BUILDING PROSPERITY

INSIGHTS ON CANADA'S GREEN WORKFORCE

CAGBC

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ACKNOWLEDGMENTS

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About the Canada Green Building Council (CAGBC)

The Canada Green Building Council (CAGBC) provides products and services the building sector needs to construct and manage buildings that are easier on resources, healthier for people, resilient and cost-effective.

We work with the sector to influence standards, develop best practices, and educate the market on the benefits of green buildings.

For more information visit **cagbc.org**.

CAGBC Canada Green Building Council | Conseil du Bâtiment Durable du Canada

About the Consultants

Delphi produced the quantitative research and analysis at the core of this report. Delphi is a Canadian strategic consultancy providing innovation solutions in climate change and corporate sustainability since 1988. As a pioneer in sustainability and environmental risk management, Delphi has delivered over 2,500 projects with clients across all levels of government, Canadian and U.S. companies, the EU, and not-for-profit organizations.

For more information visit **delphi.ca**.

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Introduction

Canada's green building sector stands at a decisive inflection point. Climate risks are intensifying, investor sustainability expectations are rising, and Canadians face a housing and affordability crisis – all changes that demand new approaches to designing, constructing, or retrofitting buildings. At the same time, the transition to a low-carbon, resilient built environment presents a powerful economic opportunity.

The Canada Green Building Council (CAGBC) began quantifying the economic contribution of the green building sector – in jobs and GDP – in 2014. Our assessments have shown that the economic contribution of Canada's green building sector has steadily grown over the past decade and represents a meaningful contribution to Canada's economy.

The transition to a low-carbon, resilient built environment presents a powerful economic opportunity.

Our 2025 report builds and expands on our previous assessments. It provides an update to the current size and performance of Canada's green building sector, while assessing its potential for growth over the next five years. It outlines the economic, environmental, and social value that could be unlocked through coordinated, strategic action – particularly at a moment when the sector's role in addressing climate, housing, and affordability challenges has never been more critical.

The report also serves as a midpoint check-in during the "decade of action" first outlined in our 2020 market assessment, which made the case for a post-COVID recovery centered on green buildings.

In our 2020 report, we modelled scenarios showing that Canada could create up to 1.5 million direct green jobs this decade if post-pandemic recovery efforts were paired with coordinated actions to accelerate green building and deep decarbonization. While governments and industry have taken several meaningful steps, a comprehensive and aligned green recovery did not emerge.

Since the 2020 report, Canada's green building sector has evolved significantly – shaped not only by policy and market forces, but also by profound economic shifts that have redefined the broader construction landscape. This year's market assessment report aims to:

- Spotlight key market trends and drivers accelerating the shift to high efficiency, zero-emissions buildings.
- Examine the key challenges slowing growth and job creation relative to earlier forecasts, including the housing shortage, affordability pressures, slower-than-expected climate progress, and ongoing economic and geopolitical uncertainty.
- Show how, despite this, strategic support for Canada's green building sector can unlock $150B in GDP and create a million green jobs by 2030, while contributing to Canada's broader net-zero goals.
- Highlight the critical steps required to stay on track for Canada's 2030 targets.
- Identify the opportunity to build a skilled, inclusive workforce, where workers can upskill or reskill to support a prosperous low-carbon green building sector.

The findings respond directly to six core research questions related to market trends, climate contributions, economic impacts, and workforce pathways. Together, they offer a clear message: Canada has the tools, momentum, and market drivers needed to scale high-performance, low-carbon buildings, but unlocking the full economic and climate potential of this sector requires coordinated policies, long-term financing, and a skilled and inclusive workforce.

This report is based on a mixed-methods research approach that integrates quantitative economic modelling, qualitative stakeholder engagement, and secondary research. The economic analysis builds on Statistics Canada input-output tables and applies green building intensity ratios across relevant industries to estimate current and projected employment and GDP impacts under multiple decarbonization scenarios to 2030. These quantitative findings are complemented by interviews, focus groups, and a national survey with industry, labour, and policy stakeholders to assess workforce requirements, skills gaps, and inclusion challenges. A detailed description of the research design, data sources, assumptions, and analytical methods is provided in *Appendix 1: Research overview and summary methodology*. The sections that follow present the findings of this analysis.

Context and market trends: A Sector Undergoing Rapid Transformation

Buildings account for approximately 18 percent of Canada's total greenhouse gas (GHG) emissions, including electricity-related emissions, making the building sector the country's third-largest source of emissions. This number is estimated closer to 30 percent when building materials and construction is considered, nearly equal to Canada's oil and gas sector. Given this scale, achieving Canada's 2030 Emissions Reduction Plan and 2050 net-zero target requires deep, sustained transformation of residential, commercial, and institutional buildings.

Building decarbonization is underway and multiple forces are accelerating this shift:

- Climate risk is now a material business issue, reflected in rising insurance losses and greater investor scrutiny.
- Market demand for high-performance, zero-carbon buildings is increasing, particularly in the commercial real estate and institutional sectors.
- New and strengthened policies – including the Canada Green Buildings Strategy (CGBS), updated national model codes, ambitious municipal standards, and building performance standards are raising expectations for energy efficiency and emissions reductions.
- Rapid electrification of space and water heating, paired with strong growth in renewable electricity, is improving the cost-effectiveness and emissions reduction potential of retrofits and new construction.

Canada has the tools, momentum, and market drivers needed to scale high-performance, low-carbon buildings, but unlocking the full economic and climate potential of this sector requires coordinated policies, long-term financing, and a skilled and inclusive workforce.

At the same time, significant headwinds for the sector persist. High interest rates, inflationary pressures on materials, permitting delays, and tight labour markets have constrained new construction. In particular, residential decarbonization has lagged: retrofit rates remain well below levels consistent with Canada's climate commitments, and the wind-down of federal incentive programs can further slow progress. Despite the constraints, the green buildings workforce continues to be an expanding contributor to Canada's economy.

Still, the trajectory is promising. Heat pump adoption has grown sharply, the national Green Building Strategy provides a promising guiding framework, and municipalities continue to lead with innovative policies, net-zero ready building codes, and performance standards. The sector is poised for growth if system-level barriers can be addressed.

Economic contributions and growth potential

Current economic footprint (2024)

The green building sector is a major and expanding contributor to Canada's economy.

In 2024, its economic footprint generated:

- $81 billion in direct Gross Domestic Product (GDP)
- 501,716 direct jobs across construction and trades, materials and manufacturing, professional services, utilities, waste and recycling, and policy and education
- More than a million jobs and $150 billion in GDP when including indirect and induced impacts.[1]

Since 2018:

- Jobs have grown 8 percents, despite macroeconomic pressures.
- Green building GDP has increased 40 percent, far outpacing job growth.
- GDP per job has risen 36 percent, underscoring the sector's increasing productivity.
- Green building activity spans the entire country. Ontario accounts for the largest share (43%), followed by Quebec (20%) and British Columbia (16%), but every province and territory benefits from green building employment and GDP activity.

Drivers of economic growth

A substantial portion of current economic value – roughly 25 percent of 2024 green building GDP (~$20 billion) – is directly tied to decarbonization activity, including:

- Heat pump and high-efficiency HVAC manufacturing and installation
- On-site renewable energy systems
- Electrification and fuel-switching infrastructure
- Envelope upgrades and deep retrofit activity

National emissions data reinforce these trends:

- Onsite building emissions have fallen more than 10 percent since 2018.
- Wind and solar now represent 70 percent of new installed electricity capacity since 2018.
- Electricity-sector emissions have decreased 29 percent over the same period.

Decarbonization is not a cost – it is an economic growth engine.

The green building sector is a major and expanding contributor to Canada's economy.

1 Direct jobs include green jobs created in the six sub-industries used in the methodology; indirect jobs include jobs created in the supply chain; and induced jobs refer to jobs created in the broader economy from the spending of wages by workers in the green building industry.

Scenario analysis (2024-2030)

Three scenarios were modelled to assess the sector's growth potential:

1 Baseline Scenario (Current Path)	2 Moderate Decarbonization Scenario	3 High Decarbonization Scenario
Assumes continuation of existing policies and market trends.	Assumes expanded retrofit incentives, electrification investments, and continued support for residential retrofits.	Assumes rapid scale-up of retrofits, national-equivalency green code adoption, net-zero new construction through "Build Canada Homes," and sustained policy and financial supports.
Results		
↗ 100,000 new jobs and $17 billion additional GDP by 2030.	↗ Meaningful job and GDP increases, but insufficient to align fully with net-zero trajectories.	↗ Sector GDP grows to $146 billion by 2030. ↗ Green building employment doubles. ↗ Construction and trades see ~90,000 new jobs alone.

The modelling demonstrates that ambitious decarbonization is both economically advantageous and necessary to align with climate commitments.

Decarbonization pathways: What is needed to reach climate targets

Canada's building decarbonization pathways are well established and widely supported across governments, utilities, industry, and the research community. The challenge is not uncertainty about what to do – it is scaling and coordinating action. The core pathways include:

- ↗ Electrification of heating through heat pumps, supplemented by district energy and targeted low-carbon fuels.
- ↗ Deep energy retrofits to reduce heating loads and support electrification.
- ↗ Net-zero energy-ready new construction, achieved through upper tiers of national model codes.
- ↗ Grid decarbonization and flexible demand, including smart controls, demand response, storage, and distributed energy resources.
- ↗ Stronger codes and performance standards for both new and existing buildings.

A central insight from the research is that decarbonizing commercial buildings is feasible under current trajectories, but residential buildings remain significantly off-track. To close the gap, retrofit rates must accelerate dramatically—approximately 11 million homes and thousands of commercial buildings must undergo some level of retrofit by 2050.

