



2023 Climate Change Accountability Report



**BRITISH
COLUMBIA**



BC HOUSING

Land Acknowledgement

BC Housing gratefully acknowledges that we carry out our work on the unceded, traditional and ancestral homelands of hundreds of Indigenous Peoples and Nations throughout British Columbia, each with their own unique traditions, history and culture. We offer our sincere respect and gratitude to their people past and present and commit to meaningful Reconciliation.



Clayoquot Sound, Vancouver Island, B.C.

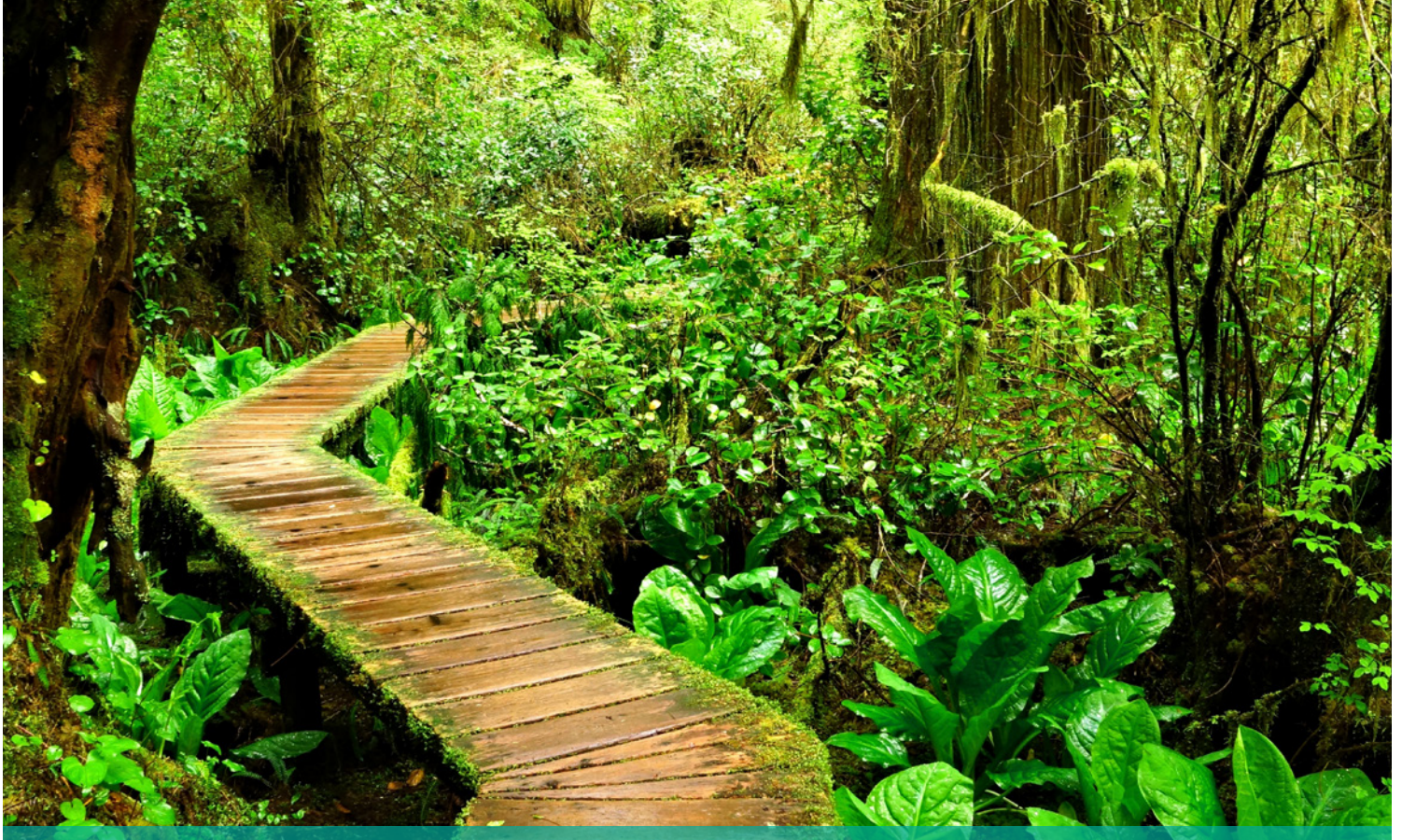
Cover photo: Sunfield Manor senior housing in Nanaimo, built to Step Code 4 in 2023



Sunrise seen from New Westminster, B.C.

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Boardwalk trail in Pacific Rim National Park, Vancouver Island, B.C.

Declaration Statement

This PSO Climate Change Accountability Report for the period January 1, 2023 to December 31, 2023 summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2023 to minimize our GHG emissions, and our plans to continue reducing emissions in 2024 and beyond.

By June 30, 2024 BC Housing's final 2023 Climate Change Accountability Report will be posted to our website at www.bchousing.org



Riverstone in Hope provides 45 homes for Indigenous families, Elders, and individuals. It includes a 37-unit apartment building and eight townhouse units

About BC Housing

BC Housing's mission is to "provide access to safe, quality, accessible, and affordable housing options." We oversee the development, management, and administration of a wide range of subsidized housing options across the province, including emergency shelter, rent assistance in the private market, and affordable homeownership programs. Currently, we collaborate with approximately 800 housing providers, serving over 121,000 households in communities throughout British Columbia.

We also play a crucial role in licensing residential builders, administering owner-builder authorizations, and conducting research and education that benefits the residential construction industry and consumers. Through these activities we support the transition of the industry towards low carbon and resilient building practices.

In British Columbia, we have experienced the impact of climate change firsthand. Rising global temperatures have led to more frequent and severe weather events such as heatwaves, wildfires, and flooding. As a provincial organization with buildings, operations, and partners in many different municipalities, we are affected by weather events across of the province.

These events not only pose risks to our buildings but also lead to unforeseen costs and risks for our tenants, clients, partners, and employees.

Given these challenges, BC Housing recognizes our dual responsibility: to reduce our contributions to climate change and to adapt to the changing climate. We are committed to fulfilling the directives outlined in the 2023-24 BC Housing mandate letter. This includes aligning with CleanBC targets, including achieving a 50 percent reduction in public sector building emissions and a 40 percent reduction in public sector fleet emissions, by 2030. The building emissions target is also reflected in our annual Service Plan, which includes increasingly stringent building emission targets in order to help us meet the 2030 target.

In 2023, we released a new [Sustainability and Resilience Strategy](#). This strategy includes performance measures, targets, and an Implementation Plan outlining actions that will guide us toward our sustainability and resilience objectives over the next three years. Additionally, we published our inaugural annual Sustainability and Resilience Report, detailing our progress towards the targets outlined in the new strategy.

