleet?

Yes

Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)

No

Replaced existing vehicles with hybrid or electric vehicles

No

Reduced the overall number of fleet vehicles

No

Took steps to drive less than last year

No

Please list any other actions taken to reduce emission from fleet:

Contracted PHH to assist with our fleet management. Considerably improved our reporting methodology.

3) Supplies (Paper):

Indicate which actions were taken in 2013:

Used less paper than previous year

Yes

Used only 100% recycled paper

No

Used some recycled paper

Yes

Used alternate source paper (Bamboo, hemp, etc.)

No

Please list any other actions taken to reduce emissions from paper use:

Conducted a Paper Challenge (a five week campaign) to bring awareness to our employees and encourage less use of office paper. Continued to implement green procurement practices.

Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2014 and future years:

- 1. Implementation of new policy and building design guidelines which require adoption of high efficiency equipment for all building retrofits.*
- 2. On-going and expanding tenant engagement program.*
- 3. Building operator training initiative.*
- 4. A number of initiatives with the non-profit housing providers to build capacity and conduct building retrofits within that sector.*
- 5. Four continuous optimization projects.*

If you wish to list any other "sustainability actions" outside of buildings, fleet, paper and travel check "yes". This reporting is optional.

Yes

Actions to Promote Sustainability and Conservation - Optional

The following are actions that fall outside the scope of the *Carbon Neutral Government Regulation*, but which many organizations still undertake and may wish to report on. This section is optional for reporting.

Business Travel

Created a low-carbon travel policy or travel reduction goal (Low-carbon: Lowest emission of greenhouse gases per kilometre per passenger)

Yes

Virtual Meeting Technology

Installed web-conferencing software (e.g., Live Meeting, Elluminate, etc.)

Yes

Made desktop web-cameras available to staff

No

Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)

Yes

Encourage carpooling to meetings

Yes

Education and Awareness

Have created Green, Sustainability, Energy Conservation, or Climate Action Teams.

Yes

Provided resources and/or dedicated staff to support these teams

Yes

Provided behaviour change education/training for these teams (e.g., community-based social marketing)

Yes

Established a sustainability/green awards or recognition program

Yes

Support green professional development (e.g., workshops, conferences, training)

Yes

Planning for Climate Change

Have assessed whether extreme weather events and/or long term changes in climate will affect our organization's business areas

Yes

Long term changes in climate have been incorporated into our organization's decision making.

No

Actions to Promote Sustainability and Conservation - Optional (continued)

Staff Awareness and Education

Provided education to staff about the science of climate change

Yes

Provided education to staff about the conservation of water, energy, and raw materials

Yes

Provided green tips on staff website or in newsletters

Yes

Alternate Work/Commuting Options

Allow for telework/working from home

Yes

Staff have the option of a compressed work week

Yes

Commuting by foot, bicycle, carpool or public transit is encouraged

Yes

Shower or locker facilities are provided for staff/students who commute by foot or by bicycle

Yes

Secure bicycle storage is provided

Yes

Other Sustainability Actions

Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models

Yes

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

Yes

Have put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities

Yes

Have implemented a hazardous waste reduction and disposal strategy (Hazardous Waste: E.g., electronics including computer parts and monitors, batteries, paints, fluorescent bulbs)

Yes

Have incorporated minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)

Yes

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)

Yes

Incorporated lifecycle costing into new construction or renovations

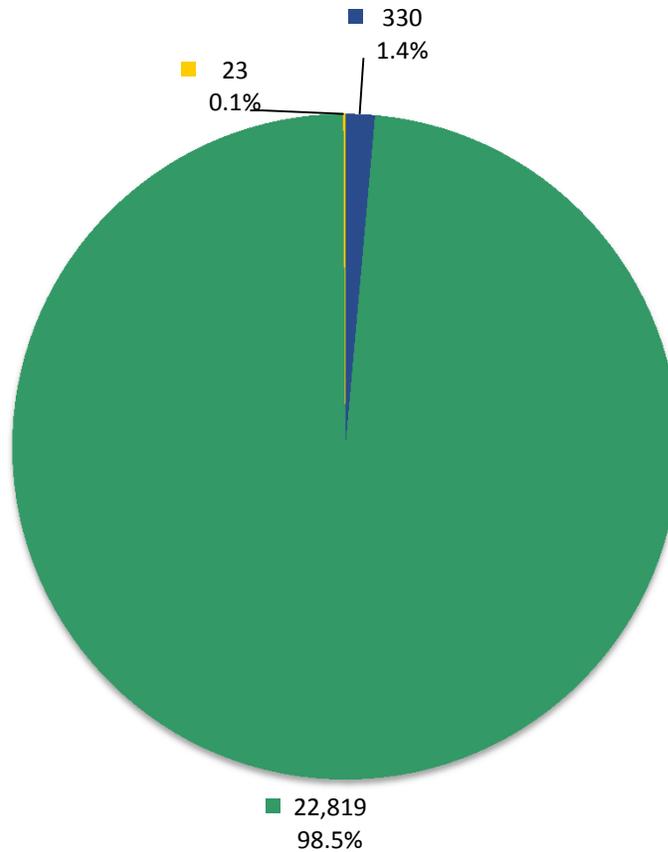
Yes

Please list and other sustainability actions you wish to report not included in the previous list.

Our green team - livegreen employee council - conducted a number of campaigns and educational events for BC Housing staff. Some of the highlights include:

- a three-week Reduce Waste campaign;*
- promotion of livegreen library consisting of books and videos related to sustainability;*
- green cleaning employee purchase program;*
- a number of lunch and learns on such topics as: energy efficiency at your home, climate change, sustainable food;*
- Bike to Work, Car and Walking weeks.*

BC Housing Management Commission Greenhouse Gas Emissions by Source for the 2013 Calendar Year (tCO₂e*)



Total Emissions: 23,172

- 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 2013 (Generated May 21, 2014 10:15 AM)

Total offsets required: **23,142**. Total offset investment: **\$578,550**. Emissions which do not require offsets: **30** **

*Tonnes of carbon dioxide equivalent (tCO₂e) 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.