

The Canada Green Buildings Strategy

TRANSFORMING
CANADA'S BUILDINGS
SECTOR FOR A NET-ZERO
AND RESILIENT FUTURE



Natural Resources
Canada

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Ministerial foreword

Buildings play a central role in the lives of Canadians. They are where we work, where we play, where we gather, where we shelter, and where we raise our family. How we build and manage our buildings is critical to the health and vitality of the nation. This is particularly true at this critical time. Housing, energy affordability and climate action form the intersection where Canadians' most pressing concerns meet.

The Canada Green Buildings Strategy (CGBS) gets to the heart of these issues. The CGBS sets out the Government's vision and next steps for greener, more energy efficient and affordable homes and buildings. It outlines how the Government is acting to drive down monthly energy bills, to help Canadians reduce their carbon emissions, and ensure that the homes and workplaces of Canadians are protected against the increasingly harmful effects of climate change—all while creating good-paying, sustainable jobs. Transitioning buildings to clean energy sources and reducing overall energy consumption will address not just climate risks but also the physical and financial well-being of all Canadians.

Buildings are the third largest emitting sector, after oil and gas and transportation. And importantly, it is a challenging sector to decarbonize because we must all do it, together. To succeed, close collaboration is needed between the federal government, provinces, municipalities, indigenous groups, businesses, financial institutions, and industry. There are 16 million homes and half a million other buildings standing in Canada today and most of these are expected to still be standing in 2050. Each home and building owner has a role to play in this sector to upgrade and retrofit these spaces to significantly reduce emissions in that time. The scale of this renewal requires annual investments, a rapid increase in the pace of retrofits and changing the way we build. This includes the hundreds of thousands of new residential and commercial buildings that need to be built annually to respond to the housing challenge and stay current with our rapidly growing clean economy. These new homes and buildings must be built with net-zero emissions in sight if we are to avoid having to retrofit them before 2050.

At the same time, our buildings must be made stronger to withstand the impacts of climate change. This includes the ability to withstand extreme weather events such as floods, wildfires and hurricanes, as well as changes in temperature and precipitation. Disasters that are more frequent and intense, temperatures are getting warmer and parts of the country are facing drought while others are seeing an increase in precipitation. All are due to climate change. Old buildings must be updated, and new homes built to withstand the changing climate. The most expensive home is the one that has to be built twice.

The CGBS complements [Canada's National Adaptation Strategy](#) which lays out an agreed-upon framework to reduce the risk of climate-related disasters, improve health outcomes, protect nature and biodiversity, build and maintain climate resilient infrastructure, and support a strong economy and workers. Building strong resilient communities means managing the risks to our health, well-being, and livelihoods.

And critically, both existing and new buildings must also be affordable to construct and to operate. [Canadian households spend an average of \\$2,200 a year on home energy costs](#). These costs are significantly higher in homes that heat with oil and in older homes that have poor insulation, ventilation, and heating/cooling

systems. By transitioning buildings to clean energy sources and decreasing overall energy consumption, we can effectively tackle not only climate risks but also make homes healthier and reduce energy costs for Canadians.

The time to act is now.

Actions to make our buildings green and resilient help to reduce the amount of energy used so energy bills can be lower, year after year. We can add insulation and other energy efficiency measures to our homes and buildings to reduce energy consumption, improve or replace windows, doors, and ventilation systems and we can choose to move away from fossil fuel burning equipment to heat our homes. New buildings can be built to high energy efficiency and performance standards - if all levels of government look ahead and adopt higher tiers of the model building codes and increase the use of low-carbon construction, maximizing material efficiency and performance-based design. [Low-carbon building materials sourced from within Canada not only support the domestic market and help cut carbon pollution](#) (including emissions from transportation and shipping of materials from international suppliers), but also leverages Canadian manufacturing ingenuity, stimulates market competitiveness, and creates sustainable jobs. We can take the opportunity to increase buildings' climate resilience through waterproofing, flood protection, supporting efficient space cooling, or installing batteries connected to solar photovoltaic systems. Energy efficiency measures can keep homes warmer in the winter and cooler in the summer, providing safer and healthier living conditions as the climate continues to change.

Crucially, the construction and improvement of better buildings will generate demand for more contractors, electricians, and other skilled workers, leading to sustainable, well-paying employment opportunities for Canadians over the long term. Taking action on climate change and working to mitigate climate-related risks can also unlock new economic prospects and quality jobs for Canadians.

Canadians have said loud and clear that they want a green solution to the housing crisis—one that keeps costs down, one that minimizes pollution, and one that protects their homes from the damaging effects of a changing climate. The CGBS responds to that call with a vision and next steps for how to green our homes and buildings to make them more livable and affordable. Acting quickly in collaboration with Provinces, Territories, Indigenous and Municipal partners, the financial sector, buildings industry and other businesses will help spur innovations and avoid locking in the high cost of burning fossil fuels on Canadians' pocketbooks and the planet.

The CGBS puts forward a vision to enable this approach and pursue the priorities about which Canadians care most.

Signed by:

Jonathan Wilkinson
Minister of Energy and Natural Resources

Sean Fraser
Minister of Housing, Infrastructure and
Communities

Steven Guilbeault
Minister of Environment and Climate Change

Overview

The CGBS comes at a critical time. To reach our climate goals, reduce monthly bills and increase the supply of Canada's housing stock, we need to accelerate the retrofit of approximately 11 million buildings and construct millions of new greener buildings in the coming decades. A renewal of Canada's buildings sector is underway, one that has the potential to create hundreds of thousands of sustainable jobs and prosperity for all regions of Canada, while lowering monthly bills for homeowners, tenants, and businesses.

The buildings sector has an important role to play when it comes to reducing greenhouse gas (GHG) emissions and improving resiliency to climate hazards, such as floods, wildfires and hurricanes. The [Canadian Net-Zero Emissions Accountability Act](#) enshrines in legislation the Government of Canada's commitment to reduce GHG emissions by 40-45% below 2005 levels by 2030 and to achieve net-zero emissions by 2050. Buildings account for 18% of Canada's emissions, when including electricity-related emissions, and is the third largest emitting sector after the oil and gas sector and the transportation sector. Almost all buildings' operating emissions (>96%) come from space and water heating from the use of equipment that runs on fossil fuels, such as natural gas furnaces and boilers, while further emissions are embodied in construction materials used in buildings, such as concrete, steel, aluminum and wood.

The technology already exists to reduce emissions efficiently and effectively from heating equipment in buildings. Electrification is the most cost-effective and efficient approach to decarbonizing buildings in most parts of Canada. Ultimately, moving away from the use of fossil fuel heating equipment, towards alternatives such as heat pumps, is an essential step to reducing the operational emissions from buildings. It is necessary to work with provinces and territories, communities and Indigenous Peoples to initiate a phased approach to transition away from fossil fuels for space and water heating. Starting with a focus on the most expensive, high emitting fuel – heating oil – can support a stepped approach to pursuing buildings decarbonization with affordability in mind.

In addition to combating climate change, green building retrofits and building green from the start can help make buildings more livable, improve air quality and significantly reduce overall costs, including by reducing monthly energy bills and avoiding the costly impacts of extreme weather. As Canada accelerates its investments in housing, as outlined in [Canada's Housing Plan](#), it is important to ensure homes are affordable to maintain and operate. It is critical that the green buildings sector renewal leaves nobody behind.

Beyond climate and affordability considerations, this renewal also presents an enormous economic opportunity. From the need to draw on skilled trades and supply low carbon construction materials, to the growth of clean technology businesses and innovative building designs, Canada is uniquely positioned to lead globally while becoming more prosperous locally. Each region of Canada is presented with unique circumstances for this transition, based on its geography, natural resources, and local markets and expertise. The CGBS seeks to seize each of these opportunities over the next critical decade and beyond.

The CGBS aims to decarbonize and improve the resiliency of Canada’s buildings stock, while supporting affordability, job creation and economic growth. The CGBS centers around three priorities:

1. [Accelerate retrofits](#)
2. [Build green and affordable from the start](#)
3. [Shape the buildings sector of the future](#)

These priorities were shaped by an extensive engagement process with buildings sector industry partners, Indigenous partners, municipalities, provinces, territories and the Canadian public. The published [What We Heard Report](#) summarizes the online submissions, written responses to the CGBS discussion paper, Ministerial roundtables, and multi-lateral conferences held over the last two years to inform the CGBS.

Importantly, we are not starting from zero. The federal government has invested heavily in support of buildings sector decarbonization goals since 2016 which has provided a foundation of knowledge and awareness across the sector for more ambitious decarbonization. The buildings sector is already taking action to advance priorities, and the Government of Canada will help to accelerate them with a series of initiatives and investments, including with nearly \$1 billion in new, targeted federal investments announced in [Budget 2024](#), as well as other measures, across three categories of buildings:

- **Residential buildings**, where we live - through flagship programs like the [Canada Greener Homes Grant and Loan programs](#), which have received over 590,000 applications for grants and 78,000 applications for loans since their launch in 2021, to help homeowners retrofit their homes to be more energy efficient - and programs focused on affordability with the [Oil to Heat Pump Affordability Program](#) and the [Canada Greener Affordable Housing Program](#). As announced in Budget 2024, we are moving forward with the next phase of home retrofit programming with \$800M in new funding for the Canada Greener Homes Affordability Program, while cracking down on renovictions as part of a proposed new [Canadian Renters’ Bill of Rights](#). We will continue developing a national approach to home energy labelling, which will empower prospective home buyers with information about the energy efficiency of their new home, with the support of energy auditors.
- **Commercial / institutional buildings**, as well as community buildings, where we work, study and play, with initiatives like the [Deep Retrofit Accelerator Initiative](#) to accelerate the development of deep retrofit projects, adoption of the highest energy performance standards, and private and public sector partnerships with the [Canada Infrastructure Bank](#). As announced in [Budget 2024, we are expanding our work with an investment of \\$73.5M](#) – with programs such as the [ENERGY STAR® Portfolio Manager®](#) platform – to support the implementation of local initiatives including benchmarking, labelling and disclosure policies, and better, more ambitious building performance standards to further reduce emissions and lower energy bills.
- **Federally owned buildings**: As the country’s largest building asset owner and procurer of construction materials, the Government of Canada is helping decarbonize and improve the resiliency of Canada’s buildings sector through its [Greening Government Strategy \(GGS\)](#) and [Greening Government Fund](#). Through the GGS, the Government of Canada’s is reducing environmental impacts associated with

federal building operations and construction projects, while enhancing the climate resiliency of federal assets, services, and operations. Moreover, by implementing a ‘buy clean’ policy approach through the GGS, the Government of Canada is promoting the adoption of construction materials with low embodied carbon and that are renewable such as wood, reclaimed or recycled materials, and low-emission concrete and steel.

New federal actions will make further strides towards these priorities:



Greening the buildings sector remains a substantial and complex undertaking. Buildings have long lifecycles and therefore reducing emissions, while also improving resilience to climate change, requires important investments that often need multi-year planning. The Federal government, provinces, territories, Indigenous communities, and municipalities must work together, alongside home and building owners, to maximize the impact of our collective actions, while simultaneously ensuring that residential buildings are constructed at the pace and scale required to tackle the housing crisis. New construction needs to be high performance – adopting the highest viable tier of the [National Energy Code for Buildings](#) (for larger buildings) and of the [National Building Code](#) (for residential homes and small buildings) – and consider embodied carbon (in construction materials).

Alongside governments, the private sector has an important role to play in providing capital, expertise, and leadership to transform Canada’s buildings. Financial institutions are now starting to recognize their role in this space and must continue to build momentum and deploy capital.

Strategies like maximizing utilization, reusing, refurbishing, and repurposing already built space provide a cost-effective way to help decarbonize Canada’s buildings stock by extending the lifespan of existing buildings and avoiding the energy-intensive process of creating new materials. Deep retrofits – that involve upgrades to

multiple building systems and equipment (such as replacing roofs; adding, upgrading, or rearranging windows; adding or increasing insulation; replacing or improving building envelope or cladding) – can achieve maximum energy savings and GHG emissions reductions.

Furthermore, climate resilience considerations – including locating, planning, designing, managing, adapting, operating and maintaining buildings infrastructure – and current and projected climate change impacts must be kept in mind.

Accelerated ambition and coordination is needed across all levels of government to ensure design and delivery of initiatives that work in concert towards the CGBS strategic priorities – both today and as we collectively continue to advance towards net-zero in 2050.

Canada’s buildings landscape

Canada’s buildings stock



- The buildings footprint in Canada is vast: [there are over 16 million buildings used for residential purposes](#), including single-family detached and semi-detached homes, multi-unit apartments, and other residential buildings;



- [over 564,000 are commercial and institutional buildings](#), such as businesses and facilities, hospitals and long-term care homes, community and cultural buildings, schools and university campuses; and



- [over 34,000 buildings are owned and managed by the Government of Canada](#), including offices, research laboratories, warehouses, storage facilities, Department of Defence owned infrastructure, and more.