2023 Greenhouse Gas Emissions and Offsets Overview

Emissions and Offset Summary Table:

| BC HOUSING 2023 GHG EMISSIONS AND OFFSETS | |
|--------------------------------------------------------------------------------|------------|
| GHG Emissions created in Calendar Year 2023 | |
| Total Emissions (tCO ₂ e) | 33,438 |
| Total BioCO ₂ | 0 |
| Total Offsets (tCO ₂ e) | 33,438 |
| Adjustments to Offset Required GHG Emissions Reported in Prior Years | |
| Total Offsets Adjustment (tCO ₂ e) | 0 |
| Grand Total Offsets for the 2023 Reporting Year | |
| Grand Total Offsets (tCO ₂ e) to be Retired for 2023 Reporting Year | 33,438 |
| Offset Investment (\$25 per tCO ₂ e) | \$ 835,950 |

Total Emissions for Offsets for the 2023 Reporting Year

BC Housing purchased carbon offsets from the Government of B.C. for the equivalent of 33,438 tonnes of CO₂e to obtain carbon neutral status for 2023.

Zero tonnes of CO₂e emissions from the combustion of biomass and biomass-based fuels were reported as part of our greenhouse gas emissions profile in 2023. 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 *Climate Change Accountability Act* and Carbon Neutral Government Regulation, BC Housing (the Organization) is responsible for arranging for the retirement of the offsets obligation reported above for the 2023 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy (the Ministry) ensuring that these offsets are retired on the Organization’s behalf, the Organization will pay within 30 days, 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.



Kate Begent-Connors

VP, Strategic Business Operations and Performance
 BC Housing
 May 30, 2024



Habitat @ 81st is a six-storey building located in Surrey, B.C. with a mix of studio, one-, two- and three-bedroom homes for households with moderate and low incomes located in Surrey, B.C.

Emission Reductions: Actions & Plans

Stationary Sources

BC Housing reports on energy use and related greenhouse gas emissions from all the buildings that we own or lease as required by the Carbon Neutral Government Regulation. With the exception of our offices, our building inventory is made up of various types of affordable housing, including:

- ▶ Residential towers (high-rise buildings)
- ▶ Low- and mid-rise buildings
- ▶ Single-room-occupancy hotels (SROs)
- ▶ Townhouses
- ▶ Group homes

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

In 2023, our portfolio included 844 social housing sites, totaling over 17 million square feet of floor area. During the year, we added 53 new sites to our greenhouse gas reporting inventory through new construction or purchase of existing buildings.

Greenhouse Gas Results for Buildings

Our Service Plan sets a target of a 20-25 percent reduction in greenhouse gas emissions from buildings for 2023, compared to a 2010 baseline. This target is also included in our Sustainability and Resilience Strategy and aims to help us achieve a 50 percent reduction in building emissions by 2030, in alignment with CleanBC.

In 2023, our greenhouse gas emissions related to energy used to provide heat, water and electricity for our buildings totaled 33,169 tonnes of CO₂ equivalent¹. Since 2010, we have decreased emissions from our buildings by 16 percent. There has been a 10 percent increase in emissions compared to 2022².

2023 Buildings GHG Emissions

Compared with 2010 baseline and 2022 results

| EMISSION SOURCE | 2023 GHG EMISSIONS (Tonnes of CO ₂ e) | 2023 RESULTS COMPARED WITH THE 2010 BASELINE | 2023 RESULTS COMPARED WITH 2022 |
|----------------------------------------------|-----------------------------------------------------|-------------------------------------------------|------------------------------------|
| Buildings (Stationary combustion) | 33,169 | 16% decrease | 10% increase |

Our greenhouse gas emissions in 2023 were 16 percent lower than our 2010 baseline, meaning we did not meet the 20-25 percent target outlined in our Service Plan and Sustainability and Resilience Strategy.

We have reduced greenhouse gas emissions when compared with our baseline due to energy conservation efforts in our existing portfolio since 2010. These efforts (described in more details in the next section of this report) include:

- ▶ multi-year building upgrades
- ▶ fuel switching
- ▶ energy programs

Further efforts have been made to increase energy efficiency standards for new construction. These initiatives are also described in the following section of this report.

In 2023 we saw an increase in emissions compared to 2022, partially due to the addition of social housing sites to our portfolio. The addition of housing units affects our greenhouse gas emissions in the following ways:

- ▶ New buildings built to high energy efficiency standards and that are fully electric, have very low greenhouse gas emissions and will only increase our emissions slightly. New buildings that are not energy efficient and/or use natural gas have significant emissions and will have a greater impact. In 2023, new construction contributed approximately 1 percent of our overall emissions.
- ▶ Existing buildings that are acquired by BC Housing also contribute to our greenhouse gas emissions. If a building that we acquire was in existence before the baseline year, its emissions from that year are added to our baseline and will not significantly impact our ability to meet our greenhouse gas reduction targets. However, the acquisition of inefficient buildings built after 2010 will increase our current emissions compared to our baseline and make greenhouse gas reductions harder to achieve. In 2023, the acquisition of existing buildings contributed approximately 2 percent of BC Housing’s total emissions.

1 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 greenhouse gas profile.
 2 As of the 2019 reporting year, BC Housing has changed from a 2005 baseline to a 2010 baseline to align with CleanBC’s emission reduction targets. For the comparison of last year results and 2010, the baseline was recalculated as per the greenhouse gas protocols.

While these percentages appear small, over the past nine years, the addition of new construction and acquisition of existing buildings has added significantly to BC Housing greenhouse gas emissions, accounting for approximately 25 percent of total emission in 2023.

Greenhouse gas emissions and reduction opportunities vary across our building portfolio, depending on the building type and operational model. BC Housing’s Directly Managed buildings contribute almost 35 percent of our total greenhouse gas emissions. Due to major upgrades to these buildings and only small changes in this inventory since 2010, we have reduced emissions in this portfolio by 25 percent. Another area where we saw significant reductions was within the Single Room Occupancy

(SRO) building type, where emissions were reduced by 30 percent in 2023, compared to 2010.

