

## Carbon Neutral Action Report The British Columbia Housing Management Commissions (BC Housing)

### Executive Summary

In the 2008/09-2010/11 Service Plan BC Housing identified “environmental leadership in the housing sector” as one of its key objectives. BC Housing is responsible for the development, management and administration of subsidized housing across the province. There are over 88,000 subsidized units across B.C. Recognising that these activities have a large impact on GHG emissions, BC Housing has been incorporating a number of strategies aimed at reducing GHG emissions.

Some of the initiatives include:

- The introduction of a minimum energy performance standard that was more aggressive than the national building code
- Creating LEED Gold certification requirement for all new projects since 2007
- Energy retrofits in 49 social housing buildings
- Replacement of old appliances and lighting with energy efficient ones (including EnergyStar and CFLs).

In 2008 BC Housing started the process to collect activity data in order to be able to quantify the GHG emissions related to its buildings, fleet, and paper.

In 2008, BC Housing launched a new sustainability strategy called livegreen – A Housing Sustainability Action Plan that outlines BC Housing’s vision of being a leader in North America in developing and managing environmentally sustainable social housing. The five priorities of the livegreen are:

1. Build All New Social Housing to Be LEED Gold Certified, and Low in GHG emissions
2. Reduce Energy Consumption and GHG Emissions
3. Reduce Resource Consumption and Waste
4. Create and Support a livegreen Culture Among Employees
5. Increase Environmental Awareness and Action among Tenants, Housing Providers and Stakeholders.

Many of the activities, measures and outcomes included in this report – are also included in BC Housing livegreen plan.

### Objectives

Environmental leadership in the housing sector has been identified as an objective in BC Housing Service Plan 2008/09 - 2010/11. Measure: percent reduction in GHG emissions. Target: 5% reduction per year based on 2005 levels.

In accordance with this objective, in 2008 BC Housing created and launched a sustainability strategy called livegreen: A Housing Sustainability Action Plan. It outlines the following objectives:

1. To reduce energy consumption and implement measurable sustainability improvements across social housing buildings and BC Housing's operations.
2. To engage stakeholders, employees and social housing tenants in positive sustainability actions as a way to foster a culture of conservation in the social housing sector.
3. To set an example that will encourage British Columbia’s residential construction sector to practice sustainable construction and property maintenance.

## Part 1: Actions Taken to Reduce Greenhouse Gas Emissions in 2008

### Overview

Some of the most significant actions taken in 2008 included:

- energy audit on 84 social housing buildings
- energy retrofit on 49 social housing buildings
- application for LEED Gold for 39 new social housing buildings and the new floors at the Home Office building
- preserved the minimum energy performance requirements for new multi-unit residential projects of 47% less than required by the Model National energy Code of Canada for Buildings 1997 (MNECB), and EnerGuide 80 for Small Buildings
- developed and launched "livegreen – A Housing Sustainability Action Plan"
- created and supported livegreen Employee Council

### 1.1 Mobile Fuel Combustion

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	In progress	Established targets for completion in 2009. Measure: Percentage change in GHG emissions from work-related travel. Target: 5% annual reductions. Outcome to date: 3 smart cars and 2 Honda hybrids were purchased.	3 smart cars and 1 Honda hybrid were purchased for the HomeOffice car pool; 1 Honda hybrid was purchased for a regional office.
Encouraged car pooling in fleet vehicles	In progress	Established targets for completion in 2009. Measure: Percentage change in GHG emissions from work-related travel. Target: 5% annual reductions. Outcome: Some of the Home Office, Regional Office and Maintenance Ground Teams use car pooling.	The Existing Travel Policy is to use the most economical form of transport which sometimes means car pooling. There is a dedicated car pool space provided for visitors.
Encouraged use of public transit/active transportation	In progress	Established targets for completion in 2009. Measure: Percentage change in GHG emissions from work-related travel. Target: 5% annual reductions.	Alternative Transportation Strategy has been initiated. Using public transit is encouraged via communication and availability of free Translink tickets for local business travel. Existing travel policy encourages the use the most economical form of transport which usual means public transport.
Established travel reduction goals	Completed	Established targets for completion in 2009. Measure: Percentage change in GHG emissions from work-related travel. Target: 5% annual reductions.	
Adopted a travel policy	In progress	Current policy supports use of the most economical form of transport. The policy will be updated to include also sustainability considerations.	
Enabled virtual meetings	In progress	Unified Communications System project was initiated to enable web and video conferences, instant messaging and video calling.	