The vast majority of these buildings are expected to still be standing in 2050 and will require upgrades and retrofitting. In addition, Canada needs millions more homes to be built now and in the decades to come to address housing needs. [By 2050, the number of households in Canada may increase by up to 25% of what it is today.](#)

Emissions profile and trajectory

Although Canada is making progress in reducing economy-wide emissions towards its 2030 greenhouse gas reduction target, [the built environment is still the third largest source of emissions in Canada \(see Figure 1\)](#), with annual GHG emissions accounting for 89 megatonnes (Mt) in 2022 – [around 13% of direct emissions \(see Figure 2\)](#). This [number rises to 18% if we account for emissions from generating the electricity that buildings use](#). To continue making progress toward Canada’s emissions reduction goals, it is essential to cut buildings sector emissions.

Figure 1. Breakdown of Canada’s greenhouse gas emissions by economic sector (2022)

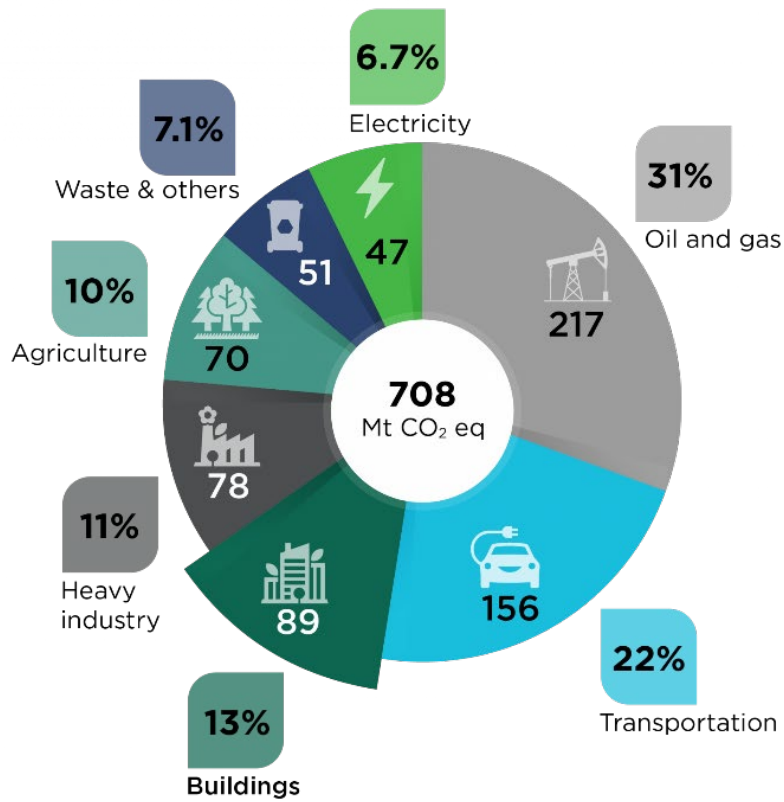
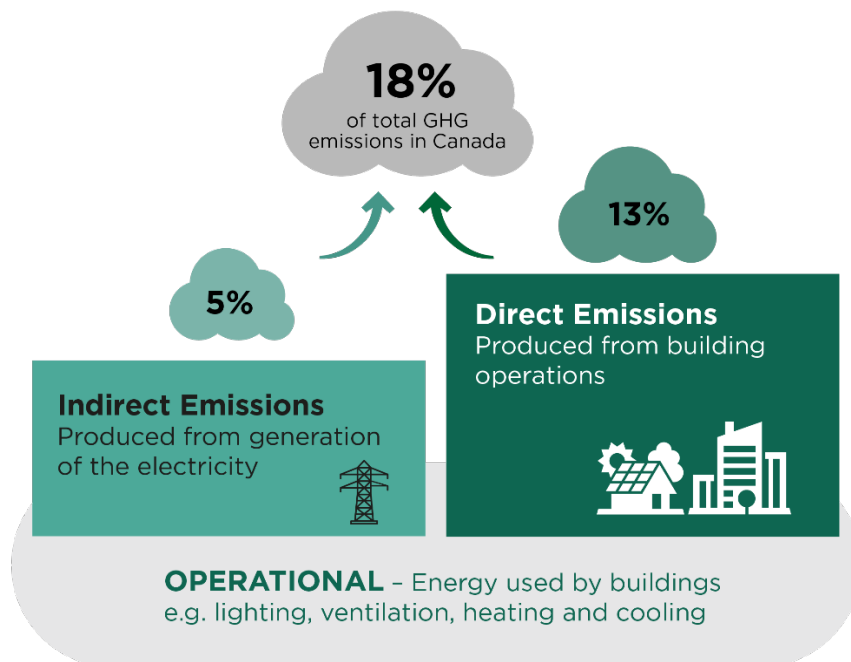


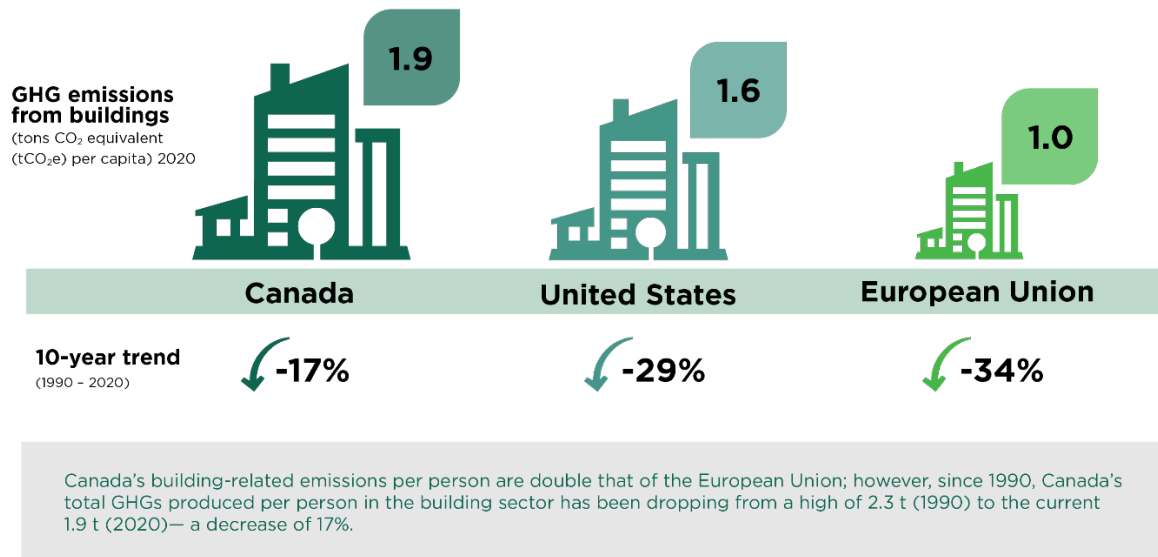
Figure 2. Operational emissions from residential & commercial building sectors in Canada (2021)



Over 96% of direct operational buildings emissions come from space and water heating, the majority of which is due to equipment that runs on fossil fuels (see Figure 4). Electrification of space and water heating will be an essential component of decarbonizing the buildings sector, with other clean fuels also playing a role where major barriers to electrification remain (e.g., access to clean electricity).

Canada’s residential buildings account for 47% of buildings sector emissions in Canada (excluding electricity). Approximately 54% of all homes use fossil fuels for space heating and 44% use electric-powered equipment. The residential buildings stock is aging and many will require retrofits to be energy efficient. Twenty percent of all homes (~3 million) are more than 80 years old, and about 50% are more than 60 years old. About 2 million homes (12%) have been built in every decade since 1980.

Figure 3: Buildings Emissions Focus – Comparison of GHG emissions from buildings (per capita), (excluding electricity) 2020



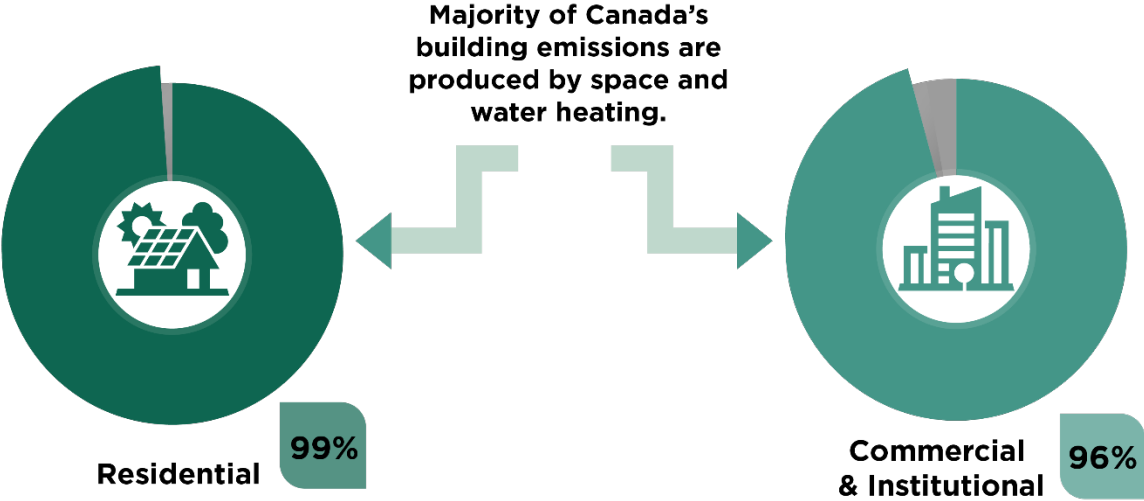
Comparison of GHG emissions from buildings, excluding electricity (2020) (tCO₂e per capita)

Commercial and institutional buildings together make up the remaining 52% of our country’s building sector emissions. For commercial and institutional buildings, approximately 30% use electricity as their only energy source. The remaining 70% use some fossil fuel in addition to electricity, the most prominent being natural gas (present in 60% of all commercial and institutional buildings). Canada’s commercial and institutional buildings stock is also aging and uses a lot of energy. Approximately forty percent (40%) of commercial and institutional buildings in Canada were built more than 50 years ago.

On top of operational emissions, the emissions embedded in construction material supply chains for retrofits and new buildings are significant. Clean Energy Canada estimates that the production, transport and demolition of construction materials used in public infrastructure accounts for approximately 8 million tonnes of greenhouse gas emissions annually. If private construction is considered, this figure increases to approximately

28 million tonnes, which is equivalent to around half of Canada’s electricity generation emissions or four percent of Canada’s total emissions in 2021.

Figure 4. Source of building emissions by sector



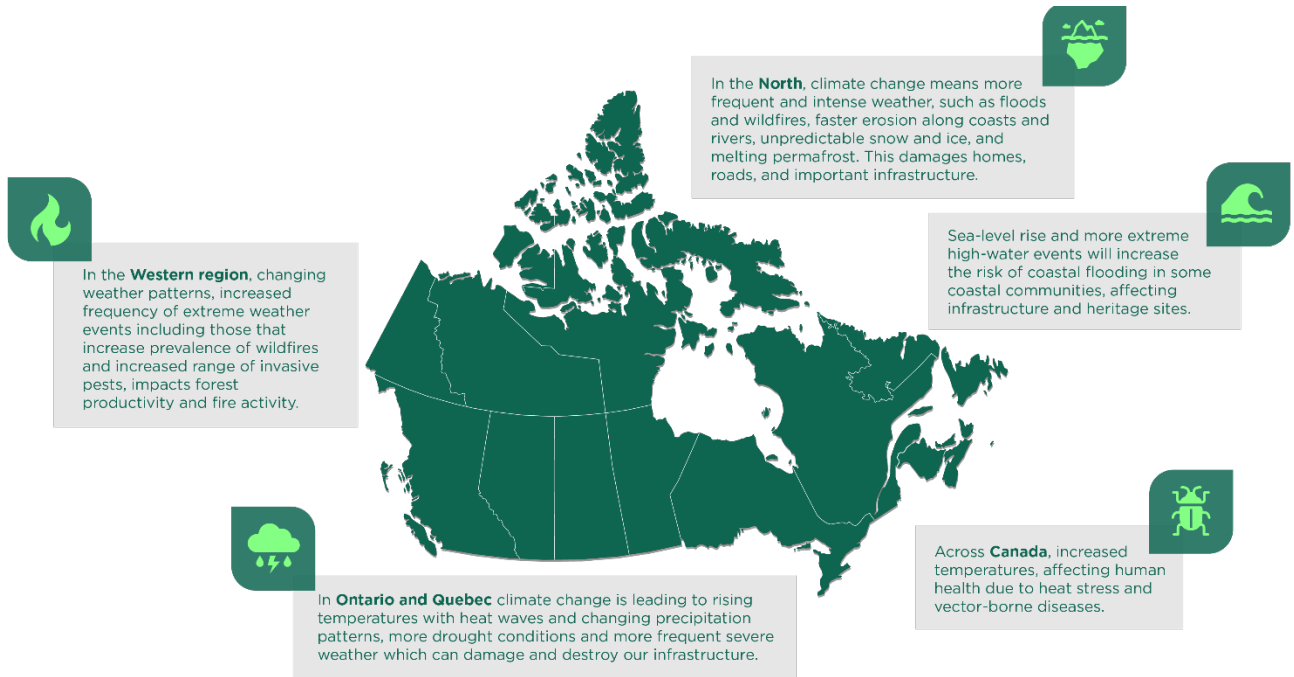
Emission reductions in the buildings sector are not presently on track to make reductions in line with Canada’s 2030 or 2050 emission targets, despite progress stemming from current policies. With most of Canada’s existing buildings likely to remain in use for decades to come and the need for millions of new homes to be constructed, seizing opportunities to improve energy efficiency and resiliency, and reduce emissions is a critical goal for the sector.