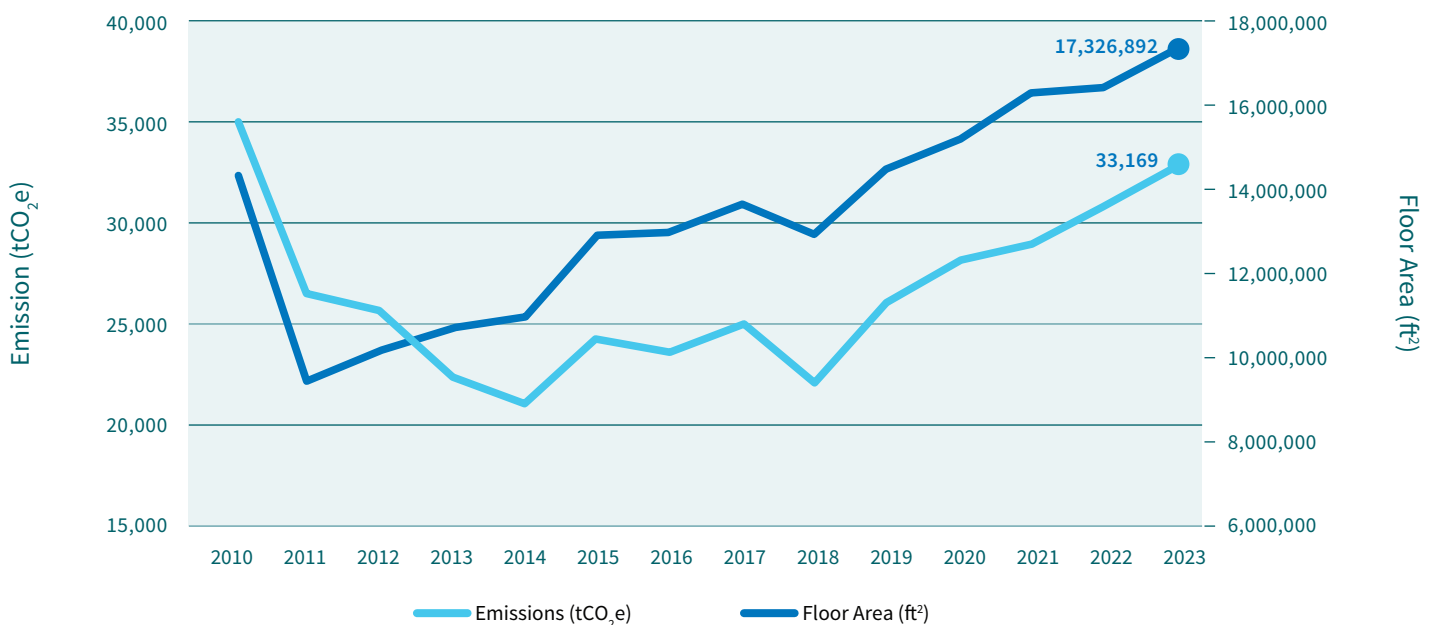
For the 2023 reporting year, our data estimation rate has increased by about 20 percent compared to 2022, indicating a drop of data accuracy. FortisBC natural gas consumption data (accounting for 38 percent of overall building emissions) was estimated for all private accounts. We are estimating consumption of these accounts based on similar building types to ensure consistency year-to-year. This is a significant issue which has limited our ability to conduct accurate data analysis and checks that would result in a high level of confidence in this data.



Floor Area Comparison

Our emissions have decreased relative to our floor area since 2010. However, our portfolio has increased by over 200 buildings since 2018. This has resulted in increasing greenhouse gas emissions over the past five years.

FLOOR AREA AND GHG EMISSIONS CHANGE (2010 - 2023)



Actions Taken in 2023

In 2023, BC Housing worked with our partners, staff, and tenants to ensure lasting energy performance in our existing building stock, as well as in our new housing developments.

We undertook initiatives related to buildings in the following areas:

- ▶ Energy conservation initiatives for existing affordable housing buildings
- ▶ Energy conservation training and education in the social housing sector
- ▶ Energy efficiency in new affordable housing construction
- ▶ Technical research and education in the residential construction sector
- ▶ Asset management capacity building for Indigenous communities

ENERGY CONSERVATION INITIATIVES FOR EXISTING AFFORDABLE HOUSING BUILDINGS

- ▶ BC Housing administers or supports a range of energy efficiency programs for social housing providers, in collaboration with our partners. In 2023, these programs included:
 - The **Energy Efficiency Retrofit Program (EERP)**, along with our partners the BC Non-Profit Housing Association (BCNHPA), BC Hydro, and FortisBC. This program enabled approximately nine electric energy retrofit projects, for a total estimated savings of 378,565 kWh in 2023. The program offers non-profit housing providers additional funding to complete small-scale, energy-saving retrofits of items such as lighting and boilers, with a focus on electrification to align with provincial GHG reduction targets.
 - The **Columbia Basin Trust (CBT) Energy Retrofit Program (ERP), Affordable Housing Renewal Energy Program (AHREP), and Recharge Program** are delivered by the BC Non-Profit Housing Association in partnership with BC Housing. These programs provide grants for non-profit organizations that operate affordable housing in the Columbia Basin region. The grants provide support for:
 - heating
 - ventilation, and air conditioning systems
 - building envelope upgrades such as windows and insulation
 - hot water heaters
 - lighting
 - solar energy generation arrays;

In the previous uptake of the program, more than 40 sites and 650 units were approved for funding. The 2023 applications for the program are currently in the review phase.

- In 2023, BC Housing completed energy audits and electrical load assessments on all major retrofit projects. This determined details of current energy consumption patterns and opportunities for energy and GHG emission savings. Funding for audits and repairs come from the Capital Renewal Fund.
- Several significant energy retrofits were completed at BC Housing and non-profit partner sites in 2023. These retrofits are expected to result in considerable energy and GHG savings and include sites like Edge Place which had more than 50 percent GHG emission reductions per year. Several more projects were initiated in 2023 and are in different phases of design and construction.

ENERGY CONSERVATION TRAINING AND EDUCATION IN THE SOCIAL HOUSING SECTOR

- ▶ In 2023, BC Housing’s Energy and Sustainability team continued to work with BC Housing staff across all departments to raise the level of energy literacy within the organization. This work enhances a culture of energy conservation at BC Housing. The expertise of the Energy and Sustainability team informed the development of new housing. The team also supported retrofitting existing units to high energy efficiency standards such as Passive House and high levels of the BC Energy Step Code.
- ▶ In 2023, BC Housing continued to support the BC Non-Profit Housing Association in the delivery of their Operations and Maintenance program. This program builds energy management capacity in the housing sector, enhances energy and greenhouse gas savings, and tenant buy-in and engagement.



Courses offered through the Operations and Maintenance program include:

- Asset Management Foundations
- Building Systems
- New Construction and Redevelopment
- Green Asset Management etc.

ENERGY EFFICIENCY IN NEW AFFORDABLE HOUSING CONSTRUCTION

- ▶ BC Housing encourages our project partners to achieve energy efficient standards in the development of new social housing:
 - In 2023, we completed 52 projects that have achieved Step 3 or higher of the BC Energy Step Code. The [BC Housing Design Guidelines and Construction Standards](#) have been revised to align with the BC Energy Step Code. Since 2018, our projects have targeted high steps of this code, a performance-based approach that will result in energy savings over base building code in new buildings constructed through our programs.
 - We have also been working with our partners to construct buildings that achieve the Passive House standard. In 2023, four Passive House projects were in the Design Development Stage.
- ▶ In 2023, BC Housing released Technical Bulletin number three which further emphasizes passive design, filtration and GHG intensity (GHG emissions per floor area). The bulletin also adds energy modeling and overheating analysis requirements for major renovation projects.
- ▶ In 2023, we updated the [BC Housing Building Commissioning Guidelines](#) to include the details of commissioning phases and activities from start to finish. The guidelines also ensure implementation of commissioning for major retrofit projects, and capture lessons learned. Commissioning helps with energy efficiency by ensuring that all systems are operating correctly. In 2023/24, 36 projects were completed with full commissioning and an additional 34 projects were completed under an independent mechanical peer review process, to ensure that the proposed mechanical design meets all requirements in our design guideline.



