



BC Housing's 2016 Carbon Neutral Action Report



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*Cover photo:
BC Housing staff participating
in Bike to Work Week.*

Declaration Statement

This *Carbon Neutral Action Report* for the period January 1 to December 31, 2016 summarizes BC Housing's emissions profile, the amount of offsets purchased to reach net zero emissions, the actions BC Housing has taken in 2016 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2017 and beyond.

BC Housing's final Carbon Neutral Action Report will be posted to our website at www.bchousing.org by June 30, 2017.

Executive Summary



BC Housing's mandate is to develop, manage, and administer a wide range of subsidized housing options across British Columbia, as well as to license residential builders, administer owner builder authorizations, and carry out research and education that benefits the residential construction industry, consumers and the affordable housing sector.

In 2016/17, in close collaboration with non-profit housing providers, BC Housing contributed to creating more than 2,000 new units of affordable housing for individuals and families. In partnership with the housing sector, BC Housing supported innovative projects to improve and protect social housing, including providing capital investment into renewing aging stock and taking steps to help address the impact of the expiry of operating agreements.

At BC Housing, sustainability is a key part of our business strategy. We recognize that our actions have an impact on local communities and ecosystems across the province. Our [livegreen Sustainability Plan](#) provides a roadmap to help fight climate change by reducing greenhouse gas (GHG) emissions and our environmental footprint.

One of the goals in BC Housing's 2017/18-2019/20 Service Plan is to "provide leadership in sustainability and residential construction", bringing together two areas where we have significant leadership responsibilities. We partner with industry and government organizations to initiate technical research and education projects that promote the durability and energy efficiency of residential construction.

We strive towards sustainability by working with our non-profit partners to build new affordable housing that meets high levels of energy efficiency. Retrofit projects in the existing portfolio of social housing buildings ensure that we continue to meet our GHG emission targets.

In 2016, total GHG emissions related to energy use for heating and electricity in all buildings owned or leased by BC Housing were reduced by 31 percent compared to the 2005 baseline level. This exceeded our annual reduction target by 11 percent. There are many factors behind these results, including:

- Multi-year building upgrades and energy programs
- Renovation of 13 single-room-occupancy hotels (SROs) in Vancouver’s Downtown Eastside through the SRO Renewal Initiative
- Successful implementation of higher efficiency heating and lighting technologies in new and older buildings
- Installation of heating systems low in carbon emissions
- On-going improvements in energy management practices across our portfolio

For three consecutive years, Canada’s Top 100 Employers project has recognized BC Housing as one of Canada’s Greenest Employers. Across the organization, our employees are increasingly motivated to reduce work-related greenhouse gas emissions and integrate sustainability into their lives. Last year, staff participated in Bike to Work Week, the Commuter Challenge, the Great Canadian Shoreline Cleanup, and events hosted by our internal *livegreen* Employee Council, such as learning opportunities related to plastics awareness, reducing meat consumption, and eco-friendly transportation.

The following pages outline our past, present, and future actions for GHG reductions and broader sustainability in our everyday work.



Shayne Ramsay

CEO
BC Housing

2016 Greenhouse Gas Emissions and Offsets Overview

BC Housing's GHG Emissions and Offsets for 2016 (tCO ₂ e)	
GHG emissions created in calendar year 2016	
Total emissions (tCO ₂ e)	24,861
Total offsets (tCO ₂ e)	24,836
Adjustments to GHG emissions reported in prior years	
Total emissions (tCO ₂ e)	68
Total offsets (tCO ₂ e)	68
Total emissions for offset for the 2016 reporting year	
Total offsets (tCO ₂ e)	24,904

Adjustments to total emissions reported in prior years

In 2015, we reported 24,766 tonnes of CO₂e emissions. Following the release of BC Housing's 2015 Carbon Neutral Action Report, we discovered that the total emissions and required offsets for the previous year had been underreported by 68 tonnes. That difference in required offsets has been purchased and applied against our 2016 emissions.

Total emissions for offsets for the 2016 reporting year

BC Housing purchased carbon offsets from the Government of B.C. for the equivalent of 24,904 tonnes of CO₂e to obtain carbon neutral status for 2016.

25 tonnes of CO₂e emissions from the combustion of biomass and biomass-based fuels were reported as part of our greenhouse gas emissions profile in 2016. However, while CO₂e emissions from these sources must be reported, they do not require offsets.

Retirement of offsets

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, BC Housing (the Organization) is responsible for arranging for the retirement of the offsets reported above for the 2016 calendar year, together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment ensuring that these offsets are retired on the Organization's behalf, the Organization will pay the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf, plus GST.



Dan Maxwell

Chief Financial Officer
BC Housing

May 11, 2017



Rosalie's Village in Saanich, LEED Gold Certified.