Adapting to a changing climate

Canada’s climate is changing. Higher temperatures, shifting rainfall patterns, extreme weather events including floods and wildfires, and rising sea levels are just some of the changes already affecting many aspects of our lives (see Figure 5). Climate change impacts to the building sector are already significant and projected to rise. In 2023, severe weather caused \$3.1 billion in insured damages nationally, leading to direct costs to homeowners in the repair and maintenance in the aftermath of a climate-related event, as well as ongoing indirect costs, including rapidly increasing insurance premiums. With climate change impacts becoming more frequent and intense, the provision of affordable, equitable and resilient solutions for our buildings and homes is critical for the health of Canadians and the economy.

Taking proactive adaptation action is ultimately a cost-effective solution to address both climate risks and affordability. Constructing new homes and buildings and retrofitting existing ones to increase climate resilience can help to avoid damages and long-term costs. For example, a recent study demonstrates that each dollar (\$1) invested in wind protection results in \$6 of avoided damage to Canadian homes. Similarly, a previous benefit-cost analysis concluded that the use of impact-resistant asphalt roof shingles could save up to 8 times what they cost and even greater savings in areas that experience frequent hailstorms.

Figure 5. How climate change is impacting Canada



Opportunities in a critical decade

Green buildings are affordable, livable and resilient

Building new green homes and investing in energy efficiency and climate resiliency improvements from the start reduces energy usage, can reduce energy bills, and minimizes or avoids costs associated with climate impacts which are already significant and projected to grow. A green building is planned, built, and operated to reduce its GHG emissions both during construction and throughout its operational lifespan, ensuring the efficient use of energy and water, and integrating renewable energy sources such as solar power. [Green buildings](#) reduce pollution and waste and prioritize occupant health and well-being by maintaining excellent indoor air quality and using low-carbon construction materials. Using [fossil fuels for heating buildings and water releases harmful pollutants](#) that can affect health outcomes.

In 2023, nearly 50% of the [lowest-income households relied on inefficient heating](#) (such as electric resistance baseboard units which result in higher electricity usage and energy bills) and 36% did not have access to air conditioning.

Approximately 14% of Canadian households (18% among low-income households) faced challenges maintaining safe and comfortable indoor temperatures due to increasing energy costs, and 2% reported not heating or cooling their home at all. Consequently, around 2% of Canadian households (2.6% among lower-income households) reported requiring medical assistance for someone in their home related to these living conditions.

Moving to sustainable heating, cooling and air filtration solutions supports health and safety, while also greatly improving quality of life and affordability for Canadians. With climate change causing extreme temperatures and weather events, it is important to ensure Canadians are not vulnerable to underheating, heat-related morbidity or mortality, or low air quality, due to an inability to afford the required heating, cooling, or air filtration. A heat pump is an extremely efficient way to both heat and cool. Unlike air conditioners that only move heat from indoors to outdoors, heat pumps are designed to switch directions, providing both heating in colder months and cooling in warmer months. Compared to one-way air conditioning, [the dual-functionality of a heat pump](#) provides a tremendous opportunity to reduce emissions, save on energy bills and provide more comfortable and safer indoor conditions. In addition, a home's envelope - the structural elements that help seal and insulate (e.g. windows, doors, roofs) - supports increased resilience and energy efficiency and is an important contributor to sustainability.

In the Spotlight: Funded in part by NRCan's Green Infrastructure Energy Efficient Buildings Program, the [Gordon Bell High School project in Winnipeg, MB](#) is a deep energy retrofit of an inner-city high school to improve its energy efficiency, focusing mainly on upgrading the 50-year-old wall assemblies and mechanical systems. The goal is to cut energy use by 51%, including a 71% decrease in natural gas consumption. To achieve this, the project incorporates exterior insulation, tight air sealing, advanced window systems, and efficient mechanical systems. Additionally, the project includes building envelope commissioning and monitoring with dedicated sensors to ensure optimal performance. The project will also produce a Retrofit Guide documenting the process to disseminate project learnings within Manitoba's 642 public schools and across Canada.

Similarly, investing in the resiliency of homes and buildings - like roof straps in hurricane-prone regions, improving drainage around the building, adding basement backstop valves, and sump pumps in areas with flooding - can help prevent costly damage to homes and buildings. Resilience retrofits can also advance equitable outcomes, as Canadian households are likely to bear the brunt of the financial burden of climate change, with lower-income households often disproportionately affected by climate-related disasters.

Designing our homes and communities to be green and resilient to climate change impacts (such as not building in a flood zone or implementing no- or low-cost options to build to higher performance standards) will protect Canadians from high energy costs and extreme weather events. This will help reduce housing and homeownership costs over the long term.

Building with wood is increasing worldwide as it has lower embodied carbon than other traditional construction materials and can be quicker to build with. In addition, wood-based construction materials are renewable, long lasting and, when designed with principles of circularity, can be re-used and re-purposed to further reduce emissions in Canada's built environment.

Economic growth and competitiveness

Canada's future competitiveness in the buildings sector will be grounded in the technologies of a low-carbon world, skilled workers, a clean grid, rigorous data, and intelligence to support decision-making and optimize buildings performance. Canadian companies are well positioned to be leaders in the green buildings industry as it grows – both domestically and internationally. Federal investments to develop made-in-Canada low-carbon construction materials, new technologies and solutions (such as carbon capture, utilization and storage (CCUS), green hydrogen and electrification), and other scalable innovations are positioning Canada as a global provider of choice for low-carbon materials and ensuring that businesses with Canada's construction-sector can succeed in an emerging green economy.

In the Spotlight: The [Brock Commons Tall Wood House](#) in Vancouver, BC was funded in part by NRCan's Tall Wood Building Demonstration Initiative to showcase wood-based solutions for high-rise buildings and build industry capacity in Canada. The University of British Columbia's building is an 18-storey tall-wood hybrid building that was built in 2017 to house roughly 400 students. A total of 2,233m³ of Canadian timber was used to construct the building, saving approximately 2,432 tons of CO₂ from being emitted, with 1,753 tons of CO₂ sequestered in the timber itself, and 679 tons of CO₂ avoided in substituting traditional construction materials with low-carbon wood materials.

Infrastructure plays a vital role in ensuring the well-being of Canadians and driving the country's economic activity. However, the escalating impacts of climate change pose significant threats to this essential infrastructure. It is evident that 'adaptation infrastructure' (explicitly intended to deliver climate resilience) offers economic benefits to society, with this value expected to grow as our climate continues to change. Various studies have quantified the economic value of resilience, particularly focusing on adaptation infrastructure, and have concluded that [investing in prevention is more cost-effective than dealing with the consequences later on.](#)

The CGBS seeks to unlock progress toward that future and enable private capital to invest in and accelerate Canada's economic, technological and job growth potential (see [Government of Canada Actions](#) below). Higher private sector investments in retrofits and greening the buildings sector are essential to reach net-zero. The CGBS' benefits go beyond just helping to close the funding gap and are also critical to accelerating market progress for scaling up solutions, cost compression, and innovation.

Jobs, skills and training

The Canadian workforce is the foundation to support the transition to green buildings. Tradespeople, designers, consultants, builders, developers, equipment vendors, energy advisors and manufacturers, among others, all play critical roles in developing, promoting, installing, and maintaining the infrastructure and technologies required to green buildings. We have an opportunity to ensure Canadian workers can benefit from good, sustainable jobs in the sector for decades to come.

[Canada's green buildings industry already employs about 460,000 workers](#), and the transition of the buildings sector will create hundreds of thousands of new jobs. A study by the CAGBC found that the green retrofit sector alone can expect to [see job growth of 777,000 to 2 million direct job years](#) between now and 2050, with up to [1.5 million direct green building jobs](#) and \$150 billion in GDP by 2030. Clean Energy Canada projected [Canadian jobs in clean energy are set to grow 7% a year](#), from 509,000 in 2025 to 2.7 million in a net-zero 2050 scenario.

In the Spotlight: As a destination for world-class research and learning, the [Canadian Centre for Climate Change and Adaptation \(CCCCA\)](#) at the University of Prince Edward Island provides expertise and collaboration within a "living laboratory" setting. The new centre focuses on climate change education and skills development to help mitigate and adapt to climate change in Canada and around the world. The Centre is a new initiative funded jointly by the Government of Canada, the Government of Prince Edward Island, and UPEI.

The Government of Canada is working with provinces and territories to [address labour market needs across the buildings sector](#), including upskilling experienced workers and training new workers to develop the skills required to make buildings green and more resilient, and support training on both mitigation and adaptation in buildings assessments, as well as to address labour shortages within several industry professions. Ensuring the workforce is ready to make this transition possible will require dedicated efforts to recruit and train new workers, including by increasing the number of buildings sector professionals entering Canada through immigration. Work is already underway to optimize opportunities for Canadian workers.

More broadly, the Government of Canada is taking action to support the development of low-carbon industries and sustainable job creation, as well as to support workers and communities in the move to a net-zero economy. In February 2023, the Government of Canada released its [2023-2025 interim Sustainable Jobs Plan](#), which provides a roadmap to ensure Canadians can thrive in the low-carbon economy, with supports to train more highly skilled workers, along with our advantages of abundant natural resources and energy sources and a thriving clean technology industry. In June 2023, the Government introduced [Bill C-50, the Canadian Sustainable Jobs Act](#). Subject to Parliamentary approval, this legislation will put Canadians at the centre of policy and

decision making in the move to a low-carbon economy and will establish a federal engagement, governance, and accountability framework to ensure ongoing action and consultation with Canadians over time.

This framework will require the publication of Sustainable Jobs Action Plans every 5 years beginning in 2025. It will also create robust mechanisms to engage with Canadians through a Sustainable Jobs Partnership Council and Sustainable Jobs Secretariat to ensure that Canadians are meaningfully consulted and have an ongoing space to share their ideas, challenges, and needs.

This approach recognizes that economic opportunities across Canada will only happen by ensuring that Canadian workers have the supports, skills, and training to succeed. With the right plan in place, the road to a 2050 net-zero emissions economy will secure and create good, well-paying jobs for Canadians in every part of the country.

Clean technology development

A collective mission to green the buildings sector presents unique opportunities for clean technology innovation, development and deployment across Canada. The CGBS proposes a technology-neutral approach through 2050 that provides the opportunity to adapt strategically over time to technological changes and innovations in research and development. Technologies available today could reduce buildings emissions significantly in most regions of Canada. However, innovation is still required to reach net-zero by 2050 – affordably and across all of Canada. The CGBS recognizes that the optimal pathway to greening the buildings sector will vary with regional considerations.

The following solutions should play a role in greening buildings across Canada:

- **Electrification** means using HVAC systems powered by electricity instead of fossil fuels like natural gas, propane, or oil to heat buildings. This helps reduce carbon emissions from buildings. Electrification, and heat pumps in particular, represent the most cost-effective and efficient approach to decarbonize buildings, on average, across much of Canada. The technology already exists to reduce emissions efficiently and effectively from heating equipment. Cold climate electric heat pumps can effectively heat when temperatures go down to -30°C and can cool even when temperatures exceed 40°C. For extra cold days, integrated back-up heating sources, such as electric resistance heating, can also be used.

***In the Spotlight:** [Hydro-Quebec and Énergir](#) have partnered on a dual energy agreement aiming to convert the natural gas heating systems of Énergir customers into systems supplied by both electricity and natural gas to handle demand peaks during cold snaps. Dual energy is a means of reducing GHGs associated with heating by allowing homes to heat with electricity the majority of the time – but have gas as a back-up in very cold weather.*

- Supply-side management:** As Canada electrifies buildings and more sectors of the economy, demand for electricity will rise. Planning for buildings decarbonization, particularly Canada’s existing buildings, alongside clean electricity expansion will be an important priority over coming years. To support mid- and long-term objectives, Budget 2023 delivered critical investments that will support the expansion of Canada’s electricity system to meet the needs of reaching net-zero, while addressing affordability for electricity customers and preserving reliability. The [Clean Electricity Regulations \(CER\)](#) further support Canada’s electricity sector to reach net-zero as an enabler for broader decarbonization of the economy, including the buildings sector.
- Demand-side management:** In addition to increasing the supply of electricity and ensuring that all electricity generation supports net-zero emissions targets, reducing emissions in buildings will involve implementing peak management strategies. Utilities are already testing a wide array of strategies to reduce or defer the need for new supply and to increase grid flexibility. These include passive strategies that permanently reduce load and free up demand on the grid, including energy efficiency retrofits (e.g., building envelope) and ground source heat pumps. Others are active, designed to reduce specific peak demand period using load control devices or storage equipment. For example, **thermal storage** provides flexibility in energy use timing, such as for space and water heating during periods of high energy demand. [Energy storage for the integration of renewable and alternative energy sources](#) may be an ideal solution in Northern and remote communities given their lack of grid connectivity. For example, stationary electric home batteries can power a home and there are electric vehicles available today that can do the same, with the proper equipment. Indeed, **bidirectional charging** allows energy from an electric vehicle to be returned to the grid or used to power items in a home or business.
- Roof top solar** sources, both solar thermal and solar PV (photo-voltaic), and other clean technologies offer potential future opportunities to support buildings decarbonization.
- Bioheat** is generated from combustion of biomass (e.g., agricultural, forest, urban and industrial residues and waste). Bioheat can provide cost-effective low-carbon heat for residential, commercial, and

***In the Spotlight:** The [Saskatchewan Prefab Pilot](#) consists of six net-zero energy (NZE) rental units within a 48-unit affordable housing development in Regina’s Rosewood Park neighbourhood—it is among the first in Saskatchewan to achieve that sustainability target. Fitted with solar cells to generate energy, the units also demonstrate the value of modular construction methods. The housing panels were prefabricated at an offsite manufacturing facility and then assembled at the final location, enabling developers to complete the project quickly and efficiently. Sustainable affordable housing will have direct, tangible impacts in the community by lowering energy costs for residents.*

institutional buildings in some areas, such as the North and in remote communities, and can be paired with district energy systems to provide community-wide low-carbon heating.