Workforce requirements, gaps, and opportunities for inclusion

A structural workforce shortage

Meeting Canada's decarbonization and housing objectives requires a workforce far larger and more skilled than today's.

Key structural shortages include:

- HVAC-R technicians
- Electricians
- Building automation and controls specialists
- Envelope retrofit teams
- Commissioning and re-commissioning professionals
- Building operators

These roles are essential to electrification, deep retrofits, and achieving real-world performance outcomes. Current training capacity and recruitment levels fall far short of demand.

Financing and workforce capacity are interdependent

Stakeholder engagement revealed a critical insight: contractors cannot invest in training without predictable project pipelines and long-term funding stability. Stop-start incentive programs and shifting policy requirements undermine workforce development, especially for small-medium enterprises (SMEs) that deliver most retrofit activity.

Inclusion and just transition

Expanding the workforce also requires addressing retention challenges among underrepresented groups – including women, Indigenous peoples, racialized communities, newcomers, youth, and 2SLGBTQ+ workers.

Key barriers include:

- Jobsite culture and psychological safety.
- Inconsistent supervision and limited mentorship.

Gatekeeping of complex tasks, such as:

- Travel and scheduling barriers in apprenticeship systems.
- Lack of advancement pathways and leadership representation.

Recruitment efforts are improving, but retention remains the most critical challenge. Structured, paid mentorship and supervisor training consistently emerge as the most effective strategies for retaining underrepresented workers.

Implications for workforce development

The research identifies several system-level requirements:

- Embedding training into publicly funded retrofit and construction projects.
- Creating multi-year retrofit pipelines with synchronized permitting, grid upgrades, and incentive schedules.
- Strengthening interdisciplinary skills – mechanical, electrical, digital sequencing, and commissioning.
- Reforming apprenticeship and Employment Insurance structures.
- Embedding inclusion, mentorship, and local hiring into procurement and ESG frameworks.

Without these changes, Canada will be unable to train, attract, or retain the labour force needed to deliver large-scale building decarbonization.

Expanding the workforce also requires addressing retention challenges among underrepresented groups – including women, Indigenous peoples, racialized communities, newcomers, youth, and 2SLGBTQ+ workers.

Conclusion

Canada's green building industry is a cornerstone of the nation's climate strategy, economic vitality, and social well-being. Today, it delivers more than $81 billion in GDP, supports over 500,000 direct jobs, and drives measurable emissions reductions through electrification, retrofits, and renewable energy integration. With coordinated policies, sustained investment, and a comprehensive workforce strategy, the sector could deliver nearly $150 billion in GDP, over one million green jobs, and rapid progress toward net-zero buildings by 2030.

The opportunities are clear – and so are the risks of inaction. Canada must stabilize funding for residential and commercial retrofits, harmonize building performance policies, expand training and apprenticeship pathways, and embed inclusion and mentorship into every aspect of program and project delivery.

The sector could deliver nearly $150 billion in GDP, over one million green jobs, and rapid progress toward net-zero buildings by 2030.

By doing so, the country can meet its climate and housing goals while fostering innovation, competitiveness, and equitable economic opportunity across the built environment.

01 INTRODUCTION & CONTEXT

Background

The green building sector stands at a pivotal moment, shaped by a convergence of accelerating climate risks, rising market expectations, and growing economic opportunity. Climate risk has become a central business and regulatory concern, with record-high insurance payouts for weather-related damage underscoring both the physical and transition risks facing Canada's built environment.[2] Investors and regulators are responding by closely examining climate exposure in portfolios and directing capital toward resilient, low-carbon assets. At the same time, demand for zero-carbon, high-performance buildings (particularly in commercial and institutional sectors) is increasing, often outpacing current and projected supply.

These shifts signal a clear direction of travel: Canada's buildings sector is moving toward higher performance, lower emissions, and greater resilience. This transition presents significant opportunities for innovation, competitiveness, and job creation.

Realizing this potential requires that policy, financing, and workforce capacity advance in tandem. Today, these enabling conditions are developing unevenly. While interest and ambition are rising, long-term funding mechanisms, consistent policy signals, and accessible financing tools are still not available at the scale needed to catalyze widespread adoption. At the same time, workforce shortages, demographic gaps, and the need for more coordinated upskilling programs limit the sector's ability to fully meet emerging demand.

Canada's buildings sector is moving toward higher performance, lower emissions, and greater resilience.

This creates a mutually reinforcing challenge and an opportunity. Strong policy and financing help generate market demand; robust demand encourages investment in workforce development; and a skilled workforce is essential to deliver the projects that policy and financing aim to accelerate. When these components move together, they unlock growth and advance Canada's climate and economic goals.

The sector is at an inflection point. With coordinated action across governments, industry, labour, and financial institutions, Canada can turn today's momentum into sustained progress: scaling high-performance buildings, fostering innovation, and building a workforce ready to lead the transition to a low-carbon, resilient built environment. This report quantifies Canada's green building sector today, as well as its potential for growth in the next five years, including the far-reaching economic, environmental, and social contributions that could be unlocked with strategic action. This report serves as a midpoint check-in during the "decade of climate action" first outlined in our 2020 market assessment, which made the business, social, and environmental case for a post-COVID recovery centered on green buildings.

2 Insurance Bureau of Canada (2025, January 13), 2024 shatters record for costliest year for severe weather-related losses in Canadian history at 8.5 billion.

This report draws on an integrated research framework combining economic modelling, policy and literature review, and direct engagement with industry stakeholders across Canada. The approach was designed to capture both the scale of the green building sector's economic contribution and the workforce and inclusion dynamics shaping its future growth. A full overview of the research objectives, data sources, analytical methods, and stakeholder engagement process is provided in *Appendix 1: Research overview and summary methodology*.

It advances our previous market assessments and aims to:

- Spotlight key market trends and drivers that have successfully accelerated the shift to high efficiency, zero-emissions buildings since 2020.
- Examine the key challenges that have slowed growth and job creation relative to earlier forecasts, including the housing shortage, affordability pressures, slower-than-expected climate progress, and ongoing economic and geopolitical uncertainty.
- Show how, despite this, strategic support for Canada's green building sector can unlock $150B in GDP and create a million green jobs by 2030, while contributing to Canada's broader net zero goals.
- Highlight critical steps required to stay on track for Canada's 2030 targets.
- Articulate the opportunity to build a skilled, inclusive workforce, ensuring workers can upskill and reskill for a just transition.

In the chapters that follow, we define green jobs; summarize the economic, environmental, and social benefits of the green buildings industry; and assess the progress made over the past 5-10 years alongside the challenges now confronting the sector (pg 13). We then present new economic impact findings, including job creation, GDP contributions, and forecasts under different decarbonization scenarios, as well as the sector's role in meeting Canada's emissions-reduction targets (pg 21). Finally, we explore what is needed to develop a skilled and inclusive workforce capable of meeting the demands of a rapidly evolving, low-carbon building industry (pg 42).

Defining green buildings and jobs[3]

What is a green building?

A green building is any new or existing building that is designed, constructed and/or renovated and operated to achieve clearly defined environmental and other sustainable objectives that are measurably above code, often adhering to industry standards (e.g., LEED®), stepped or tiered codes, and green building policies. Further, a new or existing green building typically has one or more of the following attributes:

- Reduced GHG emissions from building construction and operation.
- Efficient use of energy, water and other resources.
- Use of renewable energy, such as solar energy.
- Pollution and waste reduction measures, and the enabling of re-use and recycling.
- Excellent indoor air quality.
- Use of non-toxic, ethical, and sustainable materials.
- Consideration of occupant quality of life in design, construction, and operation.
- Adaptable to a changing environment,
- Consideration for additional environmental outcomes.

Any new and existing building can be a green building, whether it is a home, office, school, hospital, community center, or any other type of structure, provided it embraces these attributes. However, not all green buildings are – nor need be – alike. Geographical regions vary in climatic conditions, building types and ages, and/or environmental, economic, and social priorities. All of these considerations inform a given jurisdiction's approach to green building.

3 Our definitions for green buildings and green jobs are consistent with those used in our 2020 report *Canada's Green Building Engine*.

What is a green building job?

A green building job is a job that focuses on the design, construction, renovation, operation, or evaluation of green buildings as well as jobs in related industries that support green buildings, such as green building materials and products, renewable energy services, recycling services, policy and advocacy, education and marketing. Our definition includes jobs across six different job categories: construction and trades, materials and manufacturing, professional services, utilities, waste and recycling, and policy and education.[4]

Figure 1: Green buildings jobs

Examples of green building industry jobs

Construction & Trades

- Construction and trades workers working on green building projects

Contractors

- Contractors working on installing heat-pumps, efficient HVAC systems and solar panels

Architects

- Green building architects and engineers
- LEED consultants

Electricians

- Electricians working on building integrated renewable energy

Waste Contractors

- Waste / recycling contractors for green building

Policy & Education

- Universities
- Public administration
- Advocacy related to green buildings

4 The six job categories are comprised of NAICS Industries. Approximately 50 different NAICS industries are grouped into the above 6 categories. See methodology for more details.

The green building choice we face today

There is strong potential for growth in the green building sector, driven by increasing demand for sustainable practices, government policies aimed at reducing carbon emissions and broader investment and policy trends.[5]

Buildings account for 18 percent 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.[6] This means that significant work is required to decarbonize Canada's building stock to meet Canada's 2030 GHG emissions reduction target, enshrined in law.[7]

Halfway through our "decade of action"

Since our last report in 2020, Canada's green building sector has evolved significantly – shaped not only by policy and market forces, but also by profound economic shifts that have redefined the broader construction landscape.