Actions Taken to Reduce Greenhouse Gas Emissions in 2016

Buildings

As per the Carbon Neutral Government Regulation, BC Housing reports on energy use and related GHG emissions from all the buildings that BC Housing's land-holding company, the Provincial Rental Housing Corporation (PRHC), owns or leases. As one of the largest landlords in the province, we own and lease a diverse portfolio of residential housing units across the province, which includes:

- Residential towers
- Single-room-occupancy hotels (SROs)
- Townhouses
- Single and multi-family homes

Some of these buildings are directly managed by BC Housing staff, while others are operated by non-profit societies.

In 2016, this portfolio included 584 social housing sites¹, totalling over a million square metres of floor area. During the year, we added 21 sites and divested four from the GHG reporting inventory.

GHG results for buildings

In 2016, our GHG emissions related to energy used to provide heat, water and electricity for our buildings totaled 24,538 tonnes of CO₂e². Since 2005, we have seen a 31 percent decrease in emissions from our buildings and a one percent increase from 2015. These results are based on absolute emissions and do not factor in weather conditions.

¹ A site may include more than one building.

² Stationary fugitive emissions from air conditioning at BC Housing offices do not comprise more than 0.01 percent of total emissions and have been deemed out of scope and are not included in the total GHG profile.



Tanner Place, Vernon, BC, EnerGuide 80 rating.

2016 Buildings GHG Emissions Compared with 2005 Baseline and 2015 Results

Emission source	2016 GHG emissions (Tonnes of CO ₂ e)	2016 results compared with the 2005 baseline	2016 results compared with 2015
Buildings (Stationary combustion)	24,538	31% decrease	1% increase

The 1% increase in emissions from 2015 can be mainly attributed to different weather conditions for each reporting year. Most of the buildings included in this report are located in the Vancouver Coastal and Fraser regions. These areas of the province experienced colder weather and a higher number of heating degree days in 2016 compared with 2015. Colder weather is linked to more use of energy for heating and therefore higher GHG emissions.

Reductions compared with our 2005 baseline are mainly a result of our energy conservation efforts described in the following section of this report.

Our reductions are lower compared with baseline than in previous years. This can be attributed to weather and to portfolio changes, including the addition of buildings to the portfolio for which we have not yet undertaken energy retrofit projects, and the divestment of several large buildings from the portfolio that had undergone significant renovation to achieve energy savings.

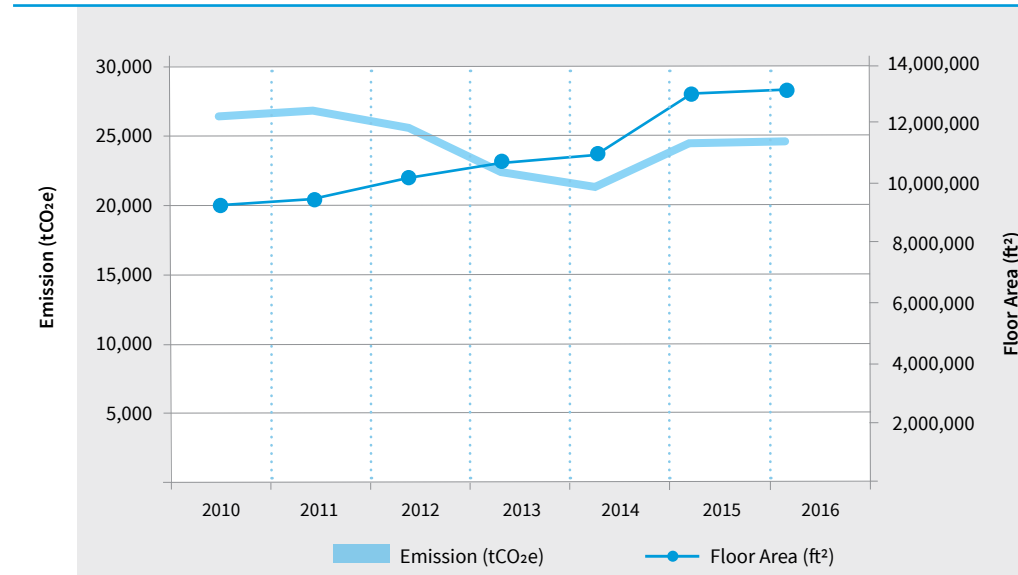
Note on the data:

For the 2016 reporting year, FortisBC natural gas consumption data was only provided in an aggregated format for private accounts. Consumption data for these accounts is reported together as one value, therefore making it impossible to conduct data analysis and checks that would result in a high level of confidence.