The Oaks - family and seniors housing in Victoria built to Step Code 4



2075 Drennan St. in Sooke community - built to Step Code 4 of the BC Energy Step Code

ASSET MANAGEMENT CAPACITY BUILDING FOR INDIGENOUS COMMUNITIES

► In 2023, BC Housing’s Indigenous Asset Management team worked with Indigenous communities across the province to build capacity in Asset Management. Activities included:

- The continued implementation of five Asset Management Memorandum of Understandings (MOUs) with 22 First Nations across BC.

- Holding monthly Lunch and Learns with Indigenous partners which included sessions on: Accessibility and Housing, Commissioning, Prepping your Fall Woodpile, and Indigenous Housing.
- Assisting in Building Condition Assessments of homes with First Nations which included training delivered by the Indigenous Asset Management team.
- Connecting BC Housing Project Technologists, Construction Project Managers, and senior leadership representatives to each MOU community to complete Building Condition Assessments.

TECHNICAL RESEARCH AND EDUCATION IN THE RESIDENTIAL CONSTRUCTION SECTOR

Under the Homeowner Protection Act, BC Housing is mandated to improve the quality of residential construction in B.C. through industry research and education. In 2023, we undertook the following initiatives which contributed to improved quality of residential construction and better building energy efficiency:

- ▶ BC Housing is educating the residential construction sector on a new approach to early design planning: the Integrated Design Process (IDP). IDP engages builders, project owners, and their teams of designers, mechanical contractors, and energy advisors at the conceptual design stage. By bringing everyone in early to collaborate, the team can identify key goals and ensure all expectations are met easily and efficiently, including higher energy performance targets.

BC Housing and our partners are promoting IDP across the industry by developing educational videos as part of the “[Building High Performance Homes Through LEEP](#)” series. These videos demonstrate how IDP can be used to meet multiple goals in high performance housing projects. BC Housing and our partners also supported the development of IDP facilitator training pilot for Energy Advisors through the Canadian Association of Consulting Energy Advisors (CACEA).

LOW-INCOME AND SOCIAL HOUSING ELECTRIFICATION ROADMAP

September 2023



Examples of the Technical Research Publications

- ▶ **[Vienna House - Design Phase Overview](#)** - The UBC Sustainability Hub produced this presentation on its Vienna House Design Phase Case Study work in March 2023.
- ▶ **[Vienna House Cross-Laminated Timber and Cold-Formed Steel Suitability Assessment](#)** - This study investigates the possibility of using a hybrid Cross Laminated Timber (CLT) and Cold Formed Steel (CFS) system on the Vienna House project. It highlights the features and potential applications of this hybrid approach.
- ▶ **[Low-income and Social Housing Electrification Roadmap](#)** - This low-income and social housing electrification roadmap identifies barriers and mitigating actions to enable the rapid scale-up of decarbonization efforts in B.C.'s affordable housing stock, focusing on building electrification.
- ▶ **[Thermal Envelope Calculator](#)** - Thermalenvelope.ca is an award-winning web-based thermal calculator. It helps construction industry professionals to apply the principles outlined in the Building Energy Thermal Bridging Guide (BETB) more easily. Thermalenvelope.ca provides hundreds of evaluations and calculations for building envelope thermal performance in new and existing construction across Canada.
- ▶ **[Indoor Environmental Quality of Social Housing Buildings in British Columbia](#)** - Indoor environmental quality (IEQ) refers to conditions that affect health and comfort for occupants. This report looks at indoor air qualities, such as temperature and humidity, that impact IEQ for residents in social housing units. The report also highlights the impact of building retrofits, upgrades, and renovations on IEQ for residents.

This roadmap was created in partnership with BC Hydro and Vancity and published on BC Housing's [Research Centre Library](#)

- ▶ BC Housing is a Natural Resources Canada partner in the Local Energy Efficiency Partnerships - LEEP for Renovations program, a new phase of LEEP focusing on home renovations rather than new construction. In fall 2023, BC Housing and Canadian Home Builders' Association held planning workshops for LEEP for Renovations in Kamloops, Victoria and Vancouver.
- ▶ BC Housing initiated a study to identify the barriers and enablers of [Realizing Resilient Building \(R2B\)](#). The process involved reviewing and summarizing existing research and analysis on the subject, and engaging multiple knowledge holders across the buildings landscape in the province. The resulting discussion paper is at the early stage of circulation.
 - In recognition that Indigenous Peoples in B.C. are uniquely and disproportionately impacted by heatwaves, wildfires, flooding, and other climate- and seismic-related hazards, a supplementary report was developed that starts to identify and document known barriers and enablers of resilient buildings that are specific to Indigenous Peoples and communities.
- ▶ BC Housing conducts technical research and provides education to help improve the quality of residential construction and increase building energy efficiency. In 2023, we released more than 20 publications in collaboration with our partners.

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

- ▶ 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. In 2023, aside from online webinars, Building Smart hosted a half-day workshop, The Evolution of Mechanical Solutions for Net Zero Envelopes. The workshop focused on mechanical and building envelope solutions for new and existing Part 3 buildings.

The Building Smart seminars are available on demand as e-learning modules on the BC Housing website: [BC Housing - Learning On Demand](#)

- ▶ Now in its tenth 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 2023 included:
 - Creating an online Zero Waste certification course for the construction industry.

- Producing an Embodied Carbon (EC) Tool for calculating the EC of structural elements of a building, allowing designers to compare structural options more easily during design stages.
- Creating an E-Learning course on managing liquid water risks from rainwater during construction and water intrusion in the building enclosure during building use.

For a complete list of projects funded in 2023 or for more information about the grant, please visit: <https://www.bchousing.org/research-centre/research-education-grants>.

MOBILIZING BUILDING ADAPTATION AND RESILIENCE (MBAR)

Mobilizing Building Adaptation and Resilience (MBAR) is a multi-year, multi-stakeholder knowledge and capacity building project led by BC Housing. Over 30 organizations participate and contribute, including national, provincial, and local agencies, and industry partners. In 2023, among other activities, BC Housing worked with MBAR staff on several BC Housing MBAR Roundtable events, including the following topics:



- ▶ A Future Without Carbon: Managing our Carbon Budget for Resilience
- ▶ Drought Resilient Residential and Urban Design
- ▶ Affordable Cooling: Active and Passive
- ▶ Designing Fire Resilient Housing and Communities

In 2023, BC Housing doubled the number of engagements in MBAR. In addition to the roundtable events, we initiated four Deeper Dive circles to provide space and opportunity for further engagement.

While MBAR has initially focused on climate resilience, it is currently being redesigned as an innovation program to create momentum for multi-solving solutions to the interconnected environmental, technological, economic, and social challenges we face.

Under the MBAR initiative, several studies were conducted in 2023. These studies will help determine the financial viability of a range of sustainability and resilience measures for new construction projects, using two distinct methodologies: Total Cost of Ownership (TCO) and Life Cycle Cost Assessment (LCCA).

