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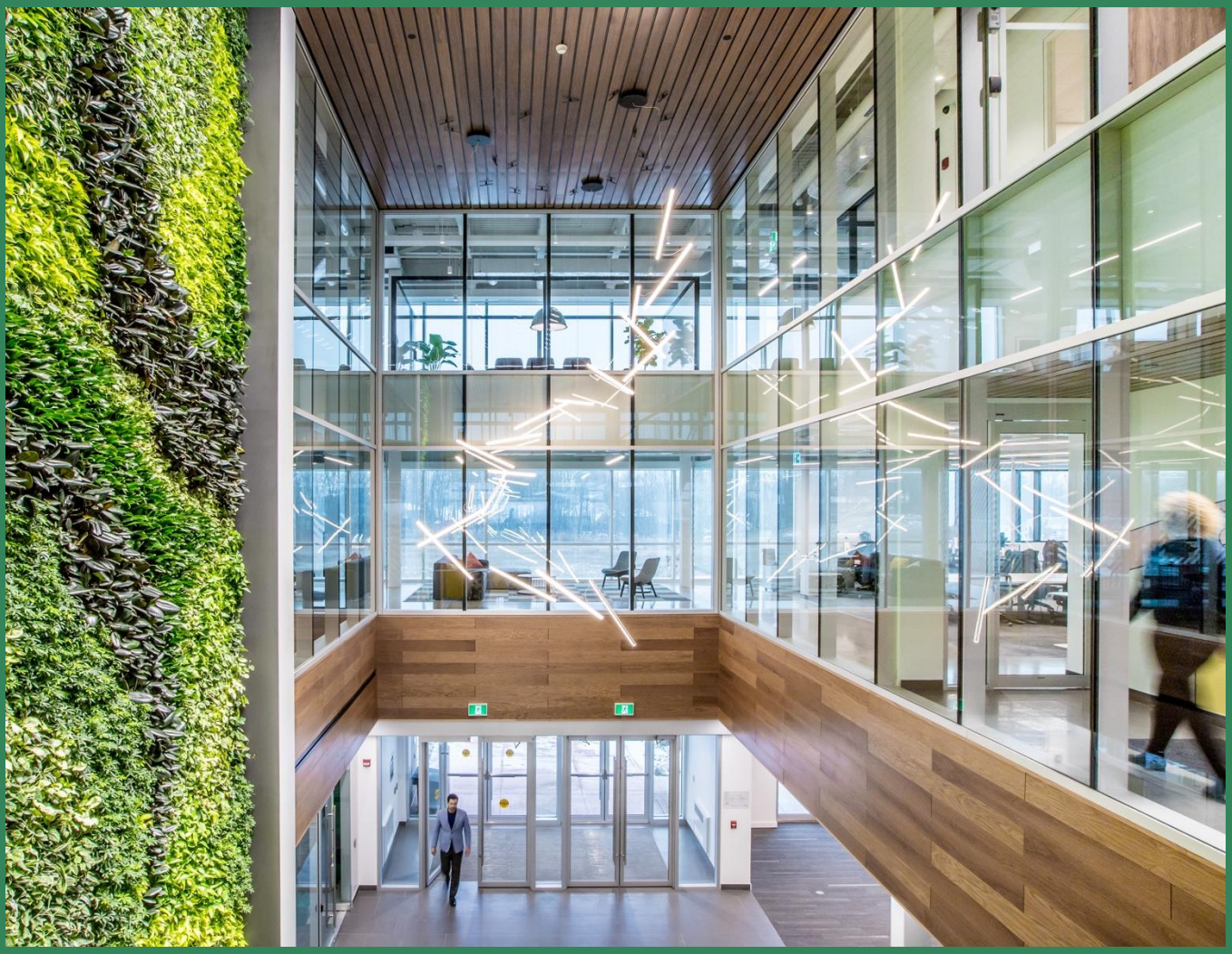

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Summary of recommendations

1 To supercharge Canada's retrofit economy, the government should

Require zero-carbon transition plans for all building types and support their development as part of any deep carbon retrofit program. Transition planning will ensure the effective timing and sequencing of carbon reduction measures.

2 To stimulate Canada's supply chain of low-carbon construction materials, the government should

Create a grant program to build additional capacity for life cycle assessments and environmental product declarations (EPD) for products manufactured by small- and medium-sized Canadian companies.

3 To set the foundational blocks for decarbonizing Canada's large buildings, the government should

Fund a Building Data Strategy and the structure that will **collect and disclose data** and **enable the labelling** of industrial, commercial, and institutional (ICI) buildings**.**

4 To crowd in private investment for zero-carbon green buildings, the government should

Support the adoption of high-performance building envelope technologies and the electrification of buildings through the extension of the investment tax credit for clean technologies (class 43.1).

Ensure that eligible tax credits are transferable from non-taxable to taxable entities.

Support the upfront cost of deep carbon retrofit projects through a new incentive program.