- **Renewable natural gas (RNG)** is chemically identical to fossil natural gas, making it compatible with existing natural gas infrastructure. In fact, Canadian gas utilities are already injecting RNG into their networks to reduce emissions. RNG faces supply constraints because the sources of RNG, such as landfills or agricultural and forest wastes, are limited and competing for other uses. RNG could be used where technological or cost limitations prevent electrification.
- **Shared energy solutions like district energy systems** and inter-building energy transfers are mature technologies and offer promise in contexts where they can be applied.
- **Prefabrication, including modular construction and panelization**, can improve the speed, energy efficiency, and consistency of construction. Building components can be manufactured at high levels of energy performance within a controlled factory environment, and then installed on-site with shorter timelines and more quality control.
- **Existing building commissioning (EBCx)**: a process focused on improving or optimizing (i.e. “tuning up”) the performance of equipment and systems, and identifying low-cost or no-cost operational improvements, most notably in large buildings.

Widespread adoption of heat pumps, which are the most energy efficient option in certain regions, whose operations are not reliant on fossil fuels, are a crucial tool in the fight against climate change today and are an effective solution to help address energy affordability, when deployed with appropriate supports to assist with the upfront costs. Importantly, [heat pumps can provide a single source of heating and cooling](#). Heat pumps are a proven technology that are already widely used around the world,

Heat pump basics: Electric heat pumps are energy-efficient heating and cooling systems that provide comfortable temperatures for your home year-round. They are fully reversible, meaning that they can both heat and cool your home.

During the cooler months, a heat pump extracts heat from the outside air, using electricity to increase the temperature of the heat and transfer it inside your home. An electric heat pump uses less energy to heat and cool the space in your home than traditional equipment does. The heat pump’s advanced technology enables it, even during Canada’s cold winter days, to extract heat from the outside air to heat your home.

Benefits of heat pumps:

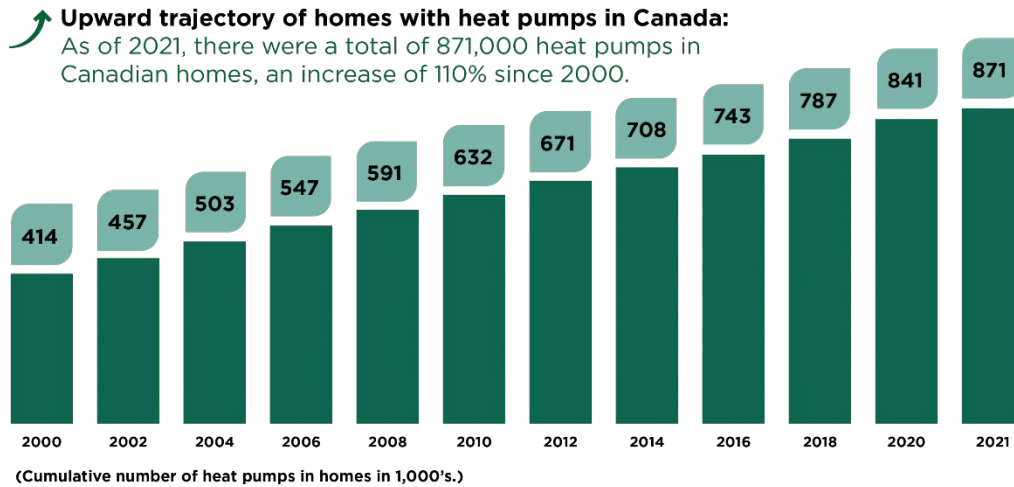
Lower heating bills: Heat pumps consume less energy to heat the space in a home and could potentially save you hundreds of dollars per month!

Environmental: Unlike traditional fossil-fuel space heating systems, heat pumps do not produce greenhouse gas emissions while heating the home.

Federal, provincial, territorial and municipal financial incentives can help homeowners with the upfront costs of a heat pump. As of May 1, 2024, nearly 125,000 heat pumps have been installed with federal support across Canada – with a lot more to come.

including in countries with cold winters like Canada: in Norway, 60% of buildings are equipped with heat pumps, with Sweden and Finland at over 40%. They are becoming more prevalent in Canada, approaching 1 million currently installed in residential buildings. Between 2000 and 2021, there was a 110% increase in heat pumps in Canadian homes (see Figure 6).

Figure 6. Number of heat pumps in Canadian homes (2000-2021)



Improving energy efficiency continues to be crucial since it is one of the most cost-effective measures to cut emissions by reducing overall energy consumptions and utility bills. In many cases, implementing energy efficiency measures first, such as adding insulation, sealing air leaks and replacing old windows and doors, can improve both the upfront and ongoing costs and they are assisting with affordability.

Continued focus on accelerating the development and deployment of emerging technologies to move beyond heat pumps as a single heating and cooling technology, can lead to novel developments in the future, including complete home climate systems - integrating space heating, space cooling, and water heating - that could further accelerate building retrofits, offer solutions where space is limited and support more cost-effective solutions to electrify space and water heating.

'Buy Clean' - low carbon construction materials and design

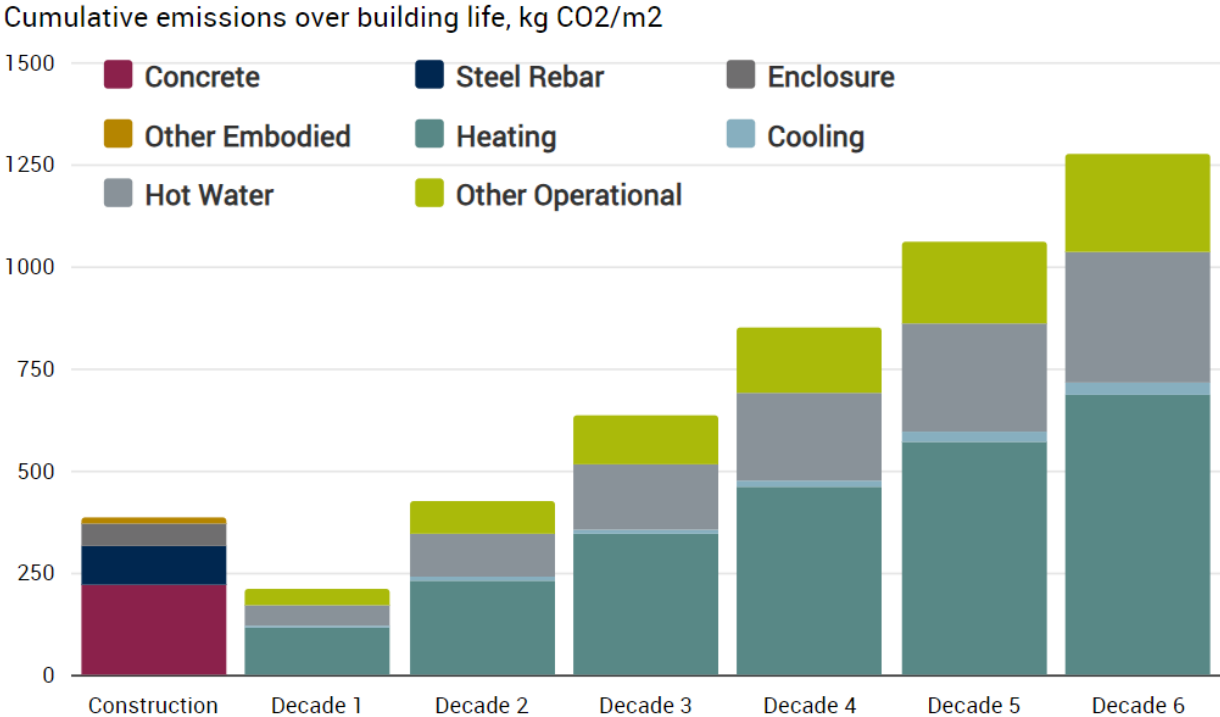
As demand for green buildings increases in Canada and worldwide, so does demand for construction materials that are renewable and/or made with low or net-zero-embodied carbon, and designs that maximize material efficiency. Embodied carbon refers to the amount of greenhouse gas emissions generated during the manufacture, transport and construction of building materials together with end-of-life emissions (see Figure 7). The construction products that are used to construct infrastructure assets, such as buildings, roads or bridges, are significant sources of embodied carbon. Operational carbon refers to emissions generated from the lighting, heating, cooling, equipment, and day to day running of infrastructure assets, such as buildings, over its life.

Canada is uniquely positioned to supply the world with construction materials that have low-embodied carbon, such as low-carbon concrete, or have low-embodied carbon and are renewable, such as wood. Many made-in-

Canada construction materials are already lower carbon than those produced by many international competitors. In addition to having an electricity grid that currently produces more than 80 percent of its output from non-emitting energy sources, the Government of Canada has made historic investments to decarbonize heavy industry through clean technology programs such as the [Strategic Innovation Fund Net Zero Accelerator](#), the [Energy Innovation Program](#), and the [Investment Tax Credits](#) announced in Budget 2023.

Canadian manufacturers who decarbonize their operations and scale-up production of low-carbon construction materials stand to improve competitiveness and support existing and new good jobs in the material manufacturing sector. Canada has significant advantages compared to our competitors in this area - including our supply of clean electricity, leadership in clean technology innovation, highly educated and skilled workforce, access to natural resources, and ability to manufacture low-carbon construction materials. Canada also has strong relationships with trading partners, like the [United States, which is pursuing Buy Clean type policies](#) to create the market for low carbon materials and decarbonization of supply chains.

Figure 7. [Cumulative embodied emissions equal 20 years of operating emissions](#)



Source: Daniels' Corporation Decarbonization Roadmap, RBC Climate Action Institute

In recent years, the concept of 'Buy Clean' has gained momentum globally as jurisdictions and markets place a more significant emphasis on the need for low-carbon construction materials. For the Government of Canada, 'Buy Clean' is a policy approach that promotes the use of low or net-zero-carbon construction materials and designs through federal procurement and investments in four ways:

1. **Reduce embodied carbon in Government of Canada infrastructure procurement:** The [Greening Government Strategy](#) is implementing a Buy Clean approach in Government of Canada procurement by reducing the environmental impact of construction materials and design for federally owned major construction projects by:
 - Requiring the disclosure of the amount of embodied carbon in the construction materials of major construction projects, based on material carbon intensity or a life cycle assessment.
 - Requiring whole buildings (or asset) life cycle assessments by 2025 at the latest for major buildings and infrastructure projects.
 - Requiring the reduction of embodied carbon of major construction projects by 30%, starting in 2025, using recycled and lower-carbon materials, material efficiency and performance-based design.

2. **Reduce embodied carbon in federal investments in public infrastructure assets:** The Government of Canada can help reduce embodied carbon emissions by applying Buy Clean measures to federal public infrastructure funding programs, such as programs that fund new public buildings, or public transit. Unlike buildings, some infrastructure assets - such as roads or bridges - have minimal or no operating emissions. This means that reducing embodied carbon at construction is an important way to address their carbon footprint. Housing, Infrastructure and Communities Canada will take a phased approach to apply measures to disclose and reduce embodied carbon in future new programs as appropriate, focusing on major projects with the highest potential for emissions reductions.

3. **Support market transformation through disclosure, guidelines and demonstration projects.** The Government of Canada is leveraging the National Research Council Canada's (NRC) [Platform to Decarbonize the Construction Sector at Scale](#) to:
 - Develop a centralized '[Life Cycle Inventory Dataset Repository](#)' for key construction materials that can be used to develop Environmental Product Declarations to assist governments and industry with the selection of the [lowest carbon options](#) within a class of construction materials. The dataset begins with an [assessment of various kinds of ready-mix concrete](#), concrete elements, concrete masonry blocks and cement, and includes a primer on low-carbon concrete for federal government procurement. Other construction materials that are in the process of being added to the Life Cycle Inventory include steel, wood products, concrete pipes and insulation. The Government of Canada is working towards conducting [whole-building or whole-asset life-cycle assessments](#) by 2025 for major buildings and infrastructure projects.
 - Develop a guideline for low-carbon federally funded projects aligned with standards on life cycle assessments to support procurement of low-carbon building and infrastructure assets.
 - Provide technical support for demonstration projects and design tools through the [NRC's Centre of Excellence for Life Cycle Assessment](#). The NRC will work with federally funded projects that pilot low carbon construction materials, products and practices to develop case studies and best practice content and share them with all levels of government and the private sector.