Total Cost of Ownership (TCO): This analysis compared the costs and benefits of different energy conservation measures (ECMs) and emergency backup options over 60 years for two projects. The TCO methodology can be implemented for other projects with analysis of relevant measures to be updated on a case-by-case basis, providing accurate recommendations based on lifetime benefits.

Life Cycle Cost Assessment (LCCA): The study analyzed life cycle costs and payback periods for 19 energy conservation measures for a redevelopment project. The study found that focusing on the four best performing ECMs - a passive education program, solar photovoltaic panels, increased airtightness, and operable window shades, will

lead to total net savings over 60 years, as well as produce significant improvements to the sustainability of the project.

These evaluations will guide BC Housing as we continue to better understand the life cycle costs and benefits associated with constructing sustainable and climate-resilient buildings.

Success Story

EDGE PLACE REMEDIATION PROJECT

Edge Place, a BC Housing managed social housing site in Victoria, underwent a significant and successful redevelopment process in 2023. The project was nominated for the Capital Region Commercial Building Award in both the outstanding renovation project and affordable housing categories.

The project significantly enhanced the quality of life for its tenants. This transformative effort addressed a wide array of issues including:

- the building's envelope
- energy systems
- mechanical and electrical components
- interior enhancements
- fully accessible spaces in two units

The exterior transformation of the building was striking, featuring new cladding, exterior insulation, and windows that refreshed its aesthetic appeal. Inside, each of the 20 units underwent comprehensive renovations, including cooling and heating installations, thereby transforming the living spaces and helping protect residents during times of extreme heat.

The project placed significant emphasis on environmental sustainability, leading to an impressive 55 percent decrease in overall GHG emissions, equivalent to reducing 1.3 tons of CO₂e.



Edge Place Remediation Project – before and after

Mobile Sources

In 2023, our fleet consisted of 74 vehicles, primarily trucks and vans used by grounds and building maintenance staff. Office pool vehicles included Smart Cars and hybrid vehicles. Eight percent of our fleet vehicles in 2023 were fuel-efficient (hybrid or Smart Cars).

We also have a corporate account with Modo, a car-sharing cooperative, for staff use in the Vancouver Coastal and Fraser regions. Our Modo account gives staff access to a wider range of vehicles and provides flexibility on where to get them. Starting in 2016, emissions from staff trips in Modo vehicles were calculated and reported alongside BC Housing’s own fleet. 52 percent of kilometres driven in Modo cars in 2023 were taken in hybrid and electric vehicles, resulting in greenhouse gas savings.

Employee business travel by Modo vehicles has grown by 37 percent of distance (kilometre travelled) in 2023 compared to 2022, with in-person work-related activities slowly coming back. However, we have seen an increase of energy efficient vehicle usage from 39 percent in 2022 to 52 percent in 2023.

CleanBC sets a target of a 40 percent reduction in greenhouse gas emissions from government fleets by 2030. This target is also included in our Sustainability and Resilience Strategy.

In 2023, our greenhouse gas emissions from mobile sources (BC Housing owned fleet vehicles, Modo vehicles, and grounds equipment) totaled 257 tonnes. Greenhouse gas emissions increased by 41 percent compared to our 2010 baseline and decreased by 14 percent compared to 2022. As our services have expanded over the years, both the size of our fleet and the mileage traveled have increased significantly.

Our grounds equipment includes, but is not limited to lawn mowers, leaf blowers, and mobile generators. Our grounds equipment fuel consumption has been relatively consistent over the past five years. Grounds staff are exploring using electric mowers and hand tools, which will help us reduce emissions from equipment in future years.



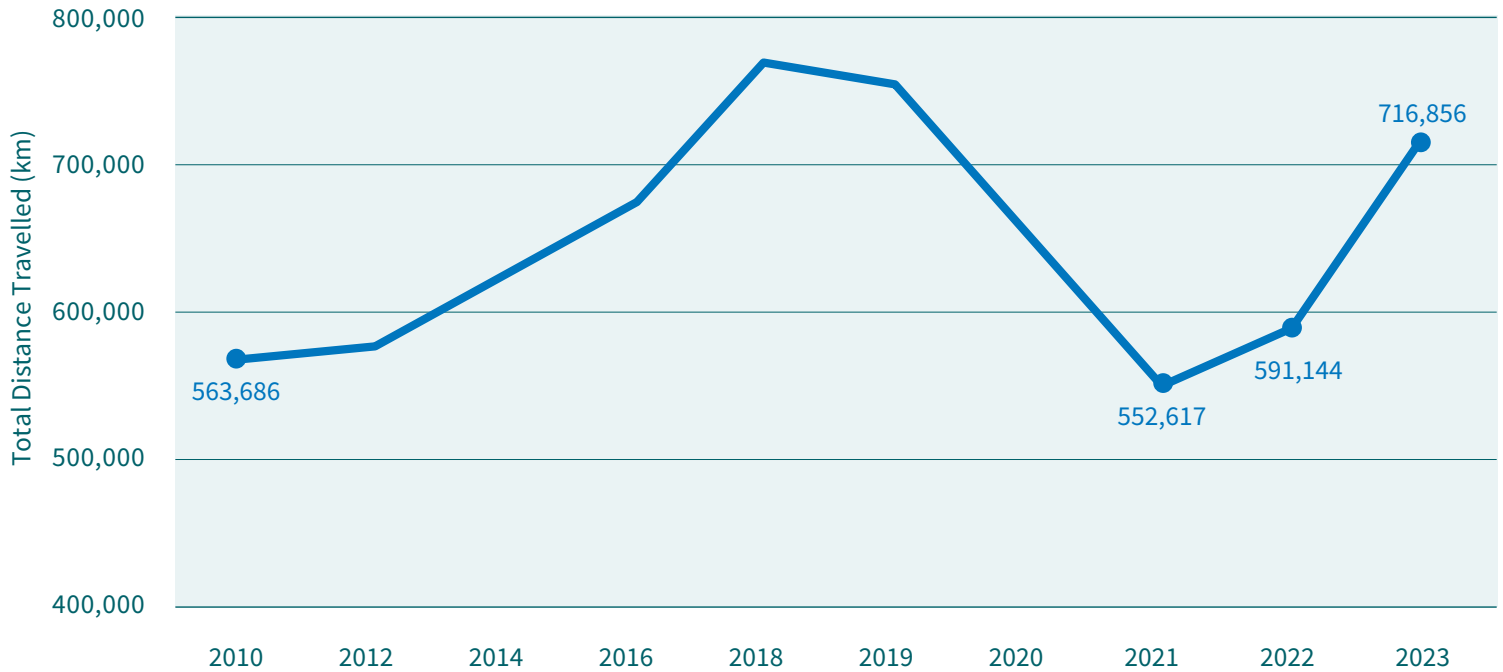
| EMISSION SOURCE | 2023 GHG EMISSIONS (Tonnes of CO ₂ e) | 2023 RESULTS COMPARED WITH THE 2010 BASELINE ³ | 2023 RESULTS COMPARED WITH 2022 |
|-------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------|------------------------------------|
| Fleet Only | 234 | 31% increase | 15% decrease |
| All Mobile Combustion (Fleet, Modo and Ground Equipment) | 257 | 41% increase | 14% decrease |

³ Note that the 2010 baseline mobile emissions do not include emissions from Modo vehicles, since BC Housing did not have a Modo account back then.