Introduction

Whether new construction or retrofits, zero-carbon buildings[1] are green buildings and Canada's best and most cost-effective opportunity to reduce greenhouse gas (GHG) emissions. Investing in zero-carbon buildings delivers valuable environmental and socio-economic benefits.

For example, achieving Canada's 2030 emission reduction targets requires green building construction and retrofits to accelerate and scale up. As a result, Canada could experience an economic boom driven by a potentially **threefold increase to 1.5 million in direct green building jobs.**

Also critical to Canada's economy, green buildings result in resilient communities that can better adapt to climate change – a crucial necessity given the recent devastation from extreme weather events, which according to the Insurance Bureau of Canada, **cost $3.1 billion in insurable losses**. Beyond adaptation to climate change, zero-carbon buildings also ensure safe, healthy, and accessible workspaces and affordable homes that recognize the total cost of ownership.

The reasons for pursuing a zero-carbon building transition are clear, but progress needs to accelerate. Canada's Emissions Reduction Plan (ERP) requests a 37 percent emission reduction for the building sector by 2030 compared to the 2005 levels. Reaching this target will be challenging given that:

- The building sector's overall emissions increased between 2005 and 2019;[2]
- Building operations account for 18% of Canada's GHG emissions, but when building materials and construction processes are considered, it rises to 28%; and,
- Limited access to low-carbon carbon materials and labour shortages hampers widespread adoption.

However, just focusing on **retrofitting Canada's large buildings could help to achieve 55 percent of the projections set for the building sector by the ERP**. That could see a reduction of 21 MT of GHG emissions out of the 38 MT reduction defined by Environment and Climate Change Canada.[3]

To reach this ambitious objective, the federal government allocated funding in Budget 2022 for a Green Buildings Strategy. CAGBC continues to support this initiative and recommends the following policies to improve conditions for successfully implementing the Strategy and decarbonizing Canada's large buildings.

1 Supercharge the retrofit economy

Almost all of the 150,000 existing large commercial and institutional buildings in Canada[4] can reach net zero over time, according to CAGBC's *Decarbonizing Canada's Large Buildings* study, released in December 2021. These much-needed deep retrofits will improve building performance and reduce GHG emissions. However, the federal government and the private sector must overcome the

[1] A zero-carbon building is a highly energy-efficient building that either produces on-site or procures non-emitting renewable energy or high-quality carbon offsets to counterbalance the annual carbon emissions from its materials and operations.
[2] ECCC, *Greenhouse gas sources and sinks: Executive Summary 2022*, https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/sources-sinks-executive-summary-2022.html#toc3
[3] CAGBC, Roadmap for Retrofits in Canada, 2017
[4] Natural Resources Canada, The Green Buildings Strategy, September, 2022.

competing priorities and economic, market, and financial barriers that prevent the pursuit of deep carbon retrofits.[5]

Over the next 30 years, owners could have only one opportunity to finance a complete deep carbon retrofit cost-effectively. Aligning the typical life cycle of building systems renewal with investment in retrofit is the best approach. Building owners require transition plans to strategically invest in the retrofits needed to remove fossil fuels from their building portfolios over time. The government could support this long-term planning by requiring zero-carbon transition plans and energy efficiency upgrades (such as enhanced envelopes with higher performance glazing or fuel switching options such as heat pumps) as a condition of federal funding.

We recommend an investment of $3 million over three years to Natural Resources Canada (NRCan) to support the development of guidelines, training, and communications to ensure the building sector quickly adopts transition plans.

2 Stimulate Canada's supply chain of low-carbon construction materials

Every building and retrofit that does not target zero-carbon operations today will increase emissions. It will require significant investments in mechanical equipment, ventilation systems, and building envelopes for these same buildings to reach net zero by 2050. Attaining meaningful carbon reductions for buildings will also requires a focus on embodied carbon.[6] For new construction, research predicts that almost 75 percent of emissions between now and 2030 will come from materials.

While public procurement policies must shift from the lowest-cost option to low-carbon construction materials, a Canadian low-carbon supply chain will require investment in research, development and manufacturing support. Further, the sector will need clarity on documentation requirements and a transparent timeline for new regulations.

The federal government should invest $25 million to enable Canadian SMEs to pursue Life Cycle Assessments (LCAs) and facilitate obtaining product-specific Environmental Product Declarations (EPD) for low-carbon products, focusing on structural construction materials, as prioritized by the Greening Government Strategy. This investment could bring up to 500 EPDs or LCAs to the market and the Life Cycle Inventory, established through the LCA[2] Initiative, which supports the creation of a healthy Canadian low-carbon supply chain and enhances local economic growth and global competitiveness.

3 Decarbonize Canada's large buildings through reliable data

CAGBC strongly supports including a Building Data Strategy in the Green Buildings Strategy (GBS) to help monitor the carbon emissions from the sector and, most importantly, measure the effectiveness of policies and programs.

[5] A deep carbon retrofit is a project involving multiple energy efficiency and/or renewable energy measures in an existing building, designed to achieve major reductions in net energy use (40% or greater reductions).
[6] Embodied carbon emissions arise from manufacturing, transport, installation, use, and end-of-processing of materials used in building construction. Design teams can find the greatest embodied carbon savings by carefully considering the issue from project outset.