4. **Complementary measures to decarbonize the construction industry through research, development, demonstration and deployment:** Investing in research and development to reduce embodied carbon in construction projects will help create a market for low-carbon construction materials, designs and technologies, driving down their costs and making them more widely available. The Government of Canada is investing in reducing embodied carbon through measures such as the [Net-Zero Accelerator Initiative](#), [Green Construction Through Wood Program](#), and the [Clean Economy Investment Tax Credits](#). For example, the Government of Canada is supporting innovation to promote the use of prefabricated timber buildings made from sustainable sourced mass timber, built off-site in a factory, which can be a low-carbon solution to volumetric construction.

Strategic priorities

Over the past two years, Natural Resources Canada (NRCan) has led extensive engagement with building sector industry partners, Indigenous partners, municipalities, provinces, territories and the Canadian public. Based on that feedback and analysis of what's needed to accelerate buildings decarbonization and resiliency in Canada, the CGBS sets out three priorities: (1) accelerate retrofits, (2) build green and affordable from the start, and (3) shape the buildings sector of the future. Taken together, focusing on these priorities will allow us to achieve our aim to decarbonize and improve the resiliency of Canada's buildings stock, while supporting affordability, job creation and economic growth.

1. Accelerate retrofits ■

The first priority of the CGBS is to rapidly increase the rate of energy efficient, deep and climate-resilient building retrofits. A dramatic scale up is needed – the [historic pace of retrofits shows it will take 140 years to retrofit all residential buildings and 70 years to retrofit all commercial floor area](#). Furthermore, these retrofits may not be ambitious enough.

Retrofits do not always achieve net-zero compatible energy and GHG savings. To achieve decarbonization, retrofits should be centered on improving efficiency and reducing emissions from heating sources – the source of over 96% of direct buildings emissions.

At its current pace, it will take Canada well beyond 2050 to retrofit the approximately 70% of current residential

***In the Spotlight:** The [Ken Soble Tower Project in Hamilton, Ontario](#) is an example of the CMHC's National Housing Strategy project, as it was CityHousing Hamilton's oldest residential social high-rise that had deteriorated to be almost uninhabitable. With more than 6,000 households on their waitlist, the city was also facing a critical shortage of affordable housing. To address both challenges, CityHousing Hamilton committed to reinvesting in critical capital repair to restore the building, provide key modernizations, and convert the residency profile to seniors. The federal government invested \$17 million in this ground-breaking project, which was also the first retrofit [Passive House tower in Canada](#).*

dwellings that need improvements¹ to achieve GHG savings, along with [the commercial, institutional, and public buildings that will still be standing in 2050 and which make up approximately half of our country’s building sector emissions](#). To reach Canada’s goal of net-zero emissions from the sector by 2050, we will need to achieve a retrofit rate for existing homes and buildings of around 3% per year.

At the same time, climate hazards such as floods, wildfires and hurricanes are becoming worse every year. A “green” retrofit also means one that improves the resiliency of a building to these hazards, such as improving a home’s ability to withstand flooding, improving drainage, the use of particular materials in wildfire-prone communities and installing impact-resistant windows and doors. These retrofits not only improve the comfort and safety of homes and buildings but can also increase their value.

In addition to tackling climate change and improving affordability, green building retrofits also have the added benefits of making the places where we live, work and play more livable and better for our health and wellbeing. A study undertaken by the National Research Council and RBC found that people who work in sustainable office buildings are more likely to feel satisfied in their jobs and committed to their organizations. [Canadians can also live healthier lives by living in buildings with improved indoor air quality and temperature controls](#).

2. Build green and affordable from the start ▲

The second priority of the CGBS is to build ‘green’ from the start, meaning structures made in a way that is low-carbon, energy efficient, climate resilient and affordable. For residential buildings, [Canada will need at least 3.5 million new homes by 2030](#). However, if built with current practices, using materials containing a significant amount of ‘embodied carbon’, and to base (minimum) building codes and standards, [these structures will add up to 18 MTs of GHGs to our carbon footprint annually](#). Constructing green and resilient electric-powered buildings, using low-carbon construction materials provides an opportunity to achieve decarbonization and resilience objectives faster and with lower costs than retrofitting and electrifying later.

In the Spotlight: The [YWCA Courtyard Project in Banff](#) is a National Housing Strategy investment of \$1.35 million, and an important initiative aiming to revolutionize the construction of affordable housing in rural Canada. This three-storey, 33-unit building is striving for net-zero energy efficiency and is constructed mainly from recycled shipping containers. It’s designed to offer an appealing, healthy, and comfortable living space while providing affordable rental housing for women and children escaping domestic violence, and other vulnerable groups.

¹ Estimate uses data from Statistics Canada, Survey of Commercial and Institutional Energy Use: Commercial and institutional buildings, 2019 (<https://www150.statcan.gc.ca/n1/daily-quotidien/220805/dq220805c-eng.htm>) to determine the number of homes which were constructed pre-2001 to estimate those at an age that may require retrofit.

3. Shape the buildings sector of the future ●

The third priority of the CGBS is to shape the buildings sector of the future. Given that fossil fuel heating is the largest source of emissions in the buildings sector, we must focus on the decarbonization and particularly, the electrification of space and water heating. To achieve this, the development and deployment of innovative technologies are required, such as heat pumps which have already had remarkable success in buildings decarbonization. Bioheat and district heat can also be affordable and reliable net-zero options in certain circumstances. This transition will also require an abundant supply of clean electricity, a challenge the Government of Canada is tackling through the development of its [Clean Electricity Strategy](#), including the proposed [Clean Electricity Regulations](#).

In the Spotlight: The Government of Canada invested over \$6.5 million through the Green and Inclusive Community Buildings program to the [Millbrook First Nation Resilience Centre](#). Led by the Nova Scotia Native Women's Association (NSNWA), the new Resilience Centre will provide much needed services to Mi'kmaw women, girls and 2SLGBTQIA+ individuals across Nova Scotia. Their green building design is registered and certified under the [Canada Green Building Council \(CaGBC\)'s Zero Carbon Design Standard](#).

But electrification is not the only way the buildings sector will need to transform. The sector will need a significant inflow of skilled workers, particularly tradespeople with expertise in heating, cooling, ventilation, electricity, and climate resilience. [RBC estimates that by 2030, Canada will need 45% more HVAC tradespeople and 55% more electricians](#). The [Government of Canada's Sustainable Jobs Plan and Workforce Development Agreements](#) with provinces and territories are working to tackle these challenges.

Significant investment will also be required to make this transition possible. [The Pembina Institute estimates that decarbonizing Canada's buildings sector will require more than \\$400 billion over the next 30 years in capital investment](#), with most of these costs going to retrofitting existing homes and buildings. To kickstart this transition, the appropriate incentives must be put in place that will incent owners of all types of buildings, from large-scale commercial and institutional to individual homes, to take part in the transition. Carbon pricing, [in place across Canada since 2019](#) through a mixture of federal, provincial and territorial systems is a cost-effective policy tool to drive decarbonization, including in the buildings sector.

To encourage Canadians to take action to reduce emissions by choosing greener home heating and cooling, these changes need to make sense financially for Canadians. Carbon pricing recognizes the cost of pollution and enables households and businesses to account for it in their daily decisions, including when heating or cooling their homes. It gives them the flexibility to choose when and how to make changes, while stimulating Canadian businesses to develop and adopt new low carbon products, processes and services. The federal approach to pricing carbon pollution is designed to support affordability, with most proceeds returned directly to households through the Canada Carbon Rebates (CCR). The majority of households get more back than the costs they incur, benefitting low and middle-income families the most, ensuring households are not out of pocket, but nevertheless have an incentive to reduce carbon pollution.

While a price on carbon pollution is a critical tool, it is not sufficient alone – and complementary measures and investments, such as those set out in Canada’s [2030 Emissions Reduction Plan](#), are important for advancing the economy-wide transition to lower emission technologies. For example, incentive programs and energy management programs are key to promote the adoption of low-carbon options, such as electric vehicles and electric heat pumps and to improve energy efficiency through building envelope measures.

Canada cannot reach net-zero emissions by 2050 if the buildings sector acts alone – we must consider economy-wide transition. The decarbonization of electricity, heavy industry, transportation, and other sectors will influence the actions taken to reach net-zero emissions across the Canadian economy, including through transforming the way Canadians interact with buildings. The CGBS takes this interconnectivity into account to ensure that buildings are built with purpose and used efficiently. Creating net-zero emissions, climate resilient buildings supports the economy on multiple fronts, increasing economic activity, increasing jobs, and increasing money in Canadians' pockets.

Roles and responsibilities

Government of Canada

The federal government shares jurisdiction and responsibilities to promote the decarbonization and resiliency of buildings with provinces and territories, municipalities, Indigenous governments and the private sector. The federal government has a variety of authorities and levers to advance the greening of buildings across Canada, the most notable being:

- **Coordination and strategic policy:** As a national leader for emissions reduction and climate resiliency action across Canada, the federal government has an important coordination, convening and oversight role for greening buildings, ensuring that progress is met while ensuring provincial, territorial, municipal, Indigenous partners, private and public sector partners are actively engaged and enabling successful implementation of policies in their local jurisdictions. For the Government of Canada, that means developing and implementing several related cross-sectoral federal policies, such as the [2030 Emissions Reduction Plan](#), [National Adaptation Strategy](#), [National Housing Strategy](#), [Sustainable Jobs Plan](#) and [Canada’s Housing Plan](#).
- **Standards and regulations:** The federal government provides support for provinces, territories and municipalities to implement their own regulations, including adoption of higher tiers of the building code, building performance standards, codes for climate-resilient buildings, building labelling and benchmarking requirements, and regulations that aim to reduce or phase-out fossil fuels in building heat. The federal government also takes action to increase the use of energy efficient, smart and sustainable products and maximize their associated benefits. Canadians need to know they are buying products that are highly efficient and improving all the time. To enable greater national ambition for buildings decarbonization, federal regulations can be developed to act as a national backstop, with preference for action at the sub-national level.

- **Investments and purchasing power:** There are flagship federal green building programs such as the [Canada Greener Homes Grant and Loan programs](#), as well as new innovative initiatives like the [Greener Neighbourhoods Pilot Program](#), and the [Deep Retrofit Accelerator Initiative](#), as well as programs that support social along with environmental outcomes like the [Green and Inclusive Community Buildings Program](#). The Government of Canada also supports research, development and demonstration (RD&D) of novel approaches and emerging technologies for greening buildings, often through government, industry and academic collaborations. Finally, as the single largest building asset owner and procurer in the country, the Government of Canada can take early action that de-risks new approaches and drives market transformation. This is the essence of the [Greening Government Strategy](#) and an emphasis on [‘Buy Clean’](#) in federal procurement and infrastructure funding that reduces the environmental impact of construction materials.

Provinces, territories and municipalities

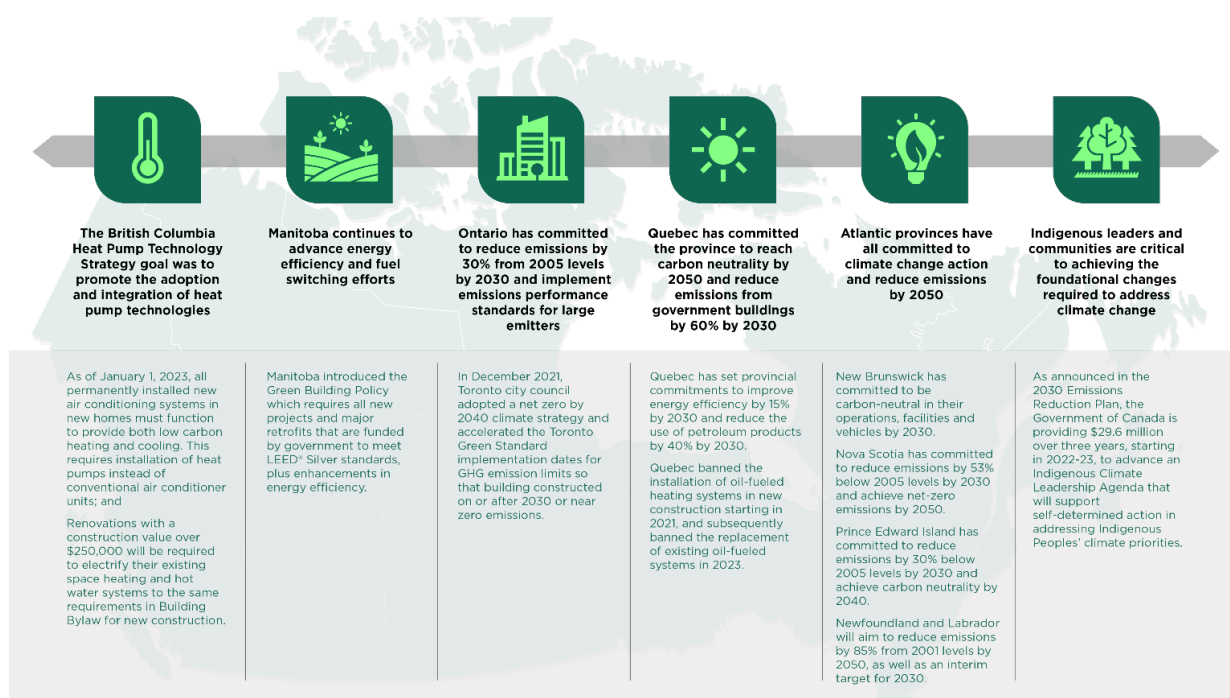
Each of Canada’s regions are presented with unique opportunities and challenges in the decarbonization and resiliency of its buildings stock. Differing climate zones, geography, access to technologies, and populations mean that different approaches are needed to decarbonize the buildings sector. Provinces and territories, and by extension municipalities, have authority over several key levers to advance the greening of buildings, including:

- **Policy-setting and regional expertise:** Many provinces, territories and municipalities have established their own climate change policies, including goals and targets for emissions reduction in the buildings sector and plans to improve resilience to worsening climate-related hazards. For example, Prince Edward Island has committed to reduce emissions by 30% below 2005 levels by 2030, which will require a significant reduction in building sector emissions given the province’s relative absence of heavy industry. Quebec has committed the province to reach carbon neutrality by 2050 and reduce emissions from government buildings by 60% by 2030. The Northwest Territories has committed to increase residential, commercial and government building energy efficiency by 15%, as well as increase the share of renewable energy used for space heating to 40%. Municipalities are often uniquely positioned to advance more ambitious policies than their respective provinces and should be encouraged to do so. Provincial, territorial and municipal governments have the necessary expertise to drive meaningful progress in their jurisdictions. Every region is unique with its own strength and challenges, and they are best placed to know how to ensure a successful transition.
- **Standards and regulation:** The adoption and implementation of building codes falls under the responsibility of provincial and territorial governments. Each jurisdiction either chooses to adopt a version of the national model codes developed in collaboration with Provinces and Territories and published by the National Research Council of Canada or adapt the model codes for their own use. Building codes are the most critical regulatory tool to improve new construction energy performance and climate resilience. Moreover, while the federal government manages rating systems such as the [EnerGuide Rating System](#) for homes, a system that provides homeowners with an energy assessment of their home, a rating, and a label, it is provincial, territorial and municipal governments that have the authority to require home ratings and labels. The adoption of home rating and labelling initiatives is key

to increasing public awareness of home energy performance and providing homeowners with retrofit recommendations. The [ENERGY STAR Portfolio Manager](#) benchmarking, labelling and disclosure (BLD) platform is a critical tool for BLD of energy use in commercial/institutional buildings and multi-unit residential buildings in Canada. Finally, provinces and territories, through energy regulators play a crucial role in overseeing and regulating the energy industry to ensure fair competition, consumer protection, and promoting the efficient and reliable supply of energy. They encourage efficient investment and innovation towards more ambitious goals.

- Investments and workforce development:** Provinces, territories and municipalities have the ability to invest in green building initiatives, and many of them do. For example, in recent years British Columbia has made significant investments to promote the adoption and integration of heat pump technologies and help meet provincial decarbonization goals. Provinces and territories have a key role to play to support Canadian workers as they build new skills in growing sectors and to ensure that workforce capacity is adapting as part of the energy transition. Indeed, provinces and territories have the required knowledge of workforce capacity in their jurisdiction and can create the right programs to cover their needs.

Constructing and retrofitting buildings in Canada’s North brings unique challenges. We need to work together on reducing carbon emissions, along with addressing the housing needs of the region, especially the unique needs of Indigenous and northern communities. For example, all electricity needs in Nunavut’s communities are currently met through the operation of stand-alone diesel generation that rely on fossil fuels imported from the South. Nunavut’s current annual energy requirements are met through an estimated 260 million liters of imported refined petroleum products per year. The Government of Nunavut is committed to enhancing the use of reusable-energy resources and implementing new energy-efficient equipment.



There is an urgent need for solutions to retrofit the housing stock in the North to provide safe, culturally appropriate, and green homes for all. This also presents an opportunity to advance green building technologies for harsh climates, and to build local capacity to provide and maintain housing in northern, rural and remote communities. The federal policy development process will seek provincial, territorial and municipal engagement and partnerships to ensure a successful housing renewal across all regions of the country.

Indigenous communities

Indigenous leaders and communities are taking action to reduce GHG emissions and improve climate resiliency, serving as guardians and stewards of ecosystems, managing water and air pollution, and improving how the natural environment is respected and protected. Indigenous leadership, knowledge and self-determination are critical to achieving the foundational changes required to address climate change and support a healthy environment. The Government will continue co-developing initiatives and planning for Indigenous-delivered initiatives through the following considerations:

- **Focusing on reconciliation and engagement:** Uphold and advance the Government of Canada's commitment to reconciliation by supporting Indigenous partners to participate more fully in decision-making and continued climate leadership. Apply best practices for engaging with Indigenous peoples, including on proposed federal regulations and policies that may intersect with or impact their rights. Respond to direct feedback from engagement.
- **Promoting Indigenous-led methodology and science:** Elevate Indigenous science, knowledge, experiences, and perspectives for nature-based solutions. The [*Canadian Net-Zero Emissions Accountability Act*](#) enshrines the role of Indigenous knowledge in the climate accountability process. One way this role is demonstrated is in the authority that local/regional Indigenous communities or governing bodies hold to implement building codes in Indigenous communities.
- **Investing on a distinctions-basis:** Indigenous partners continue to advocate for the federal adoption of distinctions-based funding models, streamlined and flexible funding processes, and an increased role for Indigenous organizations/governments in decision-making. They are seeking funding for self-determined green buildings activities including increasing capacity, expertise, services, and economic and long-term career opportunities in the green buildings sector.

Indigenous-led actions work to enhance community capacity and enable improvements to new and existing homes and buildings. Canada has also committed to advancing the co-development of an [Indigenous Climate Leadership Agenda](#) together with First Nations, Inuit, and Métis partners to enable self-determined action in addressing Indigenous peoples' climate priorities and to support the phased implementation of distinctions-based climate strategies, including through more efficient delivery of funding to Indigenous peoples. That process will complement support for their housing and buildings priorities and will reflect the Government's commitment to transformed approach to partnership that enables their self-determined climate action.

Private sector and civil society

Canada cannot achieve its buildings sector goals through public initiatives alone. The private sector and civil society have a critical role to play in developing awareness of – and adopting and investing in – green buildings. Creating demand by raising awareness of heat loss in buildings, fuel switching technologies, and resiliency options will help spur the green buildings transition from the ground up. Every business, organization and indeed every individual can take action on green buildings, including:

- **Canadians:** Increasing awareness, knowledge and experience of energy efficient solutions and technologies to promote individual choices that reduce energy consumption and emissions (including increased adoption of highly efficient heat pumps for space heating and cooling and undertaking energy efficiency retrofits such as updating old windows and installing additional insulation).
- **Industry collaboration:** Strengthening collaboration between buildings sector stakeholders is needed to accelerate action. Working together, stakeholders can effectively consider the interests and needs of Canadians, businesses, manufacturers/suppliers, and the green buildings workforce, as well as take into evidence and best practice to accelerate the transition to a green, climate resilient and affordable buildings sector.
- **Developers and builders:** Beyond ensuring that new homes and buildings are designed and constructed in a way that increases resilience and comfort, [developers and builders need to ensure their buildings minimize operational emissions and embodied carbon](#).
- **Trades, manufacturers, and suppliers:** The design and redesign of products for sustainability, as well as continuous improvements in construction materials and construction techniques, are critical to improving energy efficiency and reducing emissions. [Tradespeople in the buildings sector have a role in](#)

***In the Spotlight:** The Canadian government is investing over \$23 million through [Green and Inclusive Community Buildings \(GICB\) program](#) to transform the historic Bank of Montreal building in Winnipeg, Manitoba, into a new [Métis Nation Heritage Centre](#). This green retrofit project will make the building more environmentally-friendly, facilitate a large reduction in GHG emissions, providing significant energy savings, and strengthen its resilience and durability. The heritage centre will serve as an educational hub, teaching the public about the history, language, culture, governance, and legacy of the Métis Nation throughout Canadian history. With the building previously under private ownership for over a century, this initiative presents a unique opportunity to repurpose and preserve a historic landmark, ensuring the ongoing vitality of Métis culture and history.*

responsible sourcing, efficient use of products and materials, as well as new ways of working by increasing their climate literacy and performance with respect to energy issues and environmental practices.

- **Trade unions and associations:** Support the development of a highly skilled green workforce, improve the quality of training in the skilled trades, and improve the participation of key groups to have a more inclusive workforce. Foster local expertise and enable skilled workers to remain within their home communities.
- **Experts and advocates:** Civil society leaders shape conversations, support discourse and dialogue with sector stakeholders and governments, and help to develop and coordinate innovative solutions to achieve green, resilient, and affordable homes and buildings, at scale. Their role as a bridge between stakeholders positions them as a systems-level operator and can optimize learning and experimentation, while facilitating information flows between governments and businesses.

Vancity has committed to eliminate or significantly reduce GHG emissions in their lending portfolio – mostly for commercial and residential properties. As part of this, Vancity does not lend to oil, gas or other carbon intensive industries and focuses on member engagement to support emissions reductions in their businesses, advocating for equity-focused climate policy at every level of government and increasing their lending to support clean growth.

- **Financial Institutions, banks and community credit:** Banks provide the capital to finance green buildings. Following [guidelines](#) issued by the Office of the Superintendent of Financial Institutions, all federally regulated financial institutions will be required to report on financed emissions following the Project for [Carbon Accounting Financials \(PCAF\) standard](#) by October 2024. Increasingly, financial institutions are putting their ESG funding toward greening buildings and climate action. Six of Canada’s largest banks have joined the [Net-Zero Banking Alliance \(NZBA\)](#), a global initiative of [banks worldwide committed to aligning their lending and investment portfolios](#) with net-zero emissions by 2050.

Government of Canada actions

The Government of Canada is taking action to decarbonize and improve the climate resiliency of Canada’s buildings sector, in a way that supports affordability, job creation and economic growth. Since 2016, the Government of Canada has invested over \$20 billion in green building initiatives, including grants and loan programs, research and development funding, training and skills development supports, and allocating funding to provinces, territories, municipalities and Indigenous communities for greening buildings. These federal actions can be grouped based on the categories of buildings they are working to transform.

Where we live – residential buildings






■ Accelerate retrofits ▲ Build green and affordable from the start ● Shape the buildings sector of the future

- The [Canada Greener Homes Grants program](#) was launched by the federal government in 2021, to support Canadians to retrofit their homes to increase energy efficiency with up to \$5,000 in grant funding for eligible investments. The program closed intake in February 2024 to new applicants but has received over 590,000 applications, representing over \$2 billion in committed funds. The program proved very popular, with up to \$4-5 million spent each day in support of buildings retrofits and has already led to the purchase and installation of over 102,000 heat pumps (a number which will continue to grow). The program also contributed to educating homeowners through the [EnerGuide home energy assessments](#) provided. This program was also designed to address the unique needs of Indigenous communities – \$38 million in agreements have been signed directly with First Nations and Métis communities to make their own retrofit plans and to advance self-determination in the buildings space, and \$4M in agreements have been signed with Métis and pan-Indigenous organizations to advance the recruitment, training and mentorship of new Indigenous energy advisors.
- The [Canada Greener Homes Loan](#) provides an interest-free loan of up to \$40,000 with a repayment term of 10 years, open to all homeowners (as well as those who have an active application (at the pre-retrofit stage) with the [Canada Greener Homes Grant program](#)). Since launch in 2022, \$1.23B in loan commitments - representing approximately 78,000 loans – have been provided. [Approximately 45% of the committed loans include the installation of a heat pump.](#)
- **NEW!** As announced in Budget 2024, the [Canada Greener Homes Affordability Program \(CGHAP\)](#) is a \$800M retrofit program that will support low- to median-income Canadians, including tenants, to reduce their monthly heating bills by enabling energy efficiency and resiliency upgrades in their homes. Working with delivery partners, the CGHAP will include direct installation delivery, and stacking with PT programs to support the retrofits. The program will support minimal to no-cost retrofits – including identifying and enabling retrofitting for GHG reduction and climate resilience. It will include a distinctions-based carve-out for Indigenous communities delivered in partnership with other federal departments.
- **NEW!** As announced in Budget 2024, the federal government has committed \$30 million to continue developing a [National Labelling Approach](#). The Government of Canada will build on its existing [EnerGuide Rating System for homes](#) by working closely with provinces, territories, municipalities, Indigenous communities and other housing sector stakeholders to develop a suite of common labelling standards, tools and guidelines which will support home labelling initiatives across








Advancing equity and climate action.

Climate change does not affect everyone in Canada equally. Climate-related events, such as extreme heat or flooding, disproportionately impact already marginalizing and underserved populations and amplifies existing inequities. By supporting low- to median-income Canadians to adopt heat pumps and implement building envelope upgrades and other resilience measures, the [Canada Greener Homes Affordability Program](#) will support equitable climate action to address greenhouse gas emissions, improve indoor air quality and build resilience to climate change impacts.






Canada. This National Approach will empower homeowners and prospective home buyers with consistent information about home energy performance which will support smart decision making and lower energy bills. This approach will help Canadians improve the resiliency of their homes by sharing resiliency information and recommendations through new **EnerGuide** tools and standards.