While the construction sector has generally outperformed the broader economy since the pandemic shock, high interest rates, material cost inflation, labour shortages, and permitting delays have constrained the pace and scale of new zero carbon projects, contributing to the gap between this job creation potential and what has been realized so far.

The global shock of the COVID-19 pandemic slowed the industry at the start of the decade, disrupting supply chains, delaying projects, and creating labour uncertainty across the construction sector.

Although recovery has been steady, it has been uneven. Between 2021 and 2024, overall construction GDP growth fluctuated markedly and, overall, lagged behind the sector's strong pre-pandemic expansion, reflecting a decline in residential building starts and slower investment in new development.

Over the past several years, rising interest rates, inflationary pressures on building materials, and tighter financing conditions have constrained new construction and retrofit activity nationwide. Housing starts have failed to grow consistently year over year,[8] and between 2019 and 2024, increases in construction costs accounted for up to approximately 20 percent of the rise in new home prices in Canada.[9] At the same time, Canada's escalating housing crisis – characterized by record-low vacancy rates, growing demand, and elevated construction costs – has further strained both public and private capacity to deliver new, energy-efficient homes at scale.

These macroeconomic conditions have directly influenced the pace of growth in green buildings. In 2020, we projected the potential to create up to 1.5 million direct green jobs by the end of this decade. That potential remains, but the pace of progress has been slower amid a constrained construction environment, with job growth in building trades rising only modestly as projects faced delays or deferrals. As we explore further in the report, a more supportive financing and permitting environment will be essential to realizing the full employment and emissions-reduction benefits of the transition.

Despite these challenges, Canada has continued to advance.

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5 REALPAC. (2024, December 4). *Decarbonizing Canada's Commercial Buildings: The Owner & Investor Perspective - REALPAC*. Decarbonizing Canada's Commercial Buildings: The Owner & Investor Perspective; REALPAC. https://realpac.ca/product/decarbonizationreport/.

6 Natural Resources Canada. (2016). The Canada Green Buildings Strategy: Transforming Canada's buildings sector for a net-zero and resilient future - Natural Resources Canada. canada.ca. https://natural-resources.canada.ca/energy-efficiency/building-energy-efficiency/canada-green-buildings-strategy-transforming-canada-s-buildings-sector-net-zero-resilient-future.

7 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, as enshrined in the Canadian Net-Zero Emissions Accountability Act legislation.

8 Canada Mortgage and Housing Corporation. (2025, November 18). Monthly Housing Starts and Other Construction Data Tables. www.cmhc-Schl.gc.ca. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-data/data-tables/housing-market-data/monthly-housing-starts-construction-data-tables.

9 Canada Mortgage and Housing Corporation. (2025b, November 26). *Accelerating rental supply: balancing development and tenant protectio*n. cmhc-schl.gc.ca. https://www.cmhc-schl.gc.ca/observer/2025/framework-for-change-productivity-in-housing-construction.

A major milestone came in 2024 with the release of the Canada Green Buildings Strategy (CGBS)[4], following two years of consultation. As part of Canada's 2030 Emissions Reduction Plan, the CGBS outlines the federal government's vision and next steps for accelerating the shift to greener, more energy-efficient, and more affordable homes and buildings. It demonstrates a renewed commitment to scaling climate-aligned construction, modernizing building codes, mobilizing investment, and preparing the workforce for the transition ahead.

Other factors shaping the sector are the tightening efficiency standards evident in the National Energy Code for Buildings and provincial codes. Cities such as Vancouver and Montréal have introduced ambitious zero-emission building policies, including Montréal's new roadmap to reach zero-emission buildings by 2040, requiring new developments to meet increasingly stringent performance expectations.

In addition, federal and provincial governments have rolled out energy retrofit programs, offering grants and low-interest loans for retrofits. This includes the Canada Greener Homes Grant, which incentivized homeowners to upgrade their insulation, windows and heating systems.

As a result, there has been significant adoption of heat pumps. By 2023, approximately 9 percent of Canadian households used a heat pump as their primary heating system, an increase of three percentage points since 2021, with particularly strong adoption in Atlantic Canada.[10]

Challenges remain

Despite progress, Canada's green building sector faces persistent challenges that threaten to stall momentum, beyond macro-economic forces.

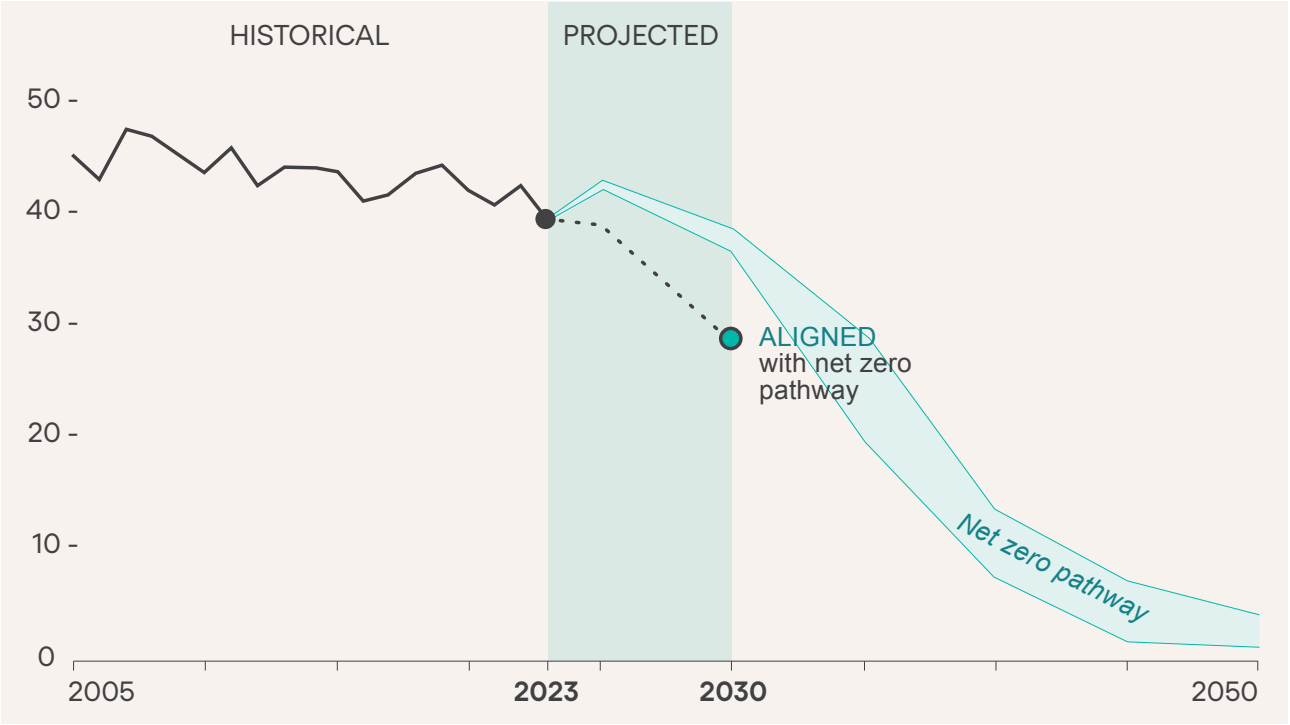
While Canada's commercial buildings are on track to decarbonize, based on existing progress and policies announced or in development, modelling conducted by the Canadian Climate Institute (CCI) shows that the overall pace of decarbonization is on pace to meet the emissions reductions required to achieve Canada's net zero goals.

Residential buildings are not on track to meet climate targets. The retrofits completed from 2020 through to the end of 2024 achieved roughly half the average savings per retrofit needed to support Canada's net-zero targets. In addition, swings in policy support have hindered uptake, and many households continue to face barriers such as upfront costs and limited contractor availability.[11] The pace of retrofits and sustainable construction for residential buildings will need to significant ramp up to remain on track.

10 Canadian Climate Institute. (2024, October 4). 440 Megatonnes: Tracking Canada's path to net zero. 440 Megatonnes: Tracking Canada's Path to Net Zero. https://440megatonnes.ca/.