## 1.2 Stationary fuel combustion and electricity

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Undertaken workstation tune-ups to help staff understand what they can do to reduce personal energy use	In progress	Established targets for completion in 2009. Measure: Percentage of reduction in GHG emissions from energy consumption in office buildings. Outcome: Workstation tune-ups were conducted under BC Hydro program.	
Supplied power bars – to turn off power to non-essential items when not in use (e.g. phone chargers)	In progress	Some of the staff is using power bars.	
Replaced # computers with EnergyStar models	In progress	95.45% of desktop computers have been replaced to EnergyStar models, 99.29% of monitors. 28% of printers.	
Turned off lights in unused rooms	In progress	Automatic lights systems and sensors installed in BC Housing offices and 49 Directly Managed buildings (common areas only) that had energy retrofits.	
Replaced Refrigerators (EnergyStar rated appliance)	In progress	Refrigerators updated to energy star across 8000 directly managed units.	
Replaced other appliances (with EnergyStar rated appliance)	In progress	Washing machines and dishwashers (where available) updated to EnergyStar in Directly managed Buildings, Group Homes; and new construction units.	
Installed multi-function devices (and removed stand-alone printers/faxes)	Completed	All of the devices used in BC Housing offices are now multi-function.	
Replaced standard bulbs with CFLs	In progress	Distributed 30,000 CFLs under BC Hydro lighting program. Plus installed approx. 4400 bulbs in 1100 unities that were retrofitted.	
Installed motion activated lights	In progress	Motion activated lights installed at Home Office on 15, 16 and 17th floor and all bathrooms.	
Undertaken lighting retrofit	In progress	Lighting retrofit was part conducted as part of the energy retrofit for 49 social housing buildings.	
Implemented server virtualization	In progress	66% of server environment is using virtualization	
Utilized desk-top power management settings on computer	Completed	Power management settings have been optimised by I.T.	
Applied for LEED existing building rating	In progress	New areas of the Home Office applied for LEED Gold (Commercial Interiors) certification in 2008.	
Undertaken building energy audit at LOCATION(s)	In progress	Energy audit was conducted for 84 social housing buildings	
Initiated or completed a building energy retrofit	In progress	Energy retrofit was conducted for 49 social housing buildings	

Built new housing units to be LEED Gold certified and Low in GHG emissions for large buildings. Implemented Green Building Design Standard for small buildings.	In progress	Established new targets. Measure: Number of new units constructed that are LEED Gold certified, and low in GHG emissions. Target:100% of new units built. Outcome: Over 40 new construction projects are meeting the criteria.
Set up minimum energy performance requirements for new multi-unit residential projects of 47% less than required by the Model National energy Code of Canada for Buildings 1997 (MNECB), and EnerGuide 80 for small buildings.	Completed	Established new targets. Measure: Number of new units constructed that are LEED Gold certified, and low in GHG emissions. Target:100% of new units built. Outcome: new energy performance standard was established, resulting in lower GHG emissions.
Incorporated energy retrofit measure into building envelope repair projects	Completed	Established new targets. Measure: Percentage or reduction in GHG emissions from energy consumption. Outcome: 9 building envelope repair projects incorporated energy retrofit measures
Created partnerships to assist energy retrofits and GHG emission reductions	In progress	BC Housing has been working with the BC Non Profit Housing Association and BC Hydro to develop a plan to implement energy retrofits and reduce GHG emissions throughout the non profit housing sector.
Distributed energy saving kits to building tenants	In progress	BC Hydro low income energy saving kits were distributed to 1000 units