-  **NEW!** Budget 2024 announced the launch of a new \$6 billion [Canada Housing Infrastructure Fund](#) to accelerate the construction and upgrading of housing-enabling infrastructure, such as water, wastewater, storm water and solid waste infrastructure to enable new housing supply and help improve densification. Provinces and territories can only access this funding if they commit to key actions that increase housing supply, including adopting forthcoming changes to the [National Building Code](#) to support more accessible, affordable, and climate-friendly housing options. Additional initiatives include the development of a [Housing Design Catalogue](#) to simplify and accelerate housing approvals and builds and the Canada Infrastructure Bank's newly launched [Infrastructure for Housing Initiative](#).
-  The [Oil to Heat Pump Affordability Grant \(OHPA\)](#), was launched in 2022 by the federal government to support low- to median-income households and to complement existing provincial and territorial programs that help Canadians switch from oil heating to a heat pump. This incentive program is designed to increase the energy efficiency of the home and reduce GHG emissions by providing grants for the installation of heat pumps. This also provides direct support to enhance climate resilience in buildings and homes as a heat pump can provide energy-efficient heat and cooling during extreme heat events.
-  The [Low Carbon Economy Leadership Fund \(LCELF\)](#), administered by Environment and Climate Change Canada, provides funding to provinces and territories for climate mitigation initiatives that support Canada's 2030 greenhouse gas emissions reductions targets and align with Canada's net-zero emissions by 2050 goals. The LCELF has funding available for provincial and territorial programs that support low-income households' transition of home heating oil or natural gas to cleaner, more affordable home heating sources like electric heat pumps. To date, the LCELF has approved up to \$118 million in funding for such programming in Canada's four Atlantic provinces. The LCELF also recently approved up to \$61 million in funding to support an expansion of [British Columbia's CleanBC Better Homes and Better Buildings](#) that provides funding to income qualified recipients to transitions away from fossil fuel sources of heating like natural gas and home heating oil through the installation of electric heat pumps and energy efficiency upgrades.
-   The [Low Carbon Economy - Indigenous Leadership Fund \(LCE-ILF\)](#), administered by Environment and Climate Change Canada, provides up to \$180 million by 2029 to support climate action by Indigenous peoples. The program funds Indigenous-owned and led renewable energy, energy efficiency, and low-carbon heating projects. These projects will help meet Canada's 2030 emissions reduction target and support progress towards Canada's net-zero emissions by 2050 goals. The LCE-ILF has funding available for First Nations, Inuit, and Métis governments, communities, and organizations that support GHG emission reduction projects including energy efficiency activities (e.g., building envelope upgrades and retrofits, and heat recovery) and low-carbon heating (e.g., biomass, electric heating, and

district heating systems), as well as skills development related to the implementation, operation, and maintenance of these projects for Indigenous members. To date, the LCE-ILF has approved approximately \$31.7 million in funding for projects in Alberta, Ontario, Saskatchewan, and British Columbia.







-   **NEW!** Announced in Budget 2024, \$145.2 million over five years starting in 2024-25, for Indigenous Services Canada (ISC) and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) to work with First Nations to [develop greater climate resiliency and deploy structural mitigation strategies](#) that protect communities, homes, and essential infrastructure from climate disasters.
-   The [Greener Neighbourhoods Pilot Program \(GNPP\)](#), administered by Natural Resources Canada, explores new ways to decarbonize large clusters of affordable housing through demonstrating aggregated deep energy retrofit approaches and supporting market development teams. The GNPP pilots the [Energiesprong](#) aggregated deep energy retrofit model in Canada. This model, developed by the Netherlands and adopted by the United Kingdom, France, Germany, and the United States, accelerates the pace and scale of retrofits by aggregating similar homes and buildings in an entire neighbourhood to create mass demand for deep energy retrofits. The large project scale and similarity of buildings permits the use of retrofit approaches such as the use of prefabricated exterior panels to reduce on-site labour, time and overall project costs, while reducing the energy use and emissions from each retrofitted building. This support for community-level home retrofits aligns with the Net-Zero Advisory Body's recommendation to seek out opportunities to decarbonize multiple buildings at once.
-  The [Canada Greener Affordable Housing Program \(CGAH\)](#), administered by the Canadian Mortgage and Housing Corporation (CMHC), funds low-interest repayable and forgivable loans to help affordable housing providers complete deep energy retrofits on existing multi-unit buildings through both pre-retrofit funding for planning activities as well as capital costs of retrofits. In the long term, this will reduce the operating costs of affordable housing ensuring they can continue to support low to moderate income households for many years to come. CMHC has already approved 63 pre-retrofit applications from the first application window in summer 2023 with more planned as part of subsequent funding application windows.
-   Led by Natural Resource Canada's Canadian Forest Services (CFS), the [Green Construction through Wood \(GCWood\) Program](#) provides funding for demonstration projects that showcase the innovative use of wood, supports capacity building, research and development, technical guidance, and associated code development priorities. Program results include demonstration of tall wood and low-rise non-residential wood buildings and mass timber bridge projects; added courses on wood design and construction in curricula at accredited civil engineering, architectural and construction management programs in Canada, as well as an increase in graduate timber courses available in Canada; and contribution to the update of the [2020 edition of the National Building Code of Canada](#) to allow mass timber construction up to 12 stories. The GCWood program supports innovative construction techniques outlined in the Government's new [Housing Plan and Design Catalogue](#), for example modular buildings, retrofits, and design for disassembly/adaptability, while initiatives such as [Investments in](#)

[Forest Industry Transformation](#) supports new off-site construction techniques and new automated advanced production factories.


-  Programs administered by Natural Resources Canada, such as the [Energy Efficient Buildings Program](#), supports the implementation of green buildings technology and deep energy retrofits research, development and demonstration projects.
-  The [Indigenous Off-Diesel Initiative \(IODI\)](#), first launched in 2019, is a \$31 million clean energy funding program that supports Indigenous-led climate solutions in remote communities that currently use diesel or fossil fuels for heat and power. IODI supports a cohort of participants called Energy Champions through funding for capacity and skill building, access to mentors, peer-to-peer networks, support for community energy planning, and project development to enable future clean energy projects that holistically address the goals of energy security and sovereignty in remote communities.
-  The [Clean Energy for Rural and Remote Communities Program \(CERRC\)](#) supports community-led renewable energy and capacity building projects in rural and remote communities to reduce their reliance on diesel. The \$453M program (which runs from 2018 to 2027) supports four main areas – bioheat, demonstration and deployment of renewable energy and building capacity in communities. Projects supported by the CERRC program create environmental, social and economic benefits to support healthier and more sustainable communities. As of March 31, 2024 CERRC has supported over 150 projects from coast to coast to coast, the majority of which are Indigenous-led.
-   The [Affordable Housing Fund](#) (previously National Housing Co-Investment Fund) administered by the CMHC, is one of the core programs of the [National Housing Strategy](#) which provides capital to partnered organizations for new affordable housing and the renovation and repair of existing affordable and community housing. Funds are provided as low-interest and/or forgivable loans and contributions. To be eligible, projects must meet the minimum energy and GHG reduction requirements. **NEW!** Under the Fund, Budget 2024 announced \$976 million over five years starting in 2024-25 and \$24 million in future years to launch a new [Rapid Housing Stream](#) under the Fund.

In the Spotlight: The [Nunavut Arctic College Student Residence Deep Energy Retrofit project](#) received \$2.443 million from NRCan's Green Infrastructure [Energy Efficient Buildings Program](#) to advance a deep energy retrofit of a 4-storey, 42,900 sq.ft., 56-unit student residence. This retrofit project features a 100kW rooftop solar installation, heat recovery systems, significant improvements to the building envelope including triple pane windows, and upgrades to LED lighting and low flow fixtures. Energy modelling projects 62% in energy savings after the retrofit. This means reducing GHG emissions by 352 tonnes carbon dioxide equivalent (CO2eq) annually which is equivalent to taking 65 cars off the road annually. This demonstration project supported national and territorial building energy codes and verified the feasibility of deep energy retrofits in an Arctic climate.




- ▲ **NEW!** Budget 2024 announced an additional \$15 billion in new loan funding for the [Apartment Construction Loan Program](#) (previously Rental Construction Financing initiative). Administered by CMHC, the program (now totaling over \$55 billion) is designed to support rental housing construction projects across Canada by providing low-cost insured loans to developers, non-profit housing providers, and municipalities in places where there is a need for more rental housing units. The initiative focuses on standard rental apartment projects in Canada where there is a need for more rental housing supply. The program prioritizes projects that have significant emissions reductions.
- ■ ▲ The [Eco Programs](#), administered by the CMHC, include partial refunds on CMHC mortgage loan insurance for those who qualify. For example, the [Eco Plus program](#) provides a partial premium refund of 25% on a CMHC mortgage loan insurance for people buying or building an energy efficiency home, roughly approximating to an energy rating of at least 20% lower than a “typical new house”. The [Eco Improvement program](#) provides a partial refund of 25% on CMHC mortgage loan insurance for homeowners (including condo owners) who are spending at least \$20,000 in energy efficiency improvements to their home.
- ■ ▲ The Government of Canada committed \$4.3 billion to an [Urban, Rural and Northern Indigenous Housing Strategy](#) that will launch in 2024. This will include the establishment of a National Indigenous Housing Centre. This investment is in addition to more than \$6.7 billion committed since 2015 to support housing in Indigenous communities, including through implementation of distinctions-based housing strategies. The federal government has supported energy efficiency in Indigenous communities (among other priorities) through programs like the \$180 million Indigenous Leadership Fund, the \$48 million [First Nation Infrastructure Fund](#), \$36 million through [Strategic Partnerships Initiative](#), and the \$300 million [Wah-ila-toos funding](#) that topped up the \$220 million [Clean Energy for Rural and Remote Communities](#) program and the \$53.5 million [Northern REACHE program](#).
- ● Promoting energy efficiency through the [ENERGY STAR®](#) and [EnerGuide program](#) for products and homes, administered by Natural Resources Canada. Canadians can save energy costs by buying ENERGY STAR certified products such as home appliances, which are the same or better than standard products, only they use less energy. EnerGuide ratings, labels and reports help homeowners and occupants better understand their home's energy performance, helping to lower energy use.
- ● **NEW!** The Government of Canada commits to introducing a **regulatory framework** that will allow the phase-out of the installation of expensive and polluting oil heating systems in new construction, as early as 2028. This phase-out would include necessary exclusions for regions with insufficient access to the electricity grid and where standby back up heating fuel is required. It is intended that these regulations would serve as a federal backstop in provinces that are not already taking such measures, like Quebec (provincial regulation starting in 2024) and Nova Scotia (provincial commitment to ban installation of oil-fired heating equipment in new buildings). These actions are consistent with the Government of Canada’s announcement in fall 2023 to phase-out home heating oil, including with support for low to moderate income households through the Oil to Heat Pump Affordability.


-  Canada's [Energy Efficiency Act \(EE Act\)](#) provides for the making and enforcement of regulations concerning efficiency standards for energy-using products, as well as the labelling of energy-using products and the collection of data on energy use. **NEW!** Between 2024 and 2026, new amendments to the [Energy Efficiency Regulations](#) are planned, including [Amendment 18](#) – which will see the update or addition of energy efficiency or testing standards for a series of energy-using products (including air conditioners, heat pumps, gas-fired furnaces (commercial) and storage water heaters, as well as electric and oil-fired water heaters (household)). The potential impacts of updating energy efficiency standards and adding new products to achieve further energy savings is continuously assessed to support the Government of Canada's climate change objectives and commitments.
-  **NEW!** Modernizing the EE Act to update the suite of legislative tools needed to account for the realities of today's online retail environment for energy-using products and equipment. Adopted in 1992, the EE Act allows for the establishment of minimum energy efficiency standards for a broad range of products and equipment to decrease overall Canadian energy consumption. Modernizing the EE Act will enable it to continue to play a pivotal role in driving energy efficiency improvements in complex, virtual marketplaces, while improving system effectiveness and accountabilities.
-  **NEW!** Working with provinces, territories, municipalities, and stakeholders to determine the regional impacts of requiring the installation of heat pumps instead of one-way central air conditioners in all new homes and in certain retrofit scenarios. Outcomes of this work will inform how federal, provincial/territorial, and municipal regulations can work in concert to deliver the economic and climate benefits of this market shift for Canadians. Given the benefits of Canadians considering heat pumps as a means of providing efficient cooling and heating, the Government of Canada commits to implement the outcomes of the [U.S. Environmental Protection Agency's \(EPA\) recent proposal to sunset the ENERGY STAR specification for central air conditioners](#).
-   Through the [Codes Acceleration Fund \(CAF\)](#), administered by Natural Resources Canada, the Government of Canada continues to promote the adoption and implementation of the highest feasible energy performance tiers of the national model energy codes or other high-performance building codes. The CAF promotes higher rates of compliance with adopted codes, while addressing persistent challenges in Canada's codes system, and building capacity and support for market preparedness for more ambitious code adoption. The program is providing \$100 million in supports to provinces, territories, municipalities, Indigenous governments and organizations, and other national and non-governmental organizations. Building code development will continue for the 2025 and 2030 code cycles, moving towards net-zero building codes. Additionally, the federal government will advance integration of climate resilience into building codes.
-   [Local Energy Efficiency Partnerships \(LEEP\)](#) is an initiative from Natural Resources Canada that accelerates energy efficient construction by enabling builders to reduce their time and risk finding and trying innovations that can help them build higher performance homes better, faster and more affordably. LEEP is delivered on a regional basis with the intent to establish an ongoing critical mass of builders that are capable of pulling through the best innovations suited to their region which can, in

turn, create a responsive supply chain. The results include energy savings for homeowners, competitive advantage for participating builders and manufacturers, and builder driven enhancement to local building practice.