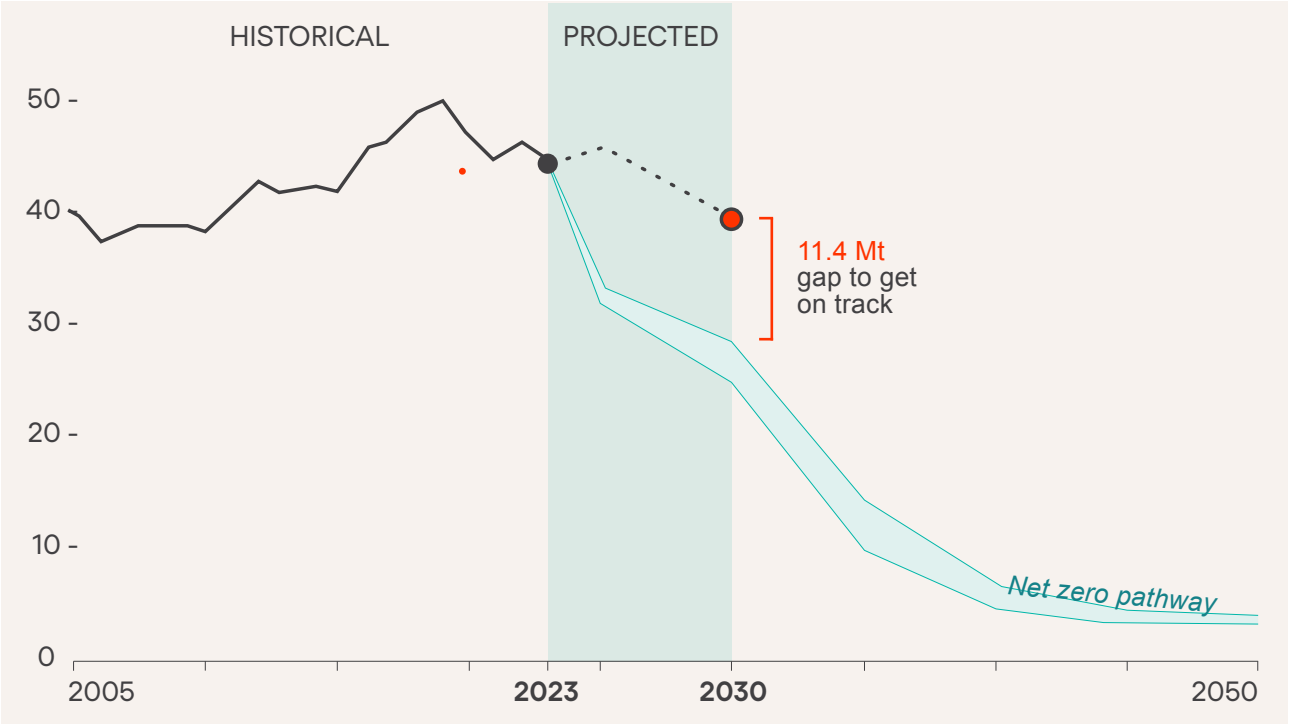
11 Einarson, L. (2025, April). *2025 National Progress Report on Retrofitting Canada's Homes - Green Communities Canada*. Green Communities Canada. https://greencommunitiescanada.org/2025-national-progress-report-on-retrofitting-canadas-homes/.

Figure 2: Total greenhouse gas emissions for commercial buildings



Sources: Statistics Canada, Navius Research, Canadian Climate Instatute.

Figure 3: Total greenhouse gas emissions for residential buildings



Sources: Statistics Canada, Navius Research, Canadian Climate Instatute.

While national model codes have been an important development, adoption across provinces remains uneven, with some jurisdictions advancing quickly and others adopting only minimum tiers.

Economic uncertainty, inflationary pressures, and global instability further complicate investment and policy alignment. The COVID-19 pandemic underscored the importance of healthy, resilient spaces, yet the country now grapples with a severe housing shortage, rising affordability concerns, and uneven progress on climate goals.

While some progress is being made in workforce development, Canada's building sector continues to face a significant skills and labour gap. Tens of thousands of additional tradespeople will be required to support the transition to net-zero buildings while also meeting ongoing housing and infrastructure needs.

Yet substantial barriers to entry and participation persist.

A widening mismatch exists between the skills of the current workforce and the technical requirements of high-performance, energy-efficient buildings. Many incumbent workers are not receiving the training they need – from employers, industry associations, and governments – to adapt to rapidly evolving building technologies and practices. At the same time, current immigration policies do not adequately support the recruitment of skilled tradespeople in Canada to address the shortfall.

Emerging green construction competencies, such as energy modelling and low-carbon mechanical systems, are in particularly short supply, with relatively few programs offering training in these areas.

The path forward

However, green buildings offer a unique opportunity: to address housing needs, stimulate inclusive job growth, and advance climate action through a built environment that reflects both environmental stewardship and social equity.

The scale of the challenge

- **16 million homes + 500,000 buildings**

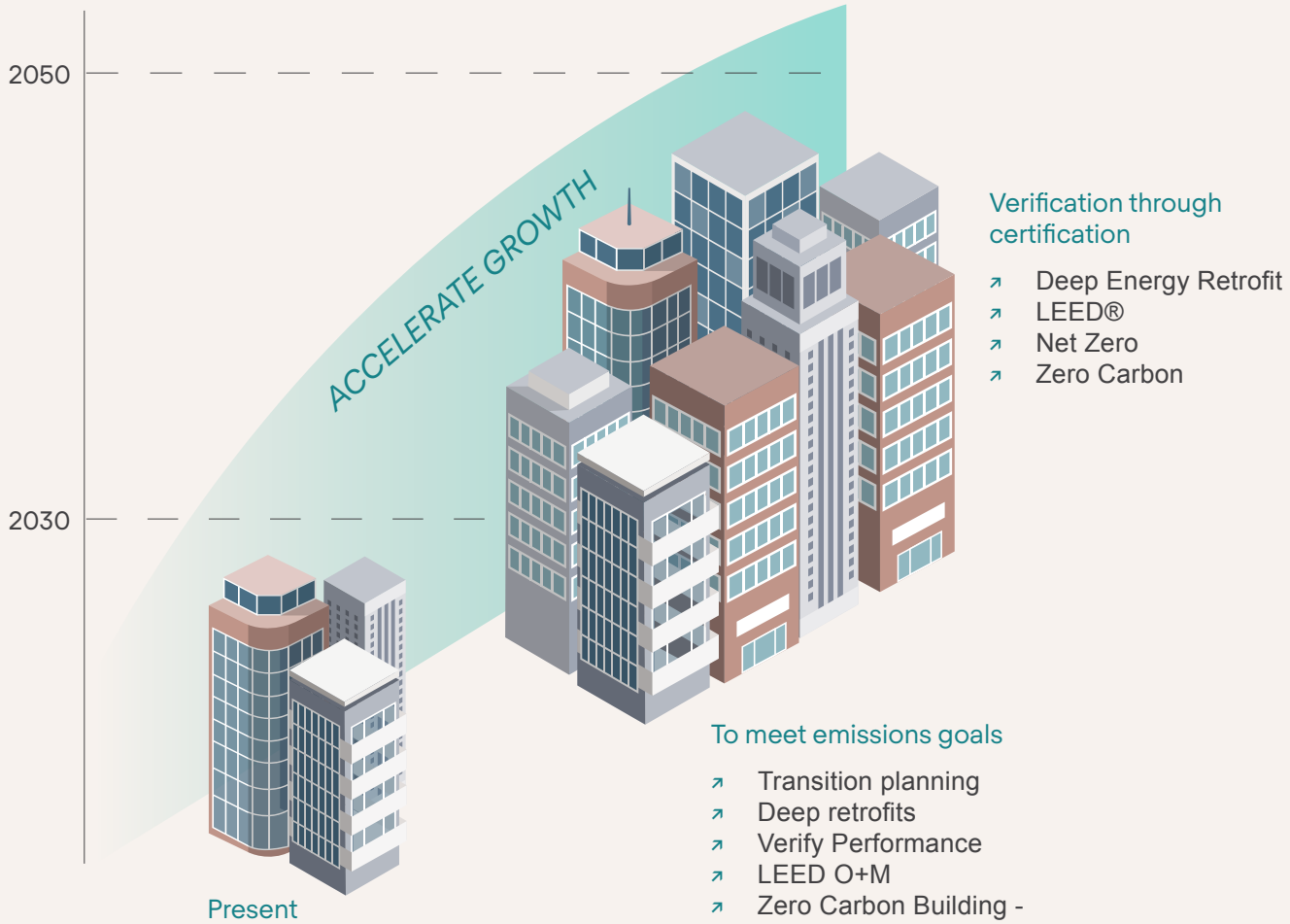
  There are at least 16 million homes and 500,000 other Canadian buildings now that will still be standing in 2050 (residential = 16m, 564,000 = commercial and institutional buildings, and 34,000 = Government buildings).[4]

- **2050: 25 percent potential household increase**

  By 2050, the number of households in Canada may increase by up to 25 percent of what it is today.

- **Low-carbon buildings are a priority**

  To reach our climate goals, we need to accelerate the retrofit of approximately 11 million buildings and construct millions of new, low-carbon buildings in the coming decades. (Source: CGBS).



Energy-efficient, climate-resilient homes are essential to ensure low energy bills and operating costs while future-proofing our communities. At the same time, the sector presents an enormous economic opportunity, from drawing on skilled trades and supplying low-carbon construction materials, to the growth of clean technology businesses and innovative building design. Each region of Canada is presented with unique circumstances for this transition, based on its geography, natural resources, and local markets and expertise.[4]

Canada stands at a crossroads: either embed sustainability into every new home and retrofit, or risk missing the chance to build a resilient, low-carbon economy.

The coming years will be key in determining if the green building sector delivers on its potential for environmental leadership, economic growth, and social equity.

Canada stands at a crossroads: either embed sustainability into every new home and retrofit, or risk missing the chance to build a resilient, low-carbon economy.

Looking ahead: Policy signals and implications for Canada's green building sector

Recent federal policy announcements highlight continued attention to decarbonization, housing supply, and infrastructure needs – factors that shape the environment in which Canada's green building sector will operate in the coming years. Investments related to community infrastructure, the development of a Canadian sustainable finance taxonomy, and updates to federal financing tools such as the Canada Infrastructure Bank provide indications of a policy landscape that is gradually evolving to support high-performance buildings and energy-efficient retrofits.

At the same time, shifting timelines and funding approaches for national energy-efficiency programs suggest that sector participants may experience changes in how support is delivered. These developments underscore the importance of sustained long-term planning, skilled workforce growth, and scalable retrofit solutions as Canada continues moving toward a low-carbon built environment.[12]

12 Efficiency Canada. (2025, November 5). What Budget 2025 means for energy efficiency - Efficiency Canada. Efficiency Canada. https://www.efficiencycanada.org/budget-2025-energy-efficiency/.

02 THE ECONOMIC IMPACT OF CANADA'S GREEN BUILDING SECTOR

In this section we outline how Canada's green building industry has grown since we completed our previous market assessment, published in 2020. We detail the industry's growth and how estimate its current contributions to jobs and gross domestic product (GDP), broken down by sector and industry.