### 1.3 Supplies

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Committed to use 30% recycled paper	In progress	27% of total office paper used (letter and legal size) had 30% recycled content.	
Committed to use 100% recycled paper	In progress	68% of total office paper used (letter and legal size) had 100% recycled content.	
Initiated automatic double sided printing	In progress	All black & white Home Office printers are set to automatic double sided printing	
Committed to hold paperless meetings	In progress	All Executive Committee & Development Services branch managers meetings are paperless.	
Developed document library (online and one printed copy) for large documents	In progress	Switched to on-line guidelines and documents. Organization-wide Forms Inventory underway to eliminate duplicates and reduce proliferation of paper.	
Re-used non-confidential scrap paper	In progress	Note pads available in Home Office are produced from scrap paper.	
Used laptops/tablets	In progress	All Executive Committee & Development Services branch managers meetings are paperless.	

Restructured a process to use less paper	In progress	Electronic paystubs and personal records were introduced in 2007. Encouraged use of Outlook & corporate calendars and reduced the use of paper calendars and appointment books. Centralization of forms and move to electronic forms processes have been initiated.
<b>Actions on non-paper related supplies:</b>		
Purchased cradle to cradle goods	In progress	All stationary at the Home Office was purchased using cradle to cradle principles
Encouraged re-use of furniture and equipment	In progress	All excess furniture is re-used or recycled. Computers and electronics donated to non-profits.
Purchased Fair Traded food supplies	In progress	Fair Traded coffee at all offices in the Lower Mainland.

#### 1.4 Employee Engagement

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Provided climate change education	In progress	Established new targets. Measure: Percentage of employees who indicate they feel supported by BC Housing to make good sustainability choices in the workplace and at home. Outcome: 74% of employees indicated they feel supported by BC Housing to make good sustainability choices in the workplace and at home.	Two Semi-Annual staff Meetings focused on sustainability and climate change education.
Provided conservation education	In progress	Established new targets. Measure: Percentage of employees who indicate they feel supported by BC Housing to make good sustainability choices in the workplace and at home. Outcome: 74% of employees indicated they feel supported by BC Housing to make good sustainability choices in the workplace and at home.	Sustainability plan and website was created (livegreen), that includes 'Green Tips' encouraging energy conservation and waste reduction. Livegreen Employee Council was created with Employee Engagement mandate. A number of Lunch & Learns were conducted. Communication around the Earth Day was created including questionnaires and contests.
Held contests to change behaviour/make pledges	In progress	Outcome: In 2008 BC Housing participated in the Commuter Challenge & ranked fourth in its size category. BC Housing also participated in Bike to Work Week and Car Pool Week	
Held contests/support to generate ideas	In progress	Ideas were gathered during the Semi Annual Meetings in 2008. Livegreen council was created as a result. New ideas are generated and collected by the livegreen employee council	
Developed Green Teams	In progress	Livegreen employee Council was created to focus on engagement of employee and their families	

Supported Green Teams (resources)	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 survey and facilitated strategic planning process.
Provided green tips	In progress	Bi-weekly publications promoting energy conservation, waste reduction, and other sustainability oriented actions; are posted on BC Housing intranet. 2008 Livegreen calendar was created with examples of sustainability oriented actions. The calendar was distributed to all employees.
Supported professional development	In progress	23 employees participated in LEED trainings in 2007. 4 additional employees participated in climate change, energy efficiency and other environmental courses in 2007.
Added green work goal to performance management	In progress	Corporate Plan, Branch plans and a number of individual performance plans include sustainability related goals.
Received awards for creating a great place to work	Completed	In 2008 BC Housing was selected as one of BC's top employers by Mediacorp Canada.