2023 Fleet Emissions

The kilometres travelled by the BC Housing owned fleet increased by 21 percent in 2023 compared to 2022, showing a return to normal activities after the decrease in 2020 due to the Covid pandemic.

KILOMETRES DRIVEN BY BC HOUSING FLEET, 2010-2023



Our fleet GHG intensity (GHG emissions per kilometer travelled) decreased 29 percent in 2023 compared to 2022.

When compared to our 2010 baseline, emissions from our fleet have increased as our organization has grown. Our fleet itself has grown, from 43 vehicles in 2010, to 74 vehicles in 2023 (a 72 percent increase). Note that the emissions from Modo vehicles were not included in the 2010 mobile emissions, since BC Housing did not have a Modo account at that time.

We calculated greenhouse gas emissions for the 2023 reporting year using both vehicle mileage and reported fuel consumption data. Since we rely on estimation when data is unavailable, we recognize the importance of ensuring fuel data is recorded properly in our systems.

Actions Taken in 2023

- ▶ In response to the emission reduction target for government fleets outlined in CleanBC, we are working with a third-party on our first Green Fleet Review. This includes identifying actions we can take to significantly reduce fleet emissions by 2030. The Review outlines approaches to meeting the greenhouse gas reduction target from fleet, including eco-driver training, centralized fleet management, and exploring alternative fuels and electrification.
- ▶ BC Housing has embraced hybrid work post-pandemic. Average carbon emissions due to commuter trips per employee dropped 58 percent in 2023 compared to our baseline year (2009). In 2023, we had the highest personal hybrid and fully electric vehicle use of 16 percent since 2009.

Paper

Our Sustainability and Resilience Strategy sets a target of 70 percent reduction in greenhouse gas emission from paper for 2023. In 2023, our greenhouse gas emissions for office paper totaled 12.2 tonnes of CO₂e.

Since 2010, our annual greenhouse gas emissions resulting from paper consumption decreased 59 percent. While this was a significant decrease, we did not meet our target. Since 2010, we have made efforts to digitize our processes and made changes to our procurement practices. In 2023, the organization purchased 16 percent more paper by weight than in 2022. We saw a corresponding increase in greenhouse gas emissions due to paper use between 2022 and 2023 (18 percent).

We have been experiencing an unprecedented growth in BC Housing, with around 200 new hires in 2023. Our greenhouse gas emissions per employee due to paper use decreased 79 percent compared to our baseline year.



2023 Paper GHG Emissions

| PAPER | 2023 GHG EMISSIONS (TONNES OF CO ₂ e) | 2023 RESULTS COMPARED WITH THE 2010 BASELINE | 2023 RESULTS COMPARED WITH 2022 | 2023 RESULTS COMPARED WITH THE 2010 BASELINE, PER EMPLOYEE |
|-------|-----------------------------------------------------|-------------------------------------------------|------------------------------------|------------------------------------------------------------------|
| | 12.2 | 59% decrease | 18% increase | 79% decrease |

In 2023, 57 percent of the total paper purchased consisted of 100 percent recycled paper, marking a decrease of nine percent from 2022. As our organization expands, it is important to convey the need to purchase paper with 100 percent recycled content to new employees. BC Housing will continue to engage with internal stakeholders to underscore the pivotal role of recycled paper purchases in our commitment to sustainable business practices.

Actions Taken in 2023

- BC Housing’s Business Transformation Program aims to enhance BC Housing’s tools, processes, and systems. This will ensure we are more accountable and responsive in meeting the changing needs of employees, tenants, and communities. Aspects of this initiative, including process modernization, and becoming a digital first environment reduce paper usage. This will also enhance the efficiency and resilience of BC Housing as a whole.
- The Human Resources Branch has been transitioning HR operations into digital formats. This will shift BC Housing away from traditional paper-based procedures to automated, digitized, and, in certain instances, application-based processes.

Plans to Continue Reducing Greenhouse Gas Emissions in 2024

Energy Conservation Initiatives in the Social Housing Sector

- ▶ The British Columbia government has invested \$1.1 billion over ten years to make B.C.'s social housing stock more energy efficient, less polluting and safer. Investments also aim to significantly reduce heating and cooling costs for residents. Of this Capital Renewal Fund, \$10 Million annually has been dedicated to the incremental cost of energy savings measures on our own and our non-profit partner's projects. Other retrofits include fuel switching, building envelope upgrades, and other energy efficiency measures.
- ▶ In addition, in 2022/2023 BC Housing secured \$36M of funding from CMHC's National Housing Co-Investment Fund to repair provincially owned affordable housing units. This funding, in combination with the Capital Renewal Funding, will support Energy/GHG reduction measures in 3,600 units. These units are expected to achieve 45 percent GHG reduction and 25 percent energy reduction by end of 2026.
- ▶ In 2024, the Energy Efficiency Retrofit Program (EERP) will continue to address the energy efficiency of social housing through smaller scale projects such as lighting and heat pumps.



Zero Carbon and Energy Efficiency Initiatives in the Social Housing Sector

- ▶ In 2024, BC Housing will release an updated version of its Design Guidelines & Construction Standards. The updated version features enhanced language supporting carbon reduction efforts. These updates will include lowered targets for Greenhouse Gas Intensity (GHGI) in new construction and alignment with the Zero Carbon Step Code, alongside the introduction of Embodied Carbon Reporting.
- ▶ Additionally, BC Housing has set a target to ensure that 50 percent of its new construction projects completed this year adhere to Step 3 or 4 of the BC Energy Step Code. This furthers the commitment to sustainable building practices and reducing carbon emissions in new construction projects.
- ▶ BC Housing remains dedicated to fostering awareness and understanding of sustainable practices by continuing to offer educational resources to consultants and municipalities. Through these initiatives, we aim to empower stakeholders with the knowledge needed to integrate environmentally responsible approaches into their projects and policies. This will contribute to a collective effort in combatting climate change.