National 2024 results: Employment and GDP

Our 2024 analysis estimates that Canada's green building industry generates $81 billion in GDP and employed 501,716 full-time workers.

This includes all direct green building jobs related to construction and trades, as well as connected industries: materials and manufacturing, professional services, utilities, waste and recycling, and policy and education. Just over one third (36%) are construction and trades jobs.

When considering the full value chain, including direct, indirect and induced jobs, the green building industry generates over a million jobs and over $150 billion in GDP. During the study period, the green building industry added approximately 40,000 new direct jobs across all sub-industries.

Figure 5: Canada's value chain green building jobs & GDP

Total Value Chain	Jobs	GDP
Direct	**501,716**	**47,922**
Indirect	**383,116**	**64,297**
Induced	**227,964**	**39,723**

Figure 6: Green building growth compared to other sectors

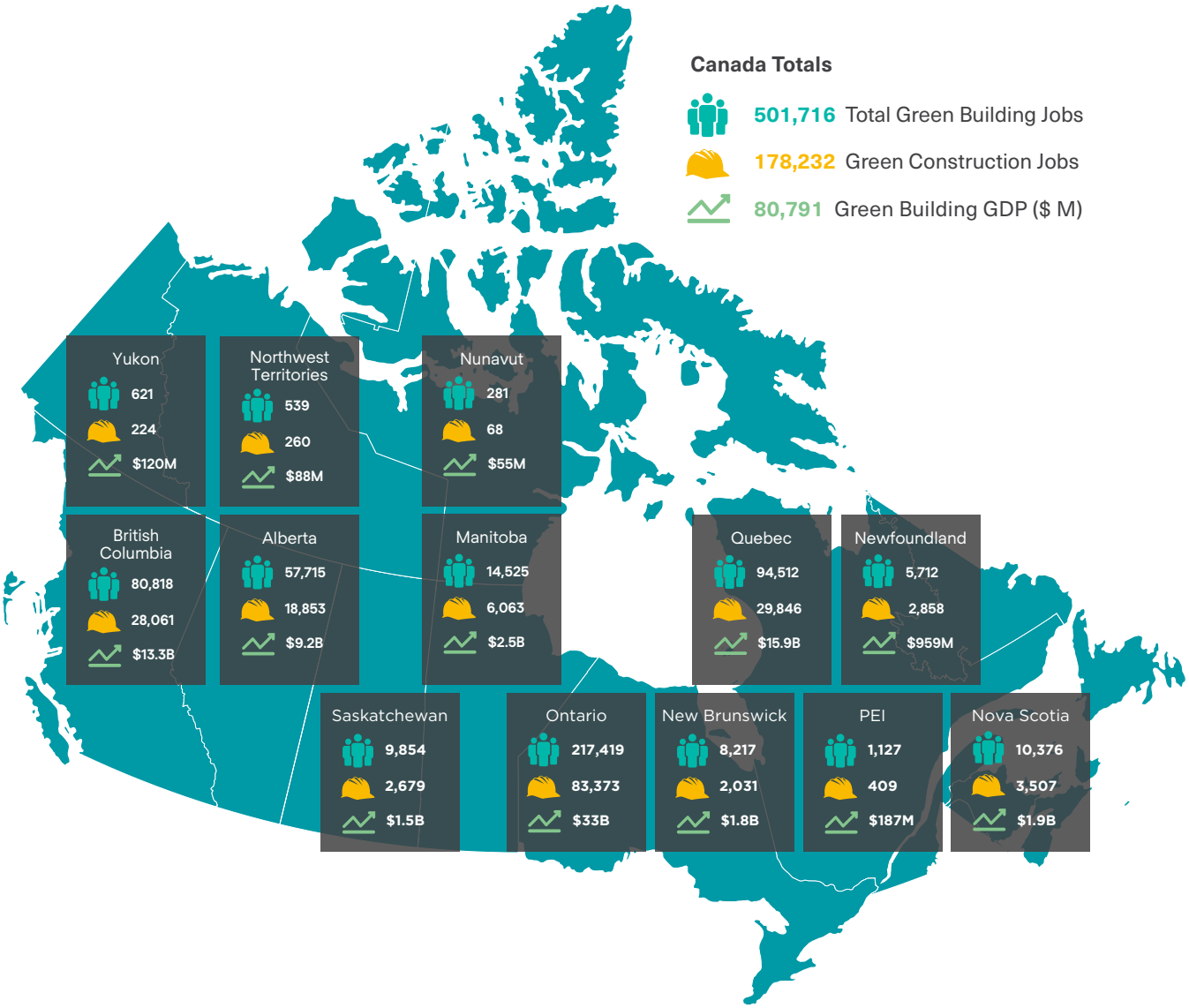
Industry	2018	2024*
Forestry & Logging	**33,395**	**24,192**
Oil & Gas Extraction	**70,730**	**54,334**
Mining & Quarrying	**71,825**	**83,701**
Support Activities for Oil & Gas Extraction	**86,920**	**75,367**
Green Building Jobs	**462,150**	**501,716**

*Industry job figures sourced from Statistics Canada. Table 14-10-0220-01 Employment and average weekly earnings (including overtime) for all employees by industry, monthly, seasonally adjusted, Canada.

Green building across Canada

Green buildings contribute to economic growth and green jobs across the country. Unsurprisingly, Ontario has the largest portion of green building jobs and GDP contribution (43%) followed by Quebec (20%) and British Columbia (16%).[13]

Figure 7: 2024 Green building sector economic impact



Our results show that the green building industry continues to deliver strong economic contributions across Canada. Green building jobs have grown by 8 percent,while GDP increased by 40 percent over the six years since our previous economic update.[14] This equates to a 36 percent increase in GDP per job overall, and a 33 percent increase in GDP per job from green building construction.

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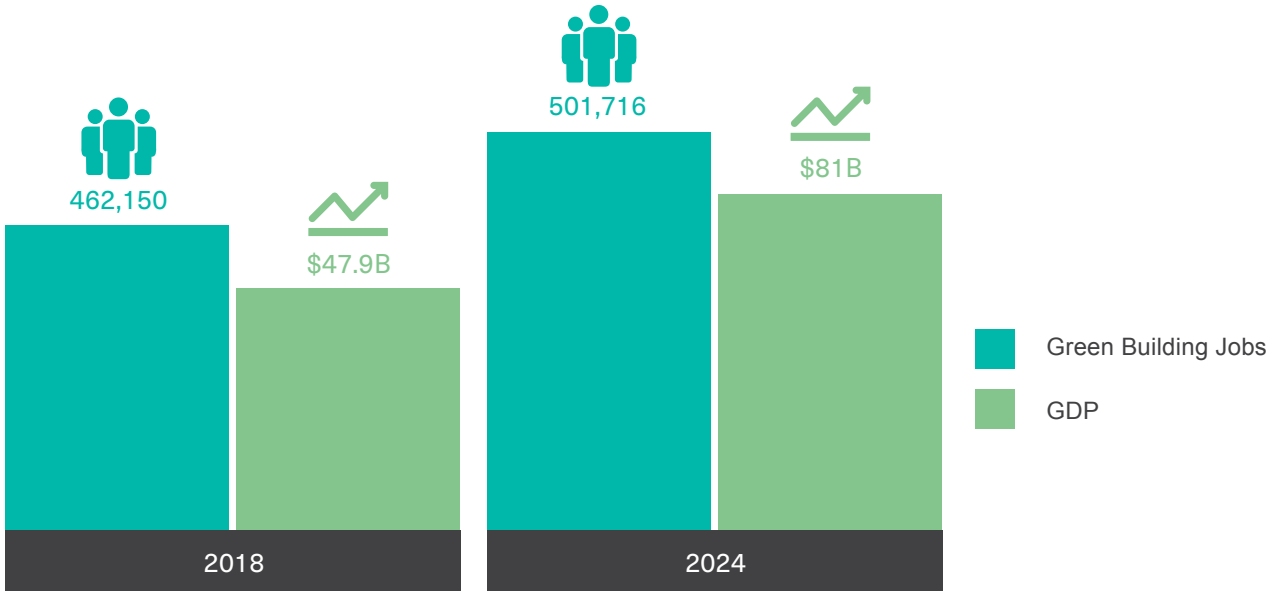
13 Percentages refer to jobs. GDP percentages are: Ontario (41%), Quebec (20%), BC (16%)

14 The *2020 Canada's Green Engine* report is based on 2018 data the most recent data available at that time. References to the 2018 results and growth statistics described in this year's report use those original estimates. Statistics Canada regularly revises economic data as more completed GDP figures become available. The 2018 results have not been recalculated to reflect any updates Statistics Canada may have done since the publication of the initial report in 2020.

Figure 8: Growth of green building jobs & GDP



These strong results occurred in the backdrop of a tumultuous national economy over this period due to the Covid-19 pandemic where the Canadian economy saw a sharp decline in 2020, a rebound in 2021, and moderate growth and fluctuation across the economy in 2023-2024.

Green building jobs: Growing but slowly

Our analysis shows that the green building industry added approximately 40,000 jobs since 2018. The growth is attributed to the expanded use of more efficient building energy systems, including renewable energy installations, and building automation systems.

This includes green construction jobs in renewable energy and utilities, building contractors supporting the installation of efficient HVAC equipment, solar panels, and heat pumps, building computer and energy management systems, and professional services related to green building design and construction (including building architects and engineers).