Floor area comparison

We have maintained significant energy and GHG reductions despite our overall floor area growing for the past few years (although remaining fairly static between 2015 and 2016). This has been due to the energy retrofit and conservation programs in our existing buildings and higher energy efficiency standards in the new buildings. The following graph represents this trend:

Floor Area and GHG Emissions Change (2010-2016)



Actions taken in 2016

BC Housing has continued to increase the energy efficiency of our building portfolio and reduce GHG emissions. This work was recognized with the Fortis BC Efficiency in Action Award in 2016. This award recognizes exceptional energy savings in residential building, commercial upgrades, and industrial operations.

Highlights of initiatives undertaken this year include:

- Energy conservation and retrofit programs, including significant retrofits at two large sites in the Fraser Region
- Tenant engagement on energy conservation
- Ensuring the energy efficiency and sustainability of new construction through the revision of the BC Housing Design and Standards Guidelines

Specific actions taken last year within each of these areas are described on the next page.



BC Housing staff accept the FortisBC Efficiency in Action Award.



This home in Kent, BC was built to high energy efficiency standards under the LEEP program.

Energy conservation initiatives for buildings in 2016

- The multi-year SRO Renewal Initiative resulted in the renovation of 13 provincially owned single-room-occupancy hotels in Vancouver. At the end of 2016, renovation of all 13 buildings was substantially complete and residents had returned to their renovated units. Several energy reduction measures were included in the renovations to achieve significant energy savings in these buildings, including the use of high quality and energy efficient windows and insulation, upgraded ventilation systems and new high efficiency boilers. Estimated savings for these sites are around 6 MJ of gas and 0.7 GWh of electricity. We will also save an estimated \$100,000 per year in utility costs across the 13 projects.
- A multi-year site renovation continued at the Hillside Gardens development in Burnaby (162 social housing units). The boiler replacement portion of this project was completed for all buildings on site, which will result in an estimated annual savings of 8,000 GJ. The renovation resulted in more than \$70,000 in savings from natural gas consumption in 2016 compared with 2012 (prior to renovation commencing).
- Boiler replacement was also undertaken for all the buildings at Stratford Gardens in Burnaby (126 social housing units). Estimated annual savings will be 900 GJ.
- Furnaces were replaced at several BC Housing funded group homes and non-profit housing developments in collaboration with Fortis BC. These furnace replacements will result in an estimated annual reduction of 200 GJ. Many group homes and non-profit housing developments also received Energy Conservation Assistance Program assessments and free energy saving products such as bulbs, faucet aerators, and shower heads.

- An energy and sustainability component of a program involving BC Housing and the Musqueam Indian Band in Vancouver resulted in upgrading more than 35 on-reserve home furnaces due for replacement. This initiative delivered estimated annual savings of 720 GJ.
- BC Housing continued supporting energy savings at social housing developments through the [Energy Efficiency Retrofit Program](#) (EERP) with the BC Non-Profit Housing Association (BCNPHA), BC Hydro and FortisBC. The program offers non-profit housing providers additional funding to complete small-scale, energy saving retrofits of items such as light fixtures and boilers. Last year, this enabled approximately 22 electric and six gas-focused energy retrofit projects, for a total estimated savings of 681,200 kWh and 3,900 GJ respectively.
- Our energy management team worked with consultants to conduct nine energy audits on high-, mid- and low-rise buildings to determine details of current energy consumption patterns and opportunities for savings. This will allow for energy conservation measures in future fiscal years.
- We added a requirement within the Request for Proposal template for most renovation projects to include energy modelling and Energy Conservation Measure (ECM) development in the design portion of a project. This will allow us to select ECMs, with reasonable paybacks, to be included in construction projects, which could lead to significant savings in renovated buildings across the province.
- BC Housing was awarded the FortisBC Efficiency in Action Award for the public sector for our work on reducing energy consumption. Other award winners have included businesses of all sizes, municipalities and institutions that have worked with FortisBC to make a significant reduction in their energy use. We competed for the public sector award with the health sector, municipalities, other crown agencies and corporations, and public service organizations.

Energy conservation training and education

- BC Housing continued to support the BCNPHA with the Facilities Operations And Maintenance training (FOAM) program for the public, non-profit, and private housing sectors. This program aims to foster a culture of energy management within building operations staff, build capacity in the housing sector, enhance energy and GHG savings, and get tenant buy-in and engagement. Research has indicated that energy savings of up to two percent can be achieved by building energy management capacity within operations staff. The FOAM program is now housed within a new education program of the BCNPHA and seven courses are now available, including:
 - FOAM 101: Fundamentals
 - FOAM 102: Building Systems
 - FOAM 103: Building Maintenance
 - FOAM 108: Sustainable Buildings
- Our energy management staff played a leadership role in creating and enhancing a culture of energy conservation among BC Housing staff and tenants.
- Community developers, partners, and other staff continued to engage tenants on energy efficiency, showing how real energy savings can be realized through behaviour-based energy efficiency programs. Tenant engagement can lead to an estimated two to five percent rise in energy savings each year. Our tenant engagement outreach in Victoria reached 15 percent of households in the past heating season. [Our website](#) has further resources on how to engage social housing tenants on sustainability focusing on energy conservation and waste diversion.