-  **NEW!** Budget 2024 announced funding to support homebuilding innovation including \$50 million over two years, beginning in 2024-25, for each the [Next Generation Manufacturing Canada \(NGen\)](#) - one of Canada's Global Innovation Clusters - to launch a new [Homebuilding Technology and Innovation Fund](#) and through [Canada's Regional Development Agencies](#) to support local innovative housing solutions across the country, such as designing and upscaling of modular homes, the use of 3D printing, mass timber construction, and panelized construction.

Where we work, study and play – commercial and institutional buildings





 Accelerate retrofits  Build green and affordable from the start  Shape the buildings sector of the future

-  The Government of Canada has invested over \$120 million since 2016 to integrate climate resilience into national guidelines, standards and codes, and created future-climate design values, in priority areas such as flooding, extreme heat, resilient dams, transit, and nature-based solutions. This work, including under the [Build Climate Smart](#) initiative, done in partnership with Housing, Infrastructure and Communities Canada, the [National Research Council \(NRC\)](#) and the [Standards Council of Canada \(SCC\)](#), has delivered:
 - 65 climate informed codes, standards, guidance, and decision-support tools,
 - updates to 3 major Canadian Codes (buildings, bridges, and electrical), and
 - future climate design data in 680 locations across Canada.



These initiatives will assist in the implementation of Canada's first [National Adaptation Strategy \(NAS\)](#) and better prepare Canadians and their communities against the impacts of climate change. The Government of Canada is fostering resilience to climate-related challenges through the following resilient infrastructure related commitments, most of which appear as targets under the NAS:

- Starting in 2024, resilience to climate change impacts are factored into all new federal infrastructure funding programs. This means considering and addressing the impacts of climate change in the planning and design of future infrastructure projects.
- By 2026, additional climate change resiliency considerations will be incorporated into 3 Canadian Codes (National Building Code, Canadian Highway Bridge Design Code, and Canadian Electrical Code).
- By 2030, 80% of public and municipal organizations have factored climate change adaptation into their decision-making processes.
- By 2030, robust guidance, codes and standards covering the top climate change risks for key public infrastructure systems are available to be adopted by all infrastructure decision-makers.




These resources can be adopted by all decision-makers involved in infrastructure development.

-  The [Green and Inclusive Community Buildings Program \(GICB\)](#), administered by Housing, Infrastructure and Communities Canada, is a \$1.5 billion program that supports green and accessible retrofits, repairs or upgrades of existing public community buildings and the construction of new publicly accessible community buildings that serve high-needs, underserved communities across Canada. The GICB Program supports the first pillar of the [Strengthened Climate Plan](#) by improving the places Canadians live and gather by cutting pollution (e.g. reducing GHG emissions, increasing energy efficiency, building resiliency to climate change and encouraging new builds to net-zero standards), making life more affordable and supporting thousands of good jobs. [Budget 2024 announced an additional \\$500 million over five years, starting in 2024-25, to support more projects through the program.](#)
-  The [Canada Infrastructure Bank \(CIB\)'s Building Retrofits Initiative](#) helps to finance the capital costs of publicly and privately-owned commercial, industrial and multi-unit residential buildings retrofits, using energy savings, efficiencies and operating cost savings for repayment. The CIB is working with private and public sector real estate owners and other market participants to modernize and improve the energy efficiency of existing buildings by helping to finance capital costs of retrofits and to reduce investment barriers.
-  The [Green Municipal Fund \(GMF\)](#), administered by the [Federation of Canadian Municipalities](#), is accelerating a transition to climate resilient, net-zero communities. The program combines funding and capacity building to deliver clear environmental, economic and social impact in Canadian municipalities. GMF is a \$1.65 billion program funded by the Government of Canada and has retrofitted 2,000 larger-scale buildings to date. This includes \$530 million to support a minimum of 1400 community-based adaptation initiatives which will support local governments through a progression of activities, from identifying and assessing climate risks, to planning and implementing adaptation projects in their communities.
-  The [Low Carbon Economy Fund \(LCEF\)](#) supports projects to reduce Canada's GHG emissions, generate clean growth, build climate resilient communities, and create good jobs for Canadians. The [Challenge Fund](#) 2023 intake will leverage Canadian ingenuity to reduce GHG emissions and generate clean growth. The Challenge Fund will support a wide range of Canadian recipients to implement projects that deploy proven, low-carbon technologies resulting in material GHG emissions reductions across sectors. The assessment process is currently underway.

***In the Spotlight:** The [partnership between the Dream group of real estate companies and the Canada Infrastructure Bank](#) was announced in 2021. The goal was to achieve net-zero emissions by 2035 for all of its operations and new development. The Canada Infrastructure Bank provided a loan to finance this initiative and is estimated to create around 1,500 jobs resulting in healthy and resilient workplaces for the 15,000 employees who work there.*

-  The [Deep Retrofit Accelerator Initiative](#), administered by Natural Resources Canada, provides funding to organizations (i.e., “retrofit accelerators”) that help building owners in the development of deep retrofits in commercial, institutional, and mid- or high-rise multi-unit residential buildings in Canada, and drive market transition in regions across Canada.
-   The [ENERGY STAR Portfolio Manager Platform](#), administered by Natural Resources Canada, sets an industry standard for benchmarking and comparing energy performance in commercial, institutional, and multifamily buildings, helping owners and operators to track and improve energy efficiency across their portfolio of properties. To date, over 42,000 Canadian buildings are in the tool – equivalent to a third of the commercial and institutional building floor space in Canada.

Where we lead – federal government buildings

 Accelerate retrofits
  Build green and affordable from the start
  Shape the buildings sector of the future

-    The [Greening Government Strategy \(GGS\)](#), led by the Treasury Board of Canada Secretariat, seeks to reduce environmental impacts associated with Government of Canada’s operations, including GHG emissions from real property operations and from new government construction projects, enhance climate resiliency of federal government assets, services and activities, support green supply chain markets, and helps Canada meet its net-zero emissions commitments for 2050.
-  The [GGS was updated in 2024](#) and outlines the Government of Canada’s commitment to achieve net-zero emissions in federal real property operations. The GGS commits that new federal buildings are to be net-zero emissions (unless a GHG life cycle cost analysis indicates net-zero-emissions-ready construction), have a climate change risk assessment and incorporate adaptation measures to reduce significant risks; and major building retrofits are to have a GHG reduction life cycle cost analysis to determine the optimal GHG savings, and include climate risk assessment and risk reduction measures. In line with this commitment is the intent to fully meet the energy needs of federal buildings with on-site and/or off-site clean energy sources

***In the Spotlight:** The [Centre Block and Parliament Welcome Centre Rehabilitation Project](#) will be more accessible, greener and safer, while meeting the current and future needs of Parliament, Canadians and all visitors. To make Centre Block energy-efficient, the building will undergo modern upgrades including new, energy-efficient windows that also conserve its heritage character, insulation improvements and reduced air infiltration. As a key efficiency measure, the building systems will be adapted to draw on a renewed District Energy System, delivering clean energy to Parliament Hill from the [Cliff Central Heating and Cooling Plant](#) as part of the [Energy Services Acquisition Program](#). Also, a network of geothermal wells will store excess heat energy from the building to be reused when needed, increasing the overall efficiency and lowering the energy demands.*

(i.e. eliminating the use of fossil fuel for space and water heating where feasible). As of fiscal year 2022-2023, GHG emissions associated with the operations of federal facilities had reduced 41% compared with the baseline year (fiscal year 2005-2006).

- **NEW!** The Government of Canada has recently announced that [Crown corporations are now expected to align with the Greening Government Strategy](#) or adopt an equivalent set of commitments in each significant area of their operations, including the commitment to net-zero emissions by 2050 and to be climate resilient.
- **NEW!** The [Greening Government Fund](#), administered by the Treasury Board of Canada Secretariat, provides project funding to federal government departments and agencies to reduce GHG emissions in their operations. Funding comes from departments and agencies that generate more than 1 kilotonne of GHG emissions per year from air travel and from departments that are below this threshold that contribute voluntarily. As of January 2024, the Greening Government Fund has approved over \$57 million in funding for projects that help reduce GHGs, including in government real property operations.
- **NEW!** Supporting the [Buyers for Climate Action \(BCA\)](#), a coalition of leading green buyers of goods and services with a high environmental impact by providing a secretariat role managed by the Treasury Board of Canada Secretariat. High impact categories include (but are not limited to) information and communications technology, fleet, and real property. The objective of the coalition is to share knowledge and collaborate on best practices to accelerate and improve green procurement and increase capacity of buyers to work with suppliers to provide greener goods and services. BCA will support other buyers by sharing research, template specifications and best practices.
- **NEW!** Government of Canada implementation of the [‘Buy Clean’](#) policy approach that leverages federal procurement and investment to promote the use of low or net-zero-carbon construction materials and designs through commitments to (1) reduce embodied carbon in Government of Canada infrastructure procurement (via the [Greening Government Strategy](#)), (2) reduce embodied carbon in

***In the Spotlight:** The [Library and Archives Canada Preservation Storage Facility](#) in Gatineau, QC opened in 2022. The building’s primary function is to provide efficient storage for archival records. The design maximizes usable space and allows for an automated storage and retrieval system (ASRS) that operates in the dark, which conserves energy while maintaining optimal preservation conditions. The building is energy efficient and sustainable. At the time of its construction, it was the largest automated archival centre in the world and the first net-zero carbon archival centre in the Americas. In addition, it was the first special purpose federal building to meet the requirements of Canada’s Greening Government Strategy. This building, which also just achieved [LEED® Gold Certification](#), reinforces Library and Archives Canada’s reputation as a leader in the global documentary heritage community.*

federal investments in public infrastructure assets, (3) support broader buildings and infrastructure sector market transformation through disclosure, guidelines and demonstration projects (via the NRC's [Platform to Decarbonize the Construction Sector at Scale](#)), and (4) complementary measures to decarbonize industry through research, development, demonstration and deployment. Investments that reduce embodied carbon in construction projects help create a market for low-carbon construction materials, designs and technologies, driving down their costs and making them more widely available.

Path forward

In order to meet Canada's housing needs and climate goals, while also ensuring affordability, it is critical that federal, provincial and territorial, municipal, and Indigenous leadership work together along with industry, businesses and the private sector. The commitment to achieving emissions reductions, reaching our adaptation targets, moving towards a resilient and net-zero economy, and fortifying the social fabric of Canada must also remain unwavering. The [2023 Progress Report on the 2030 Emissions Reduction Plan](#) indicates that Canada is making meaningful progress toward our 2030 target. Measures under development, along with additional collective action with partners, will continue to drive emissions reductions. In 2025, the Government of Canada will issue the first progress report on the [National Adaptation Strategy](#), enabling us to adjust targets and actions to reflect the needs of Canadians.

This CGBS is only the first step to mobilizing a shared vision and action towards greener, more energy efficient and affordable homes and buildings. The Government of Canada looks forward to continuing to work with provinces and territories, municipalities, Indigenous Peoples, businesses, and individuals now and in the coming years to further emissions reductions and support climate resilience in the buildings sector. The three priorities that the CGBS is built upon – *accelerating retrofits, building green and affordable from the start and shaping the buildings sector of the future* – will be Canada's foundation for continued progress towards greener and more affordable buildings and a stronger economy.

Greening the buildings sector is a shared responsibility. Federal efforts alone will not be enough to decarbonize and achieve climate resilience in the sector. Moving such a complex market in a short timespan to enable net-zero emissions by 2050 requires coordinated policy planning across all levels of government, as well as concerted action by the private sector and all Canadians. The magnitude of the cost requires annual investments in the tens of billions and the current slow pace of change could see emissions from the continued installation of fossil-fuel burning heating equipment locked-in for decades. Governments and utilities cannot shoulder this alone, and there is a need for investment from the private sector including financial institutions and businesses.

Acting quickly in collaboration with partners will help spur potential innovations and avoid the even greater costs and climate impacts of continued fossil fuel emissions from the buildings sector. Coordination is needed across provincial, territorial, and federal policy and program delivery, as well as with municipalities and Indigenous partners to ensure design and delivery of initiatives are not at cross purposes, maximize complementarity between policies, and ensure smooth implementation. In the near term, it is critical that governments work together to plan for and align workforce and upskilling efforts, prepare the electrical grid, and establish strong supply chains for heat pumps and other low-carbon equipment.

We need to move quickly and go further than we have previously to decarbonize our buildings and homes and make them climate ready. The CGBS supports the initial steps forward together, while also recognizing that our approach must grow and adapt in order to succeed. We will leverage economic opportunities, grow the necessary workforce and supply chains to get the job done, all while managing affordability and keeping focused on our climate goals.