### 1.6 Sustainability Actions (others)

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Took water conservation measures – low flow showers or toilets, fix leaks	In progress	Water retrofits conducted at 49 buildings. Made commitment to Gold LEED certification of new construction buildings that will reduce water consumption by 40-50% at each site.	
Reduced/replaced bottled water with filtered or refrigerated water	Completed	Filtered water tanks were installed in offices where possible	The storefront and call center do not have access to plumbing allowing for installation of water tanks. Call center requires quick and immediate access to water at the workstations.
Improved recycling measures	In progress	Launched CFLs and fluorescent light bulbs and battery recycling program for 47 developments (5500 housing units). Launched new paper, metal, and plastic recycling at all Lower Mainland Directly Managed sites. Expanded recycling programs at Home office by setting up battery and cream/milk containers and Styrofoam recycling and expanding recycling systems on all floors. Launched new recycling programs at regional offices.	

Supported composting	In progress	Some office areas including regional offices introduced composting. Yard waste composting was also introduced.	
Used re-usable dishes	Completed	Purchased cutlery, plates and mugs for each utility room at the Home Office building to reduce the amount of paper products consumed. Catering supplier (for Metro Vancouver area) offers their services using biodegradable or recyclable plates, platters, cups and boxes.	
Purchased green cleaning products	In progress	All cleaning products in offices and Directly Managed buildings will be replaced with green cleaning products.	
Used green (low-e paints)	In progress	Initiated phasing out of VOC and oil based paints	
Supported sustainable procurement practices	In progress	Generic sustainable procurement policy has been established.	
Adopted low-carbon contracting practices	In progress	Generic sustainable procurement policy has been established.	
Encouraged alternative commuting modes	In progress	66 employees were enrolled in Employer Transit Pass program. Teleworking pilot project was initiated.	Go Green program was established to promote the use of alternative transportation to and from work. Employer Transit Pass Program & Bike Purchase program were set up. Access to bicycle lockers and showers were set up at the Home Office.
Reduced Resource Consumption and Waste	In progress	Established new targets. Measure-1: Percentage of construction waste diverted from the landfill. Target: 50% or 70% or 90% reduction depending on the location. 50% target for retrofit projects. Measure-2 Percentage of construction waste diverted from the landfill. Measure: Percentage of provincially-funded non-profit housing and co-op providers that have developed a green plan to reduce resource consumption and waste.	All three measures are included in the livegreen plan. Vinyl siding recycling and other construction waste recycling was established for building envelope repair projects.
Created and implemented sustainability plan		Created and initiated implementation of a comprehensive BC Housing Sustainability Action plan (livegreen plan)	The plan includes: Five Priority Areas; Measures; Short-, Medium-, and Long-term targets; and Actions, Deliverables and Responsibility allocation per business area.
Established a measure for stakeholder engagement	Completed	Established new targets. Percentage of provincially-funded, non-profit and co-op housing sites that have implemented a green plan to reduce resource consumption and waste.	

## Part 2: Plans to Continue Reducing Greenhouse Gas Emissions 2009 -- 2011

### Overview

BC Housing livegreen – A Housing Sustainability Action Plan includes Short Term (1-2 years), Medium Term (completed by end of fiscal 2010/11) and Long Term (completed by end of fiscal 2019/20) targets, under each of its 5 priorities.

Priority A: Build all New Social Housing to be LEED Gold Certified and Low in GHG Emissions - all targets aim at 100% of new units.

Priority B: Reduce energy consumption and GHG Emissions: - targets are annual 5% reduction based on 2005 baseline, leading to 50% reduction by 2020.

Priority C: Reduce Resource Consumption and Waste – Short Term target is 50% increase from baseline, Medium Term: 90% and 100%, and Long Term target is 100% of social housing and non-profit sites.

Priority D: Create and Support livegreen Culture Among Employees – short term target is to develop baseline and set targets.

Priority E: Increase Environmental Awareness and action among Tenants, Housing Providers and Stakeholders – targets are to gradually increase percentage of provincially funded non-profit housing and co-op providers that have developed a green plan from 1 and 2% in the Medium Term to 20% in Long Term.