New construction

- BC Housing started the process of aligning the BC Housing Design and Construction Guidelines with the newly adopted BC Energy Step Code. Moving forward, our projects will target high levels of this code, a performance-based approach that will result in energy savings over base building code in new buildings constructed through our programs.
- In 2016, BC Housing gave a presentation on the building handover resource document and process at the BCNHPA conference, including a discussion of integrated design process resources and the importance of being regularly involved in the design process early on to ensure buildings are simple and easier to operate efficiently.
- To date, BC Housing and our non-profit housing partners have almost 60 buildings registered with the Canadian Green Building Council and 36 have received Leadership in Energy and Environmental Design (LEED) certification.

Buildings certified to LEED Gold in 2016:

- Kwayatsut, Vancouver
- Taylor Manor Addition, Vancouver



Little Mountain, Vancouver, received LEED Gold certification in 2015.



Activities in the residential construction sector

- BC Housing conducts technical research and provides education to help improve the quality of residential construction and increase building energy efficiency. In 2016, we published a number of reports, including:

- [Building Envelope Thermal Bridging Guide](#)
- [Heat Recovery Ventilation Guide for Multi-Unit Residential Buildings](#)
- [Illustrated Guide – R22+ Effective Walls in Wood-Frame Construction in British Columbia](#)

These reports are available online from [BC Housing’s Research Centre](#).

- BC Housing informs builders on best construction practices, including increasing energy efficiency, through its series of Builder Insight Technical Maintenance Bulletins. In 2016, the [Pressure Losses in Oval Ducts and Fittings](#) bulletin explained how higher energy efficiency requirements have changed the design of gas furnaces and other heating appliances, and looked at the importance of proper sizing of ventilation ducts.
- BC Housing organized a number of educational seminars, workshops, and webinars for people involved in the design and construction of residential housing. Topics included airtightness of building envelopes, the construction of mid-rise wood buildings, and energy efficiency.
- In collaboration with industry partners, BC Housing’s Building Smart seminar series provides up-to-date building code information and best practices for the construction and design of homes in B.C. These practical and informative sessions give licensed residential builders, contractors, building officials, architects, engineers, trades, and others involved in the home building industry access to the latest research and technology. The [Building Smart with Air and Vapour Barriers video presentation](#) from 2016 is also available online.
- Now in its third year, BC Housing’s [Building Excellence Research & Education Grants program](#) encourages research and education to improve the quality of residential construction, as well as strengthening consumer protection for buyers of new homes in B.C. Projects funded in 2016 included:
 - Investigating life cycle assessment results for a reduced carbon footprint on new multi-unit residential buildings
 - Developing a new educational program on the foundations of design, construction, operation, and maintenance of energy efficient buildings
 - Supporting learning opportunities to create more resilient and energy efficient communities
 - Testing and implementation of a sensing and monitoring platform for the environmental and energy needs of homes

For a complete list of projects funded in 2016 or for more information about the grant, please visit: www.bchousing.org/research-centre/grants-funding-opportunities.



Welcome slide of Building Smart video presentation.

- In 2016, BC Housing, in partnership with Natural Resources Canada, BC Hydro, FortisBC, Canadian Home Builders' Association, and the City of Vancouver, made the Local Energy Efficiency Partnerships (LEEP) program available in B.C. The program aims to significantly improve energy efficiency of new residential construction beyond code requirements. Workshops took place in the Lower Mainland, the Interior and Northern BC. Some of the participating builders had started planning and designing field trial homes.
- BC Housing also collaborated on BC Energy Step Code metrics research. The aim was to anticipate the impact of implementing the proposed metrics and targets — including benefits and unintended outcomes — relative to building size, climate zone, GHG emissions, peak electrical demand, first and operating costs, and life cycle cost per abated tonne of carbon.

Fleet

In 2016, BC Housing had 61 fleet vehicles, primarily trucks and vans used by grounds and building maintenance staff. Office pool vehicles included Smart Cars and hybrid vehicles. Thirteen percent of our fleet vehicles in 2016 were fuel-efficient. During the year, we retired three vehicles from our maintenance fleet and added 12 new vehicles due to new hires in the organization, older vehicles that were beyond repair, and increased responsibility for ground maintenance on the Riverview lands.

We also have a corporate account with Modo, a car-sharing cooperative, for staff use in the Vancouver Coastal and Fraser regions. Being a member of Modo gives our staff access to a wider range of vehicles and provides flexibility on where to get them. In 2016, emissions from staff trips in Modo vehicles were calculated and reported alongside BC Housing's own fleet. We have updated the previous reporting year to include Modo emissions from 2015.