The Residential Construction Sector

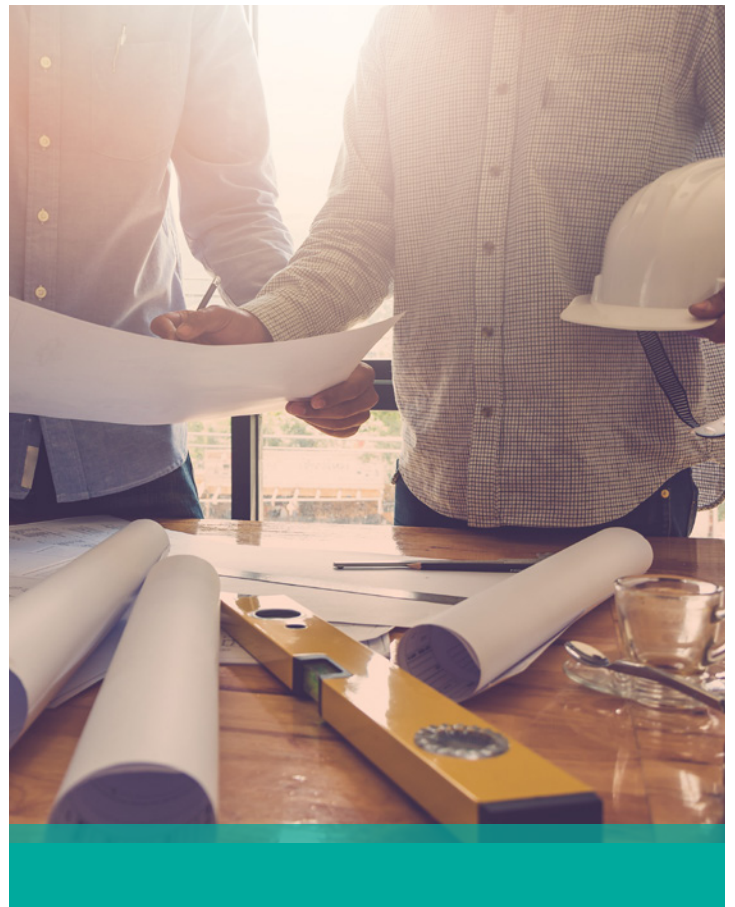
- ▶ BC Housing will continue to provide residential construction industry education by developing and delivering at least 10 Building Smart workshops, seminars, and webinars across B.C. Topics will include information on intermediate steps of the BC Energy Step Code, and innovative and best construction practices to comply with these requirements.
- ▶ We will continue to take action to facilitate the implementation of the BC Energy Step Code, including:
 - Performance monitoring of high-performance social housing buildings meeting high levels of the BC Energy Step Code.
 - Engaging with the design teams early on to establish sustainability target and conduct peer review process to ensure efficient building design.
 - Developing other educational materials. This includes a series of customized seminars and webinars, videos, animation, online interactive guidance tools, and tool kits for hands-on training. The materials will be useful and accessible to builders and designers in both urban and remote regions of B.C.
 - Administering a local government survey to gauge the barriers and successes in adoption of the BC Energy Step Code.
- ▶ BC Housing will continue to partner on the Local Energy Efficiency Partnerships (LEEP) project, including the LEEP for Renovations program.
- ▶ In partnership with our research partners, BC Housing will publish additional reports designed to assist the residential construction sector meet market demand and transition to sustainable and resilient design.
- ▶ Updating our Owner Builder Authorization exam to include questions that address BC Energy Step Code requirements. In addition, our Licensing and Consumer Services department will work with partners to update general contractor qualification course materials to address new BC Energy Step Code requirements.

Fleet

- ▶ In 2024, BC Housing will complete the Green Fleet Review and develop BC Housing's Green Fleet Strategy. We will plan changes to our fleet and fleet management to help us move towards our target. We will explore options including improving our fleet management software, centralizing fleet monitoring, electrifying appropriate vehicles, and building out our charging infrastructure.

Paper

- ▶ BC Housing aims to increase the proportion of paper sourced with 100 percent recycled content. Efforts will be made to communicate with regional staff responsible for purchasing paper to prevent inadvertent procurement of paper with lower recycled content.
- ▶ Led by IT department, BC Housing provides regular training for staff of our working systems (One drive, SharePoint etc.). We continue the training to promote the digitalization process.





Climate Risk Management

BC has experienced unprecedented extreme weather events, driven by climate change in the last few years. From the 2021 Heat Dome, wildfires and atmospheric river flooding, to devastating wildfires in 2023, and severe drought conditions at the time of writing this report (spring 2024). Many people are affected by these events. Those with limited resources, those with disabilities and equity seeking groups, and those living in rural and remote communities are impacted the most.

BC Housing has taken action on climate change in the following ways:

- ▶ Our new Sustainability and Resilience Strategy released in 2023 specifies strategic directions and actions in each of our key business areas with regards to managing climate risks and reducing our contributions to the changing climate.
- ▶ Our Design Guidelines and Construction Standards were updated to include climate adaptation and resiliency guidelines, specifically targeting extreme heat and wildfire smoke mitigation.
- ▶ We are developing tools and resources to incorporate climate hazard assessment and risk mitigation strategies into building construction and retrofits.
- ▶ BC Housing [Extreme Heat and Wildfire Smoke Response Plan](#) was updated with input from staff across the organization. BC Housing continued our collaboration with health authorities, municipalities and other government agencies which informed our approach to extreme heat and wildfire smoke preparedness. Key actions areas included:
 - Increasing capacity within the non-profit housing providers sector
 - Building organizational capacity within BC Housing
 - Reducing risks to residents associated with extreme heat and poor air quality due to wildfire smoke in new construction and existing buildings
 - Undertake research and engagement, in collaboration with the sector, to better understand the technical and non-technical remedies to alleviate extreme heat and wildfire smoke impacts on residents who live in social housing
 - Collaboration with partners, stakeholders and people living in social housing.

- ▶ Researched and published low-carbon, resilient building guides and bulletins for the residential construction industry. We will incorporate this new body of knowledge in training and education for the industry.
- ▶ Created tools to help our teams working on building and renovating social housing understand the climate risks for their projects so that they can update their designs.
- ▶ We are piloting a new initiative supporting development of social connections and community resilience through Building Resilient Neighbourhoods pilot. Through staff training, community partnerships and new programming, we are aiming to better prepare our tenants for response to an emergency and facilitate their connections to other tenants.



PLANS TO CONTINUE THIS WORK IN 2024

- ▶ In 2024, BC Housing will continue to engage with tenants and residents affected by extreme weather and work with the non-profit housing sector on managing extreme heat and poor air quality due to wildfire smoke in affordable housing. We will do this with our partners the BC Non-profit Housing Association (BCNPHA), health authorities, EMCR, local government and communities, and others.
- ▶ In 2024, BC Housing will continue to implement the Extreme Heat and Wildfire Smoke Response Plan. This will help reduce the risk for individuals living in social housing and accessing shelters and transition homes, and those who are unsheltered. It will recommend changes for constructing renovating buildings so that they take into account the current and future climate – which is already very different than our past climate.
- ▶ We will continue to update our Design Guidelines and Construction Standards and commission relevant research, to reflect and address the increasing risks of extreme weather driven by climate change.
- ▶ Scaling up the collaborative, multi-year knowledge and capacity building research project: Mobilizing Building Adaptation and Resilience (MBAR).
 - In 2023, we initiated the first steps of redefining MBAR as an innovation program, which started out as a research initiative. BC Housing hired a contract program manager aiming to spearhead the transformation of the program. We will continue this work in 2024.
 - We will also continue the work of Realizing Resilient Buildings (R2B) to engage external stakeholders removing barriers on building climate – and earthquake – resilient buildings.
 - We will offer learning opportunities related to barriers and benefits of implementing specific resiliency measures. BC Housing will continue working with the existing and new MBAR pilot projects, academic, industry and other partners, to share the best practices.
- ▶ We will continue development (Phase 2) of building climate risk assessment tools & resources for resilient buildings.