Effective benchmarking and data disclosure must become standard practice for building operations. The industry needs standardized building data that is reliable and easy to access to target their investments. The data must include, at minimum, water and energy consumption, waste, and GHG emissions.

Access to reliable data can inform future versions of the GBS, raise awareness of carbon reductions, and measure retrofit outcomes. But there is still work to be done. While the 2018 Reports from the House of Commons and Senate recommended that benchmarking and data disclosure activities be regulated nationally, in 2020/2021, the use of the Energy Star Portfolio Manager offered by Natural Resources Canada covered only 5 percent of commercial and institutional buildings representing 40 percent of total floor space.

To better understand benchmarking, data disclosure and building labels, the federal government should look to Australia, New Zealand, and the United Kingdom. All three countries have mandatory laws to collect building data, for example, Australia's Building Energy Efficiency Disclosure Act 2010. The main differences between these countries are in collecting data and labelling. The UK primarily uses Energy Performance Contracts, a system based upon predicted or designed performance rather than the measured one, contrary to the NABERS UK program, which is for offices only.

CAGBC recommends a $20 million investment to create a benchmarking, disclosure, and labelling program and another $15 million over two years to support it. To respect intellectual property and effectively address Canada's privacy laws, considered among the most comprehensive of OECD countries, an organization at arm's length from the government or a third party to administer the program is the most appropriate solution. The federal government may also consider the participation of provinces and territories in the program or provide guidelines and funding so they can create their own.

4 Crowd-in private investment in zero-carbon green buildings

Pressure is increasing to ensure that the building sector remains competitive. Commercial real estate companies face pressure to set net-zero carbon targets and meet stated environmental, social and governance (ESG) objectives. At the same time, tenants and occupiers expect sustainability actions from their landlords to meet their own ESG goals.[7] With the increased pressure from the market, real estate companies are turning to data and transition planning, as well as seeking new approaches to financing to help decarbonize their portfolio and obtain certifications like CAGBC's Zero Carbon Building standards.

From a national perspective, pressure is coming from trading partners. In the United States, the combination of the Inflation Reduction Act, the executive order on a federal Buy Clean and previous funding allocated to infrastructure has created a massive flow of capital and opportunities for the building sector. To assert Canada's competitiveness and scale up deep carbon retrofits and new zero carbon construction, the federal government should ensure that eligible tax credits, such as the clean energy investment tax credit (class 43.1), are transferable from non-taxable to taxable entities. Moreover, the federal government should support the extension of class 43.1 towards materials and systems that will help reduce carbon emissions, like high-performing cladding or envelope technologies

[7] JLL, Capital Markets Foundations and the Net-Zero Carbon Transition (jll.ca), October 2022.

such as dynamic glass and support the electrification of buildings. Enhancing the envelope is expensive but provides the most energy savings over the long term.

Further, the federal government should create an incentive program that supports the upfront cost of deep carbon retrofits that aim for decarbonization, similar to an early 2000s Natural Resources Canada program called the Commercial Building Incentive Program. This approach could include a performance scale: the more carbon emissions reduced, the greater the incentives gained.

A first funding stream should be dedicated to commercial and institutional buildings. This incentive could be more favourable if projects can achieve a high standard, such as the Zero Carbon Building – Performance Standard or demonstrate a significant reduction in carbon emissions.

A second stream may support upfront costs for residential buildings, especially for low- and mid-rise multi-unit residential buildings. This building type has a more challenging business case,[8] but the sheer number of these buildings requires attention and investment. All of these projects would require transition plans to obtain financing.

Conclusion

On the heels of a historic and devastating hurricane and increasingly unpredictable and damaging weather events, climate change and resiliency must be Canada's top priorities. We need to lower carbon emissions significantly to slow and eventually reverse climate change. The building sector can reduce emissions at scale with zero-carbon buildings, a proven and cost-effective approach.

Reaching net-zero emissions by 2050 requires the decarbonization of all of Canada's large buildings starting now – and the financing of bold actions by the federal government. Committing Canada to decarbonize its built environment will provide a global model that other countries can follow and, at the same time, ensure buildings and communities can better respond to climate change. As a co-benefit, the retrofit economy will create new jobs, foster innovation, and grow Canada's low-carbon supply chain.

The green building sector is ready. We've proven that zero-carbon buildings are technically and financially feasible and that all large buildings have a path to zero. For the building sector to advance its carbon targets, it needs intentional and thoughtful federal leadership, especially around procurement and public investment. Further, the government can leverage a national retrofit strategy tied to GHG reductions to advance healthier and more affordable homes.

Committing to zero-carbon buildings and a net-zero emissions economy will change Canada profoundly. Our approach – the building sector and the federal government – must be bold and creative. Only by matching our ambitions with determined action will we meet Canada's 2050 decarbonization goal.

[8] CAGBC, Decarbonizing Canada's large buildings, p22 and 23, December 2021.