GHG results for fleet

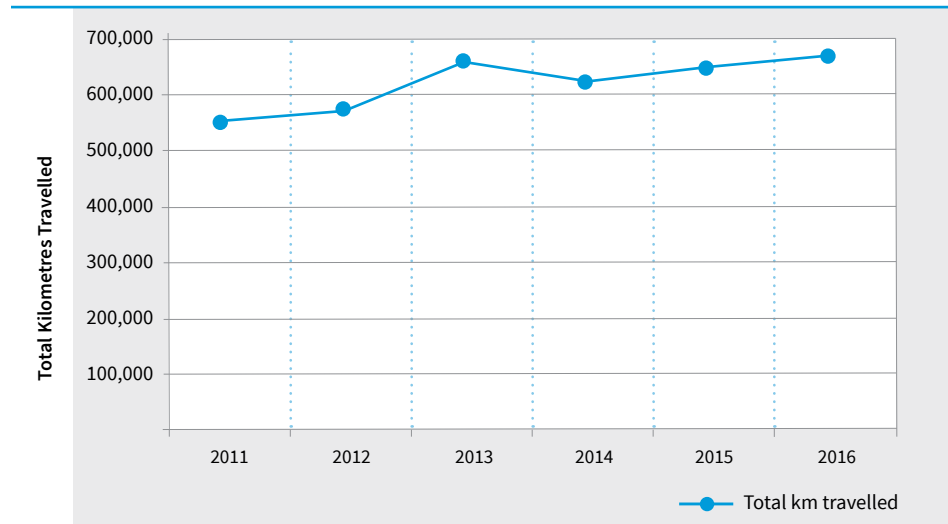
In 2016, our GHG emissions from mobile sources (fleet vehicles, Modo vehicles and grounds equipment) totalled 299 tonnes.

As in 2015, GHG emissions for the 2016 reporting year were calculated using reported fuel consumption data. With continuous effort to improve reporting methodology, the majority (91 percent) of fuel consumption data was directly obtained, while only a small portion (nine percent) was estimated, minimizing the uncertainty of estimation.

We could compare emissions between the 2016 and 2015 reporting years due to the standardization of methodology between the two years. Kilometres travelled, litres consumed, and GHG emissions from fleet all increased slightly in 2016. GHG emissions increased by eight percent and kilometers travelled increased by four percent in 2016. This is consistent with an increase in the number of staff and vehicles and the increased responsibility taken on by our grounds and maintenance crews.

The difference between the increase in GHG emissions and the increase in kilometres travelled may be caused by our mix of vehicles changing slightly due to operational needs, with energy-efficient vehicles currently making up a smaller percentage of our fleet.

Kilometres driven by BC Housing fleet, 2011-2016



Emission source	2016 GHG emissions (Tonnes of CO ₂ e)	2016 results compared with the 2005 baseline ³	2016 results compared with 2015
Fleet (Mobile combustion)	299	N/A	8% increase

Actions taken in 2016

- The Lower Mainland grounds and maintenance fleet continued to use a GPS fleet tracking system to reduce fleet mileage. This allowed fleet managers to reduce kilometres driven by allocating resources more efficiently and monitoring idling behaviours.
- All fleet vehicle drivers, as well as other employees, have completed eco-driving training to encourage a culture of fuel efficient driving, supported by the *livegreen* Employee Council.
- Our ability to accurately report and monitor fuel usage has increased significantly over the past few years due to the efforts of our staff in recording fuel usage in our systems.

³ Not comparable due to a change in methodology.

Paper

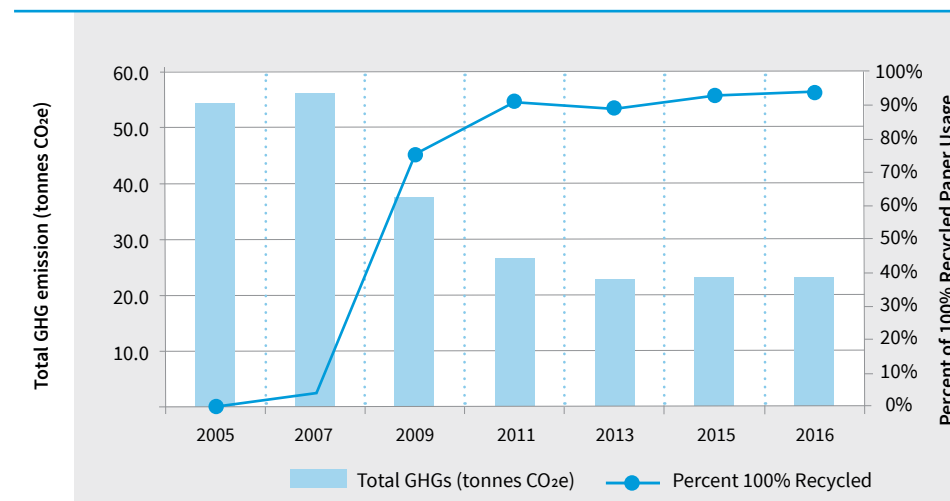
Our 2016 GHG emissions for office paper were 23 tonnes.