Other Sustainability Initiatives

Strategic Planning

In 2023, BC Housing launched our new Sustainability and Resilience Strategy, building on the Sustainability and Resilience Framework and Implementation Plan. This Strategy recognizes the system-wide impacts of decision making and the social, environmental, and financial implications of all BC Housing decisions. If successful, the Strategy will enhance the organization's ability to address the housing crisis and the ecological crisis at the same time. It will ensure that we are aware of the links between capital funding and ongoing operating costs when making decisions related to sustainability and resilience measures.

The Sustainability and Resilience Strategy is also an opportunity to protect our organization and the Community Housing sector from future shocks and stresses. It also helps to protect our investments over time. This Strategy will drive innovation and leadership in the housing and construction sectors. Finally, it will more strongly align our values and the outcomes of our work. As we move forward, we acknowledge that the Strategy will be a living document, supporting our organization and sector to learn and improve over time.

Plans to Continue This Work in 2024

- ▶ Continue implementation of our Sustainability and Resilience Strategy:
 - This involves actively tracking the performance measures outlined in our Sustainability and Resilience strategy. We would also focus on promoting initiatives and building staff capacity to actively progress the measures and meet the environmental and social targets set in the Strategy.
- ▶ Integration of sustainability and resilience priorities into BCH's new Strategic Plan
 - As part of our commitment to sustainability and resilience, we are aligning our priorities with the broader strategic direction of BC Housing. This integration ensures that sustainability and resilience considerations are embedded throughout the organization's overarching plans and actions.



Sustainability and Resilience Strategy

COMMUNITY HOUSING CONSTRUCTION AND RENOVATION

COMMUNITY HOUSING OPERATIONS

BC HOUSING BUSINESS PRACTICES

BC HOUSING EDUCATION AND CAPACITY

The BC Housing Sustainability & Resilience Strategy and the four focus areas

Education and Capacity Building

EMPLOYEE ENGAGEMENT

With the unprecedented growth of BC Housing, employee engagement has been crucial. Our employee-driven green team, the livegreen Council, plays a key role to encourage sustainable employee behaviour both in the workplace and at home. 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.

In 2023, our livegreen council gave employees a chance to engage on sustainability initiatives through news articles, virtual lunch and learns, and in-person campaigns. The events provided employees with an opportunity to connect socially with their colleagues, improving moods and fostering connections.



Livegreen members at the annual strategic planning session

In 2023, our livegreen events included:

▶ **Shoreline Cleanup on Earth Day**

BC housing partnered with Ocean Ambassadors Canada and offered both in person and virtual opportunities for employees to get involved in protecting our ocean on the Earth Day. We organized three shoreline cleanup events in Vancouver, Victoria and Penticton, and one lunch and learn about marine pollution.

▶ **Go By Bike Week**

Even though many of our staff are no longer commuting daily, they did have a chance to participate in “Go-by-Bike Week”, encouraging and supporting cycling for errands and exercise in addition to commutes. 34 employees participated in the campaign in May across 4 regions. Together BC Housing cycled 2,043 km by bicycle and saved 441 kgs of GHGs.

▶ **Meatless Monday Campaign**

During our “Month of Meatless Mondays” campaign, staff swapped vegetarian and vegan recipes. Colleagues had the opportunity to join online cooking classes, hosted from employee households. Nineteen participants took the pledge abstain from eating meat one day per

week for four weeks and saved approximately 276kg of CO₂ and 20,216 gallons of water.

▶ **30 x 30 Nature Challenge + Photo Contest**

Our annual 30 x 30 Nature Challenge encouraged employees to commit to spending 30 minutes a day outside, every day for 30 days. Nature-related photos, poems and drawings were shared from the 73 participants.

▶ **Virtual Lunch and Learns**

Lunch and Learns included various topics such as zero waste and mindful gardening.

▶ **Other Gardening Activities**

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 ten consecutive years, including last year.



PLANS TO CONTINUE THIS WORK IN 2024

- ▶ The Employee livegreen Council will continue its focus on encouraging BC Housing employees to make more sustainable decisions at work, home and in their communities. As a pilot for the 2022-2023 fiscal year, the livegreen council agreed to focus its activities on the following three major sustainability issue areas:
 - Climate Change Mitigation and Adaptation
 - Pollution Prevention (Waste, Plastics, and Chemicals)
 - Protection of Biodiversity and Appreciation of Nature
- ▶ Further, it was emphasized that social sustainability (EDIB, Truth & Reconciliation, and Accessibility) be a lens applied to all activities in attempt to avoid creating any barriers to inclusion. This helps to create a more socially sustainable organization and society.

CORPORATE SUSTAINABILITY AND RESILIENCE EDUCATION

Micro-credential course offered through Royal Roads University

In 2023, BC Housing connected interested staff with the “Climate Change Adaptation Fundamentals” course offered through Royal Roads University. This course provides learners an overview of the current state of knowledge on climate science and a grounding in the core concepts supporting climate change adaptation. Over 30 BC Housing staff have taken this course, helping build climate adaptation capacity at BC Housing.

Zero Waste Tour

BC Housing partnered with the City of Vancouver to offer a Zero Waste Tour to BC Housing staff in 2023. Approximately 20 BC Housing employees joined the tour guided by the staff from the City of Vancouver. The staff visited two sites: Vancouver Zero Waste Centre, and the Vancouver Transfer Station.

BC Housing staff were inspired by real-world examples of zero waste success stories and learned how to contribute to a greener future through reducing residential waste.

To empower our workforce with the necessary knowledge and skills, we are rolling out an online sustainability training course open to all staff in 2024.

We will also continue to explore other external training opportunities, such as climate leadership courses in collaboration with research institutions and universities.

PROCUREMENT

BC Housing recognizes that every purchase has a social, economic, cultural, and environmental impact. In 2023, BC Housing reviewed our procurement practices and policies with a consultant. As a result, the consultant developed recommendations to support BC Housing Social and Sustainable Procurement policy design and adoption of social procurement practices.

A significant portion of our public tenders currently include evaluation criteria that focus on sustainable product specifications, waste reduction and diversion, efficiency, and positive contributions to local communities.

COMMUNITY CONNECTIONS

BC Housing’s employee-led community investment program, Community Connections had another record-smashing year in 2023, with staff who raised \$441,180 in support of 120 charities. Since the start of the program in 2008, close to \$3.3 million has been raised for local charities contributing to environmental, social, and economic sustainability programs in local communities in tangible ways. Through the program’s Employer Supported Volunteerism component, BC Housing staff volunteered for the Coldest Night of the Year, Community Cleanup, Food Banks and other volunteerism.

Further Resources

For information about BC Housing’s work on Sustainability and Resilience please visit:

[Sustainability with livegreen | BC Housing](#)

<https://www.bchousing.org/research-centre>



BC Housing employees touring the Zero Waste Center with city of Vancouver



BCHOUSING.ORG