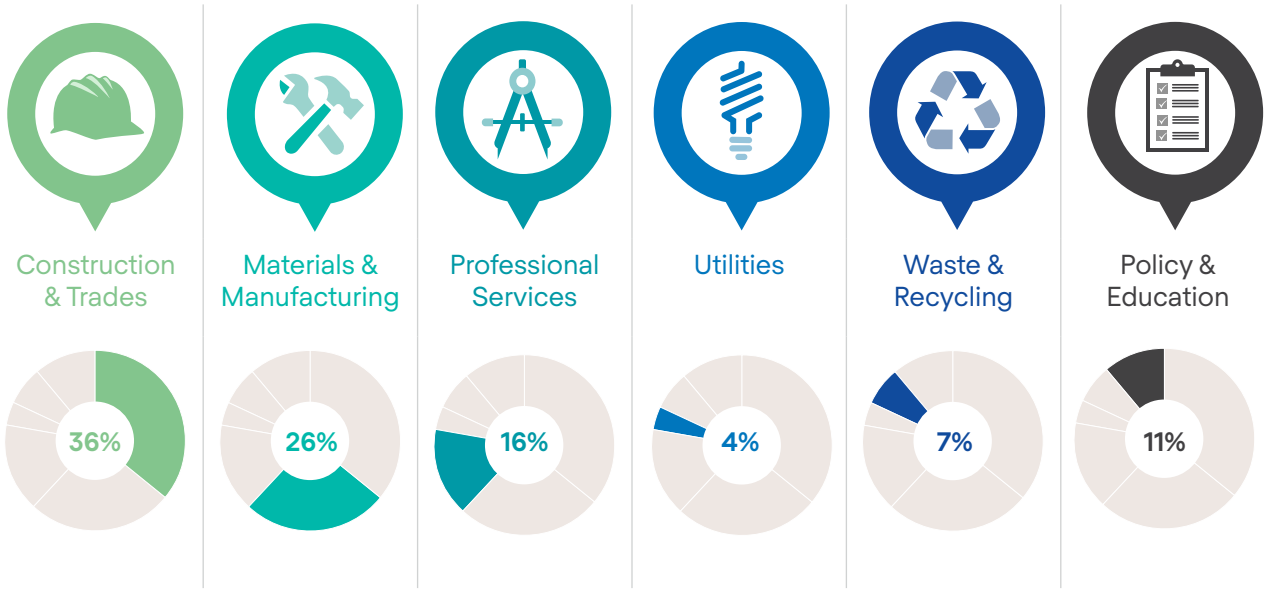
Green jobs were also added in universities, trade schools, colleges and the public sector as well in waste and recycling services. The new job growth also includes new positions focused on building decarbonization, such as HVAC-R technicians, building automation and controls specialists, commissioning and re-commissioning professionals, and building envelop retrofit specialists, alongside electricians and low carbon building operators.

While the continued growth in green jobs is positive, the overall rate of growth has slowed from previous studies. We attribute this to the economic fluctuations between 2020 – 2022, but also a moderating of over the overall growth of residential and non-residential building construction activity during this period.

Key Message

Green building jobs are growing, but more jobs are needed to help grow the building industry and decarbonize the sector.

Figure 9: Green building jobs by subsector



Green growth: Decarbonizing buildings generates economic growth

While green jobs growth is moderate, our analysis shows strong GDP growth across all categories of the green building industry and GDP growth significantly outpaces job growth. This suggests that green building jobs are highly productive in the economy delivering significant economic value relative to their labour inputs.

Efforts to decarbonize buildings have translated into significant GDP growth for the green building sector. GDP growth is particularly driven by the expanded use of renewable energy and renewable energy systems in buildings (i.e., onsite renewable energy, solar panels, and a greater proportion of renewable electricity provided by utilities).

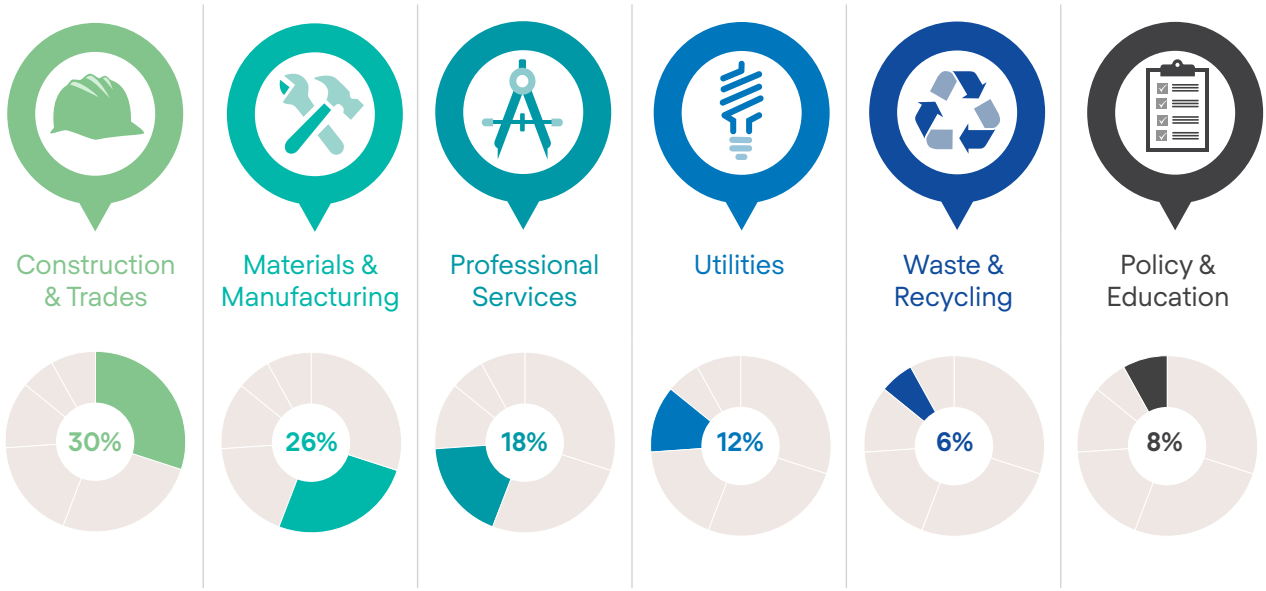
Efforts to decarbonize buildings have translated into significant GDP growth for the green building sector.

Our analysis shows that a quarter (25% or ~$20B) of the total green building GDP in 2024 can be attributed to renewable energy (wind and solar) or the manufacture and installation of high efficiency HVAC systems and building equipment, including the expanded use of heat pumps for low carbon heating and, high-efficiency boilers in commercial buildings.

This contribution comes from four sub-industries:

1. Electric power generation, transmission & distribution (Utilities)
2. Building equipment contactors (Construction & Trades)
3. Utility system construction (Construction & Trades)
4. HVAC manufactures (Materials & Manufacturing)

Figure 10: Green building GDP by subsector



Our findings are supported by national data trends signaling building decarbonization over the past five years:

- Total onsite GHG emissions from buildings in Canada have decreased by over 10 percent since 2018,[15] reflecting the industry wide efforts to improve building energy efficiency and reduce fossil fuel-based energy for heating, including the expanded use of heat pumps.
- At the same time, Canada's renewable energy sector has seen significant growth. 70 percent of the new electricity capacity installed in Canada since 2018 comes from wind and solar, while wind and solar installed capacity grew 46 percent over that time.[16] This growth in renewables has contributed to a 29 percent decrease in Canada's total GHG emissions from electricity.[17]
- Taken together, efforts to decarbonize onsite building emissions (i.e., heating) combined with expanded renewable energy and grid decarbonization have resulted in measurable reductions of building emissions nationally, and our analysis shows these decreases have come with strong growth in GDP from these activities.

Key Message

Decarbonizing Canada's buildings delivers significant economic growth.

15 This reflects onsite building emissions (primarily from heating) and is based on data from Canada's NATIONAL INVENTORY REPORT 1990 –2023: GREENHOUSE GAS SOURCES AND SINKS IN CANADA

16 Canadian Renewable Energy Association. (2021). *By the Numbers - Canadian Renewable Energy Association*. renewablesassociation.ca. https://renewablesassociation.ca/by-the-numbers/.

17 Public Services and Procurement Canada Government of Canada. (2002, July 1). *National inventory report : greenhouse gas sources and sinks in Canada.: En81-4E-PDF - Government of Canada Publications - canada.ca*. publications.gc.ca. https://publications.gc.ca/site/eng/9.506002/publication.html.

Growth scenarios for the green building sector

In this section we outline the role that the green building sector could play in contributing to Canadian GDP and employment while accelerating the pace of building decarbonization.

In our previous report, we modelled scenarios that paired Canada's COVID-19 pandemic recovery with targeted actions to accelerate green buildings and decarbonization efforts. Our analysis showed that a green recovery could deliver substantial green jobs and GDP growth. Despite several meaningful steps taken across government and industry, however, a comprehensive and coordinated green recovery for the sector did not materialize (See Section 1).

Consequently, we have not realized the full potential of economic benefits the green building sector can deliver. Our 2024 results discussed above do show sustained progress, but current jobs and economic growth are also below what we previously estimated to be possible, and below what we still believe is achievable with a more coordinated approach to decarbonizing the building sector.

Simply put, there is substantially more to do.

For this year's report, we have again sought to model three different growth scenarios to 2030, each of which highlights a different level of economic growth and job gains achievable through targeted decarbonization efforts, alongside macro-economic gains.

Scenario model overview

The 2030 scenarios are: Baseline Scenario (Current Path), Moderate Decarbonization Scenario, High Decarbonization Scenario.