### 2.1 Mobile Fuel Combustion

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Replace # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	In progress	Issue new policy to ensure that all new BC Housing vehicles acquired on a go-forward basis are as low carbon producing vehicles as possible. Plans include introduction of hybrid trucks.		2009
Provide driver training to reduce fuel use	Planned	Introduce 'Green Fleet' aspects in Driver Education Training		2009
Initiate new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups)	Planned	New notification system will be set-up to ensure timely maintenance. Outcome: increased compliance with the fleet maintenance program		2009
Establish anti-idling behaviour change program (e.g. signs, stickers, messages)	Planned			2009
Encourage car pooling in fleet vehicles	In progress	Alternative Transportation Strategy will be further developed. Travel Policy will be updated to include sustainability considerations to enhance motivation for car pooling.		2009
Encourage use of public transit/active transportation	In progress	Using public transit is encouraged via communication and availability of free Translink tickets. Alternative Transportation Strategy will be further developed. Travel Policy will be updated to include sustainability considerations to enhance motivation for car pooling.		2009
Encourage alternatives to travel in fleet vehicles – bicycles, scooters, electric carts	Planned	Travel policy will be updated to include sustainability considerations. Bicycle racks to be installed at appropriate public housing sites.		2009 & 2010

Establish travel reduction goals	In progress	Travel reduction goals are stated in the livegreen plan at 5 percent change in GHGs from work related trips (per capita or per kilometre traveled)	On-going on annual basis
Enabled virtual meetings	In progress	Implementation of Unified Communications System project to enable web and video conferences, instant messaging and video calling.	2009

## 2.2 Stationary Fuel Combustion (including electricity)

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Undertake workstation tune-ups to help staff understand what they can do to reduce personal energy use	In progress	Employee campaign is planned to increase awareness and conservation measures throughout organization		2009
Undertaken Monitor turn-off challenge	Planned	Employee campaign is planned to increase awareness and conservation measures throughout organization		2009
Replace # computers with EnergyStar models	In progress	Continue to replace computers with Energy Star models		2009
Turn off lights in unused rooms	In progress	Employee campaign is planned to increase awareness and conservation measures throughout organization		On-going
Replace Refrigerators (EnergyStar rated appliance)	In progress	Continue to replace computers with Energy Star models		On-going
Replace other appliances (with EnergyStar rated appliance)	In progress	Continue to replace appliances with Energy Star models across the offices and public housing buildings		On-going
Install multi-function devices (and remove stand-alone printers/faxes)	In progress	All of the devices used in BC Housing offices are now multi-function.		On-going
Replace standard bulbs with CFLs	In progress	Continue replacement of standard bulbs with CFLs across the offices and public housing		On-going
Undertake lighting retrofit	In progress	Continue lighting retrofit as part of the overall retrofit program for social housing buildings		On-going
Undertake building energy audit at LOCATION(s)	in progress	Develop an energy retrofit plan for each public housing building		2011
Initiate or complete a building energy retrofit	In progress	Established target to carry out retrofit projects on 30% of units.		2011
Build new housing units to be LEED Gold certified and Low in GHG emissions for large buildings. Implemented Green Building Design Standard for small buildings.	In progress	Continue monitoring the measure: Number of new units constructed that are LEED Gold certified, and low in GHG emissions. Target:100% of new units built		On-going

Maintain the minimum energy performance requirements for new multi-unit residential projects of 47% less than required by the Model National energy Code of Canada for Buildings 1997 (MNECB), and EnerGuide 80 for small buildings.	In progress	Continue monitoring the measure: Percentage or reduction in GHG emissions from energy consumption. Target: 100% of new units built		On-going
Incorporate energy retrofit measure into building envelope repair projects	In progress	Continue monitoring the measure: Percentage or reduction in GHG emissions from energy consumption.		
Create partnerships to assist energy retrofits and GHG emission reductions	In progress	Continue monitoring the measure: Percentage or reduction in GHG emissions from energy consumption.	BC Housing is working with the BC Non Profit Housing Association and BC Hydro to develop a plan to implement energy retrofits and reduce GHG emissions throughout the non profit housing sector.	On-going
Distribute energy saving kits to building tenants	In progress	Continue monitoring the measure: Percentage or reduction in GHG emissions from energy consumption.		On-going