Since 2005, we have seen a 57 percent decrease in our GHG emissions resulting from paper consumption. This is mainly due to promoting a paperless organizational culture and changes to our procurement practices. Our GHG emissions from paper remained static between 2015 and 2016, despite an increase in staff.⁴

Paper	2016 GHG emissions (Tonnes of CO ₂ e)	Change in absolute GHG emissions in 2016 (against 2005 baseline)	Change in absolute GHG emissions in 2016 against 2015	Change in GHG emissions in 2016 (against 2005 baseline) per employee
	23	57% decrease	<1% decrease	76% decrease

In 2016, 94 percent of all the paper purchased was recycled paper, a one percent increase from 2015. This compares favourably with 93 percent in 2015 and zero percent in 2005.

Total GHG emissions for office paper and recycled paper usage



Since 2005, BC Housing has grown significantly as an organization. In the same period, the total amount of office paper used decreased by 31 percent and related GHG emissions per employee decreased by 76 percent. Our absolute emissions also decreased by 57 percent.

⁴ The 2015 CNAR incorrectly reported change in absolute emissions against 2005 baseline as 55 percent instead of 57 percent and the decrease per employee as 74 percent instead of 75 percent.

Actions taken in 2016

- In 2016, the *livegreen* Employee Council organized a BC Housing-wide paper reduction competition, encouraging staff to cut down on their printing compared with the previous year.
- Our office services staff made every effort to buy 100 percent recycled paper and only purchased paper with a lower recycled content if there was no paper of the type required available with 100 percent recycled content.
- The annual employee survey revealed that 86 percent of employees tried to reduce printed materials in our offices.
- We encouraged staff to reduce printed materials by promoting paperless meetings and giving our printers a default setting of double-sided.



This guide, available on the BC Housing website, outlines practical steps to help tenants reduce energy use and utility costs



BC Housing tenants celebrate their engagement in energy efficiency.



BC Housing staff with plants destined for tenants' gardens.

Other Actions

BC Housing has had sustainability top of mind for many years. Our [livegreen Sustainability Plan](#) is integrated with our corporate and branch plans to ensure every area puts a “green” lens on all its activities. Our Senior Strategic Advisor on Sustainability is part of our Executive Office team who works with employees throughout the organization to ensure sustainability is a part of their portfolios. Our [livegreen Sustainability Report](#) describes in detail our actions in those areas, including:

Employee engagement

Our employee green team, the [livegreen Employee Council](#), plays a key role in engaging its colleagues in making more sustainable choices at work, home, and in their communities. This committed and corporately-sponsored council represents every branch of BC Housing. Council members work to a strategic plan that is informed by the findings of our annual sustainability survey.

The annual sustainability survey measures the impact of the activities led by the [livegreen Employee Council](#). These annual surveys reveal that employees are choosing more sustainable home products (cleaning products, gardening tools, appliances, and automotive goods), are recycling more (especially oils, paints, and chemicals), have reduced trips to the grocery store, and are consuming less meat and eating more organic and local foods since our 2009 baseline measurements. The percentage of employees who are composting has also risen significantly, up to 92 percent in 2016 from 67 percent in 2009.

Our annual Employee Engagement Survey also includes sustainability questions. In 2016, 85 percent of our employees said they felt supported by BC Housing to make sustainable choices at home and at work.



BC Housing staff and tenants in the garden.

Due in part to our employee engagement practices, Canada's Top 100 Employers project has named BC Housing one of Canada's Greenest Employers for three consecutive years and we have been recognized as a Transformational Company by Canadian Business for Social Responsibility.

Procurement

An increasing number of our public tenders include evaluation criteria that focus on sustainable product specifications, waste reduction and diversion, efficiency, and positive contributions to local communities. Last year, 53 percent of tenders included such sustainability criteria, a significant 11 percent year-to-year increase. BC Housing is the first public organization in B.C. to win an Achievement of Excellence in Procurement from the National Procurement Institute and is only the sixth Canadian one to win this award in its 20-year history.

Community connections

BC Housing's employee-led community investment program, Community Connections, raises more than \$140,000 for local charities annually. Through the program's Employer Supported Volunteerism component, our staff donates more than 800 hours a year to charities such as food banks and the Food Sharing Farm in Richmond. This program provides education and team-building opportunities as well as contributing to environmental, social, and economical sustainability programs in local communities in tangible ways.