Each scenario is modelled based on the 2024 results and five primary growth factors:

1. Annual Green Intensity Ratio Adjustment
2. Annual Investment Growth
3. Annual Productivity Gains
4. Annual GDP Adjustment Factor
5. Annual Labour Adjustment Factor

For each scenario, our model adjusts the five factors considering current decarbonization policies and initiatives, macro-level sector economic forecasts (including population growth), and different levels of decarbonization interventions.

Key decarbonization scenario assumptions are shown below. *Appendix 2* provides further detail on technical methods and assumptions, data sources, and scaling factors.

Scenario decarbonization intervention assumptions

2030 Baseline Scenario

The baseline scenario reflects a continuation of current policies and practices without significant new interventions. We assume energy efficiency and emissions reductions continue at near current rates, driven by existing National and Provincial regulations, building codes, and current market momentum. This includes incremental advancements outlined in Canada's Green Building Strategy, and the continuation of the legislated policy measures included in Canada's Emissions Reduction Plan (ERP).

2030 Medium Decarbonization Scenario

This scenario assumes moderate policy and investment enhancements from current levels, specifically related to increased investment in building retrofits and electrification, and dedicated residential retrofit investments. This scenario broadly aligns with the legislated, developing, and announced policy pathways used by Canada Climate Institute's 440 Megatonne project18 for commercial and residential buildings with the addition of greater policy support and investment to spur residential building retrofits, such as the continuation of the Canada Greener Homes Grant program.

2030 High Decarbonization Scenario

This scenario envisions an ambitious shift toward deep decarbonization, including the rapid scale-up of retrofit activity in both residential and commercial buildings, a dedicated strategy for green and net-zero construction in new residential buildings through Build Canada Homes, increased adoption of net-zero building certification standards in commercial buildings, and a national-equivalency green building code/standard. The scenario assumes strong policy leadership that produces a stable investment environment necessary to enable market transformation that meets or exceeds net-zero by 2050 targets.

18 Canadian Climate Institute. (n.d.). *440 Megatonnes*. dashboard.440megatonnes.ca. https://dashboard.440megatonnes.ca/.

Canada's building decarbonization pathways: A summary

Before turning to the results of each scenario, the below section provides a summary of the key pathways necessary to decarbonize the building sector. These pathways have been well documented and are largely agreed upon by industry participants. Elements of these pathways are built into each of our scenarios. The question for decarbonization is less about what to do, and more about how to accelerate the necessary actions.

a. Electrification of heating

Space and water heating dominate building GHG emissions, accounting for over 96 percent of direct operational emissions from buildings.[4] Most of this comes from fossil fuel–based equipment such as natural gas furnaces, boilers, and oil-fired systems.[19]

Electrification of heating, primarily through heat-pumps, is therefore the most critical and cost-effective pathway to decarbonizing the sector, particularly given that many provinces already operate low-carbon or near-zero-carbon electricity grids.[20]

In regions where electrification faces significant constraints (such as limited clean electricity supply or grid capacity), other low-carbon heat sources (including district energy, renewable gases, or bioenergy) may play targeted roles.[21]

Net-zero scenarios require that most space and water heating be electric by 2050, supplemented by district energy and limited use of renewable or low-carbon gases in specialized applications. To achieve building electrification at scale, the Canadian Climate Institute highlights the need for a managed, strategic decline of natural gas use in buildings to avoid stranded assets and misaligned investments.[22]

b. Deep energy retrofits

Most of the buildings that will exist in 2050 are already standing today. Analyses by Efficiency Canada emphasize that virtually all existing buildings will require energy and carbon retrofits by mid-century.

Key retrofit elements include:[23]

- Envelope upgrades (insulation, air sealing, high-performance windows).
- Mechanical upgrades (heat pumps, efficient ventilation, building controls).
- Advanced automation to optimize performance and reduce peak demand.
- Fuel switching from gas/oil/propane to electricity or district energy.

Pembina Institute highlights that Canada must increase retrofit activity to around three percent (~3%) of the building stock per year, with a high share being deep retrofits. Current retrofit rates remain well below this threshold.[24]

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19 Natural Resources Canada. (2004, December 15). *Comprehensive Energy Use Database*. oee.nrcan.gc.ca. https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/menus/trends/comprehensive_tables/list.cfm.

20 Harland, K., Gibson, S., Dion, J., Gajudhur, N., & Mifflin, K. (2024). Heat Exchange: How today's policies will drive or delay Canada's transition to clean, reliable heat for buildings. In *Canadian Climate Institute*. Canadian Climate Institute. https://climateinstitute.ca/wp-content/uploads/2024/06/Heat-Exchange-Report-Canadian-Climate-Institute.pdf.

21 Government of Canada. (2022, July 12). *2030 Emissions Reduction Plan – Sector-by-sector overview*. www.canada.ca. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030/sector-overview.html#sector2.

22 ESMIA Consultants. (2024). The Future of Building Heat and the Natural Gas Network in a Net Zero Canada. In *Canadian Climate Institute*. https://climateinstitute.ca/wp-content/uploads/2024/06/Technical-Report%E2%80%94The-Future-Of-Building-Heat-Natural-Gas-Net-Zero.pdf.

23 Natural Resources Canada. (2022). The Canada Green Buildings Strategy (Discussion Paper). In https://natural-resources.canada.ca/sites/nrcan/files/engagements/green-building-strategy/CGBS%20Discussion%20Paper%20-%20EN.pdf. Natural Resources Canada.

24 Frappé-Sénéclauze, T.-P., Heerema, D., & Wu, K. (2017). *Deep emissions reduction in the existing building stock*. https://www.pembina.org/reports/retrofit-strategy-bc-report-2017.pdf.

c. High-performance net-zero energy-ready new construction

New buildings must avoid adding to future decarbonization burdens. Canada's 2020 National Model Codes (NECB 2020 and NBC 2020) introduced tiered performance levels that map out a path to net-zero energy-ready buildings by 2030.[25]

- Tier 1 = modest performance improvement.
- Tier 4 (or top tiers) = net-zero energy ready.

Under the Pan-Canadian Framework, all provinces and territories have committed to adopt or align with the tiered performance framework established in the 2020 national model codes – progressively moving from lower tiers toward the top tiers (net-zero energy-ready) by 2030.[26]

d. Decarbonized electricity and flexible demand

The success of building electrification depends on a clean and reliable power grid. The federal ERP and Clean Electricity Regulations aim to achieve a net-zero electricity grid by 2035, building on major reductions already achieved since 2005.

Net-zero pathways also expect buildings to support the grid through:[27]

- Demand response and load management
- Smart controls and thermal storage
- On-site solar PV + storage

e. Codes, standards, and performance regulations

Strong regulatory frameworks are essential to drive consistent progress. Priorities include:

- Adoption of higher tiers of national model codes.
- Harmonized green development standards (e.g., BC Step Code, Vancouver Zero Emissions Building Plan).[28] [29]
- Operational performance standards for large existing buildings or Provincial Building Performance standards (e.g. Quebec Environmental Performance of Buildings).[30] [31]

While the above pathways are applicable across the entire building sector, it is especially important that decarbonization efforts and the pathways noted above are applied to the residential building stock as well as commercial buildings. As shown earlier in Section 1, current decarbonization progress is further ahead in commercial buildings than in residential. Achieving net-zero and a decarbonized building sector will not happen without the transformation of the residential building stock.

Achieving net-zero and a decarbonized building sector will not happen without the transformation of the residential building stock.

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25 National Research Council Canada. (2022, March 28). *National Building Code of Canada 2020*. nrc.canada.ca. https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-building-code-canada-2020.

26 Efficiency Canada. (2023). *2023 Energy Efficiency Programs Update: Provinces and Territories Report*. Efficiency Canada. https://efficiencycanada.nationbuilder.com/programs_update_report.

27 Canadian Climate Institute. (2022). *Bigger, Cleaner, Smarter Pathways for aligning Canadian Electricity Systems with Net Zero*. https://climateinstitute.ca/wp-content/uploads/2022/05/Bigger-Cleaner-Smarter-May-4-2022.pdf.

28 Government of British Columbia. (2025). *BC Energy Step Code - Province of British Columbia*. gov.bc.ca. https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards/bc-codes/2024-bc-codes/step-codes/energy.

29 City of Vancouver. (2019, March 27). *Zero Emissions Buildings - policies and code requirements*. vancouver.ca. https://vancouver.ca/green-vancouver/zero-emissions-buildings.aspx.

30 City of Vancouver. (2022). *Annual Greenhouse Gas and Energy Limits By-Law NO. 13472*. https://bylaws.vancouver.ca/consolidated/13472.PDF.

31 Québec Official Publisher. (2024). *FIRST SESSION FORTY-THIRD LEGISLATURE An Act to enact the Act respecting the environmental performance of buildings and to amend various provisions regarding energy transition*. https://www.publicationsduquebec.gouv.qc.ca/fileadmin/Fichiers_client/lois_et_reglements/LoisAnnuelles/en/2024/2024C5A.PDF.

Scenario results: Economic impacts of decarbonization

Our analysis shows that accelerating sector-wide decarbonization efforts can deliver significant job growth and economic benefits across the country.

Our Baseline Scenario shows that Canada's current path for building decarbonization is positive. The industry stands to gain 100,000 new jobs while adding an additional $17 billion in GDP by 2030. However, pursuing a deep decarbonization pathway offers a significantly bigger economic return.

We estimate that pursuing a coordinated, high decarbonization growth scenario could grow the green building sector's GDP to $146 billion while doubling the green building workforce.

In the high decarbonization scenario, job growth can be expected across all sub-sectors of the green building industry, with the highest rate of growth would be seen in the construction and trades sector, generating nearly 90,000 new construction jobs.

Pursuing a coordinated, high decarbonization growth scenario could grow the green building sector's GDP to $146 billion while doubling the green building workforce.