## 2.3 Supplies

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Commit to use 30% recycled paper	In progress	Employee campaign to increase awareness and conservation measures throughout organization		2009
Commit to use 100% recycled paper	In progress	Employee campaign to increase awareness and conservation measures throughout organization		2009
Initiate automatic double sided printing	In progress	Maintain the setting of all office printers to black and white; and automatic double sided printing		2009
Commit to hold paperless meetings	In progress	Expand the commitment from the Executive Committee meetings to all departments		2009
Develop document library (online and one printed copy) for large documents	In progress	Central repository for Policies and Procedures to be set-up		2009/10

Re-use non-confidential scrap paper	In progress	Employee campaign to increase awareness and conservation measures throughout organization		On-going
Restructure a process to use less paper	In progress	One pilot project to be implemented that will reduce the number of paper forms needed and maximize use of existing technology; one process being redefined that will add a level of business analysis to Forms requests with multiple outcomes including use less paper.		2009/10
<b>Actions on non-paper related supplies:</b>				
Purchase cradle to cradle goods	In progress			
Reduce total amount of paper used per capita	Planned	Employee campaign to increase awareness and conservation measures throughout organization		2009
Committed to use recycled paper in all printing materials	Planned			2009
<b>2.4 Employee Engagement</b>				
<b>Action</b>	<b>Action Planned</b>	<b>Outcome/Performance Measure</b>	<b>Notes Clarifying Action Taken</b>	<b>Timeframe</b>
Provide climate change education	In progress	Develop an interactive website with resources and education on climate change. Organise lunch and learns on regular basis.		On-going
Provide conservation education	In progress	Develop an interactive website with education on conservation. Continue to provide green tips on the existing website.		On-going
Hold contests to change behaviour/make pledge	In progress	Launch employee campaign to increase awareness and conservation measures throughout organization. Expand employee Green Rewards Program		2009
Hold contests/support to generate ideas	In progress	Develop an interactive website that will allow for gathering and generation of ideas from employees		2009
Develop Green Teams	In progress	Employee livegreen council will continue to focus on employee engagement. Establish sustainability forums to support corporate		2009
Provide green tips	In progress	Continue to communicate 'Green Tips' on regular basis via the website and BC Housing Updates		On-going
Support professional development	In progress	Revise employee orientation program to include livegreen content.		2009
Add a green work goal to performance management	In progress	Measure: Percentage of employees who indicate they feel supported by BC Housing to make good sustainability choices in the workplace and at home.		On-going

## 2.5 Sustainability Actions (others)

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Take water conservation measures – low flow showers or toilets, fix leaks	In progress	Continue water retrofits		On-going
Reduce/replace bottled water with filtered or refrigerated water	In progress			
Improve recycling measures	In progress	Housing providers to implement recycling at all social housing sites		2011
Support composting	In progress			
Purchase green cleaning products	In progress	Replace all cleaning products in offices with green cleaning products.		2009
Use green (low-e paints)	In progress	Complete elimination of VOC and oil based paints		2010
Support sustainable procurement practices	In progress	Establish implementation plan for sustainable procurement policy.		2009-2010
Adopt low-carbon contracting practices	In progress	Establish implementation plan for sustainable procurement policy.		2009-2010
Encourage alternative commuting modes	In progress	Continue Go Green program and the Employer Transit Pass program.		On-going
Reduce Resource Consumption and Waste	In progress	Monitor established targets. Measure-1: Percentage of construction waste diverted from the landfill. Target: 50% or 70% or 90% reduction depending on the location. 50% target for retrofit projects. Measure-2 Percentage of construction waste diverted from the landfill.		On-going
Monitor progress as per the livegreen plan	In progress	Annual review of performance against targets and measures included in the livegreen plan. Annual updates of the plan.		On-going