Plans to Continue Reducing GHG Emissions in 2017

Buildings

- In 2017, the Energy Efficiency Retrofit Program (EERP) will include approximately 25 potential projects with an estimated 0.8 GWh of energy savings. Additional projects that are currently in the planning stages will likely be added to the program.
- We plan to complete updating BC Housing's Design Guidelines and Construction Standards to incorporate high levels of the newly adopted BC Energy Step Code. These standards are used to guide the construction of BC Housing-funded projects and will result in our new construction projects achieving higher levels of energy efficiency.
- In 2017, BC Housing will strive to ensure most of our renovation projects include energy modelling and Energy Conservation Measure (ECM) development in the design portion.
- BC Housing has signed an agreement with the Columbia Basin Trust (CBT) to assist non-profit housing providers with the costs of increasing energy efficiency. In partnership with BCNPHA, we will fund non-profit housing providers for energy retrofits over the next two fiscal years. Societies must apply for BC Hydro, FortisBC, and any other government and utility incentives in order to qualify for funding.
- BC Housing has signed an agreement with FortisBC to create the Energy Efficiency Incentive Program (EEIP). This program will allow non-profit housing providers to receive financing and grants for energy efficiency retrofits and energy conservation measures on new construction projects. FortisBC has provided \$500,000, which we will match to provide grants. This program could provide more than \$10 million in financing for energy-saving projects.
- BC Housing will continue to provide residential construction industry education by developing and delivering at least 10 Building Smart workshops, seminars, and webinars in all regions of B.C. Potential topics include the BC Energy Step Code, LEEP, and accessibility.
- In 2017, BC Housing plans to begin a pilot project to explore the use of new and emerging construction technologies that are cost-effective and environmentally sustainable. BC Housing will also identify and undertake a Passive House pilot project.
- As part of the Local Energy Efficiency Partnerships (LEEP) program, we are developing several demonstration videos that will be completed in 2017. These videos will show builders and trades that high levels of energy efficiency can be achieved using currently available materials and techniques.
- Sustainability and energy conservation will continue to be integrated in our community development programs. For the first time, we are planning a series of events around Earth Day that will involve both our staff and tenants.

Fleet

- In 2017, all new hires will have a chance to access online training on eco-driving techniques, which can help reduce GHG emissions from vehicle trips by up to 25 percent.
- *livegreen* Employee Council members will research different ways that BC Housing employees can “travel green” and share this information with staff via educational articles, events, and programs. This will include exploring additional corporate car-sharing options, providing links to public transportation planning information, and encouraging a culture of carpooling.
- The *livegreen* Employee Council will also speak to single-occupancy vehicle commuters to learn more about their barriers to using more sustainable modes of transit, and to identify ways for them to take that option instead. This information will inform new corporate policies, programs, and incentives.

Paper

- In 2017, BC Housing will try to source a higher percentage of our paper with 100 percent recycled content.
- We will conduct a waste audit of the recycling and waste bins to measure how much contamination is present. This will help ensure that waste paper is being recycled.
- The *livegreen* Employee Council will promote the idea of paperless meetings through information bulletins in the BC Housing weekly e-newsletter and signage in meeting rooms.
- The *livegreen* Employee Council will also continue to encourage employees to make more sustainable decisions at work, home, and in our communities.

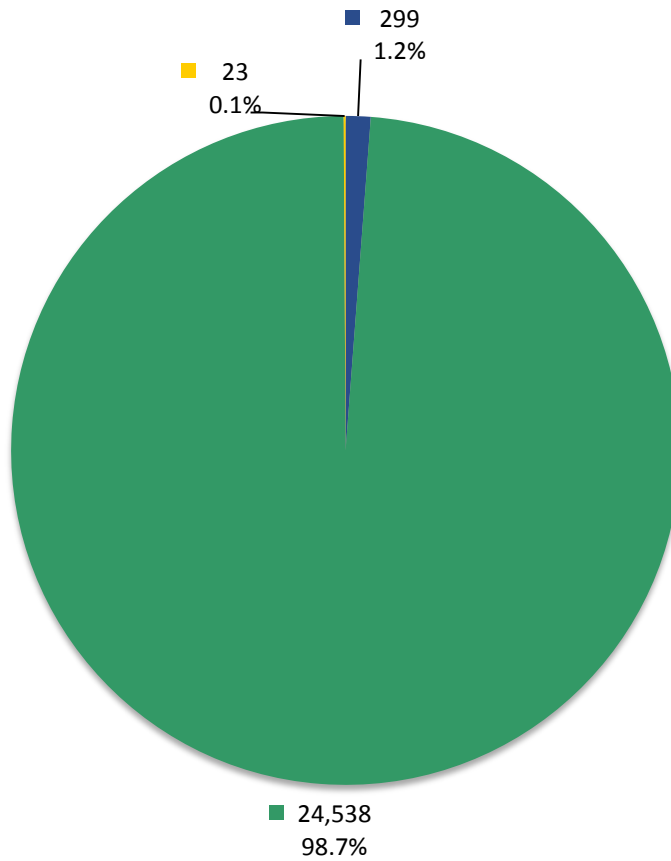
Further resources

For information about our actions and plans in other sustainability areas, please visit:

www.bchousing.org/about/sustainability

www.bchousing.org/research-centre

**BC Housing Management Commission
Greenhouse Gas Emissions by Source
for the 2016 Calendar Year (tCO₂e*)**



Total Emissions: 24,861

- 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 2016 (Generated May 16, 2017 9:58 AM)

Total offsets required: **24,836**. Total offset investment: **\$620,900**. Emissions which do not require offsets: **25** **

*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.

2016 Carbon Neutral Action Report Survey

Part One (external)

Contact Name(s):

Magdalena Szpala

Organization Name:

BC Housing

Please select your sector:

- Crown Corporation

1) Stationary Sources (Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

During 2016, did your organization take any of the following actions to support emissions reductions from buildings?

Select all that apply

- Conducted an energy audit/study of building(s) in the organization's portfolio
- Performed energy retrofits of the organization's buildings.: 52
- Built, or are building new LEED Gold or other "Green" buildings.: 2
- Other actions? Please describe briefly.: Energy upgrades at non-profit housing sites through the Energy Conservation Assistance Program and the Energy Efficiency Retrofit Program. Awarded Efficiency in Action Award by FortisBC. Continued to support the Facilities Operations and Maintenance training for the public, non-profit and private housing sectors.

Briefly describe your organization's plans to continue reducing emissions from its stationary sources in future years.

*25 projects to be included in the Energy Efficiency Retrofit Program.
Updates to BC Housing's Design Guidelines and Construction Standards to incorporate high levels of the newly adopted BC Energy Step Code.
Including energy modeling and Energy Conservation Measure in most renovation projects.
New Energy Efficiency Incentive Program will be created in collaboration with FortisBC.
Continuation of existing energy conservation programs for both BC Housing and non-profit housing sites.*

During 2016, did your organization participate in utility-sponsored energy demand management program(s) (e.g. BC Hydro's Energy Management (Manager))?

Yes

If yes, please describe briefly:

Yes, our Manager, Energy Management is sponsored by BC Hydro and we also have a sponsored Energy Specialist.

2) Mobile Sources (Vehicles, Off-road/Portable Equipment): Fuel Combustion.

During 2016, did your organization take any of the following actions to support emission reductions from its mobile sources?

Select all that apply

-
- Took steps to drive less than previous years.
 - Other actions? Please describe briefly.: Use of GPS tracking system for efficient route planning. Completion of eco-driving training. Improved reporting.

Briefly describe your organization's plans to continue reducing emissions from its mobile sources in future years.

More staff to take the eco-driving training. The livegreen Council will lead 'travel green' campaign to encourage alternative ways for business travel and commuting.

3) Supplies (Paper):

During 2016, did your organization take any of the following actions to support emissions reductions from paper supplies?

Select all that apply

-
- Awareness campaign focused on reducing office paper use.
 - Policy requiring the purchase of recycled content paper.: 100% recycled paper
 - Other actions? Please describe briefly.: Paper reduction campaign was conducted for all employees. 86% of employees declared in the survey that they try to reduce printed materials. Continued promotion of paperless meetings.

Briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

Purchasing a higher percentage of paper with 100% recycled content.
Conducting a waste audit of the recycling and waste bins to ensure that waste paper is being recycled.
Paperless meetings campaign to be led by the livegreen Council.

4) Other Sustainability Actions:

Business Travel:

During 2016, did your organization take any of the following actions to support emissions reductions from business travel?

Select all that apply

-
- Encouraged alternative travel for business (e.g. bicycles, public transit, walking)
 - Encouraged or allowed teleworking or working from home
 - Other, please describe briefly: Participated in Bike to Work and Commuter Challenge campaigns.

Education Awareness:

During 2016, did your organization have any of the following programs or initiatives to support sustainability education and awareness?

Select all that apply

-
- Green, Sustainability or Climate Action Team
 - Support for professional development on sustainability (e.g. workshops, conferences, training)
 - Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials
 - Other, please describe briefly: Supported the work of the livegreen Council. It's mission is to support employees to make more sustainable choices at work, home and in their communities.

Other Sustainability Actions:

During 2016, did your organization have any of the following programs or initiatives to support sustainability?

Select all that apply

-
- An operations policy or program to facilitate the reduction and diversion of building occupant waste (e.g., composting, collection of plastics, batteries) from landfills or incineration facilities
 - Green procurement standards for goods (e.g., office furniture, etc.)
 - Other, please describe briefly: Community Connections program encourages employees to be engaged in local projects.