Our analysis shows that the green building industry can be an even greater driver of economic growth in Canada, but as the industry's experience over the previous five years shows, realizing these economic benefits is not a guarantee. The technical path to decarbonize the building sector is well known but achieving it will require a coordinated and stable set of policies, investments, and regulatory improvements for both commercial and residential buildings to produce a stable, long-term investment environment to facilitate market transformation.

Figure 11: Green building job growth forecast (2024-2030)

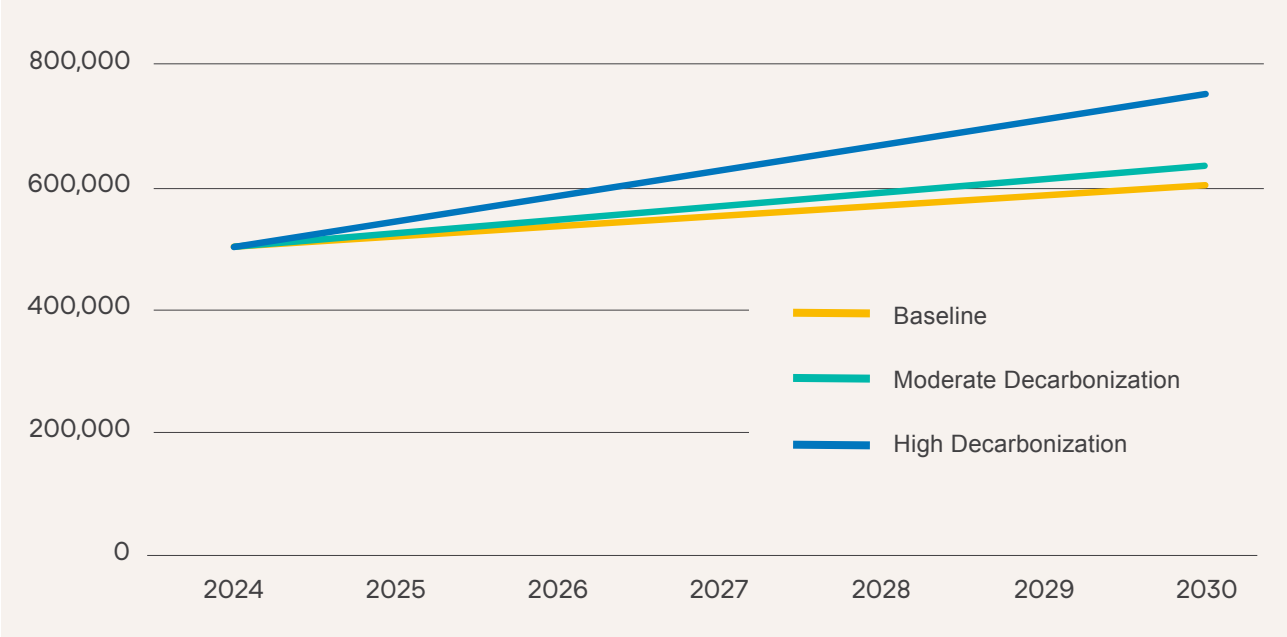
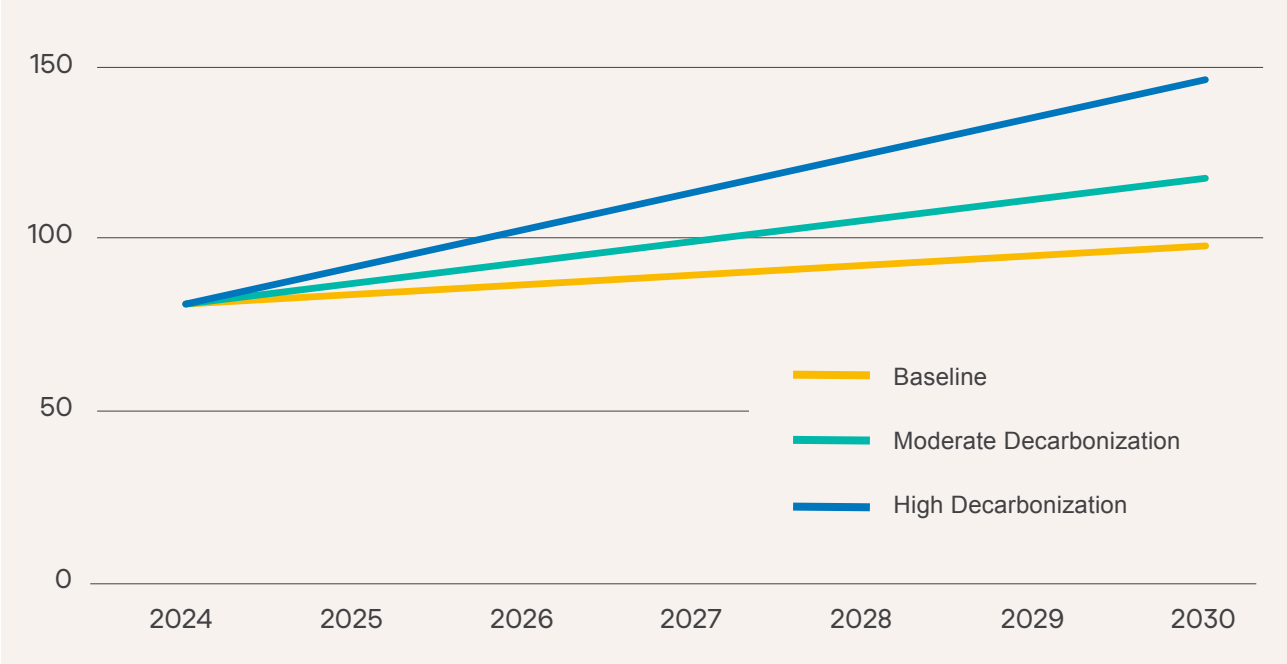


Figure 12: Green building GDP growth under decarbonization scenarios



03 BUILDING A SKILLED & INCLUSIVE WORKFORCE TO DECARBONIZE THE BUILDING INDUSTRY

The decarbonization challenge facing Canada's building sector is deeply connected to the industry's workforce and the other macro trends transforming the industry: housing pressures, demographic shifts, digitalization, and rising expectations for high-performance, climate-resilient buildings. These trends are reshaping labour needs across the entire ecosystem – from trades and building operators to designers, engineers, and commissioning professionals. As these forces converge, having a prepared, sufficiently staffed, and inclusive workforce has become essential to meet Canada's decarbonization goals.

Our previous 2022 Green Retrofit Economy Report estimated that green retrofits could create 2.1 million jobs by 2050, and meeting retrofit demand will require tripling today's green building workforce by 2030. Yet labour pressures are already significant: one in five workers expected to retire in the next decade is in the skilled trades; Canada will need 917,000 skilled trades workers by 2028; and apprenticeship completion rates sit at roughly 50 percent, falling below 40 percent for several underrepresented groups.

To understand how Canada can build a workforce for the future, a comprehensive assessment of the policy, financing, training, retention, and equity factors shaping the workforce is necessary.

This year's research builds on that 2022 study by examining these dynamics in greater depth and highlighting opportunities to strengthen and expand Canada's green building workforce. We undertook extensive stakeholder consultations with industry participants through interviews, focus groups, a national survey, and conducted a recent literature review to examine how decarbonization is reshaping skill requirements, where labour shortages are most acute, and which systemic changes – from financing and procurement to training systems and workplace culture – are needed to ensure workforce readiness. Engagement was conducted throughout summer and fall of 2025 and is summarized in the table below.

This section of the report summarizes our findings from the research, the implications for the green building workforce, and recommendations for action.

Figure 13: Industry engagement methodology for assessment of the skilled and inclusive workforce for this report.

Method	Details	Participants
1:1 Interviews	Cross-section of construction, training, investment, public sector, and building organizations to identify drivers, barriers, and workforce implications of the shift to high-efficiency, zero-emissions buildings.	14
Survey	Sector-wide survey on demographics, equity and inclusion, barriers and opportunities for underrepresented groups, effectiveness of diversity initiatives, and key actors needed to drive change.	111
Focus Groups	Two dedicated sessions exploring decarbonization workforce pathways and experiences of underrepresented groups.	11

Building a skilled workforce

Across all sources, one message was consistent: while the technologies needed for decarbonization already exist, the systems required to deploy them at scale – training, financing, coordination, and supportive workplace conditions – are not yet fully in place. Workforce development is closely tied to predictable capital flows. Contractors invest in training only when project pipelines are reliable, incentives are stable, and funding cycles are long enough to justify upskilling. Stop-start programs weaken both workforce readiness and retention.

At the same time, Canada cannot meet its labour needs without addressing persistent retention challenges. Although more workers from underrepresented groups are entering the trades, many leave within their first few years due to jobsite culture, inconsistent supervision, and limited pathways for advancement. Addressing this requires cultural, structural, and systemic change – including formal mentorship, accountable supervision, and inclusive apprenticeship practices – because technical training alone is insufficient to build and sustain a diverse workforce capable of delivering large-scale decarbonization.

Contractors invest in training only when project pipelines are reliable, incentives are stable, and funding cycles are long enough to justify upskilling.

This section synthesizes these insights, outlines the implications for workforce planning, and offers systems-level recommendations for developing a skilled, diverse, and resilient workforce to support Canada's decarbonization goals.

Literature findings

1 *Decarbonization pathways are clear; multi-trade skills are not available.*

A strong consensus in the literature shows that Canada's building decarbonization pathways are technically feasible, well understood, and broadly aligned across jurisdictions.[3] [4] [6] [32]

Core pathways include:

- Deep energy retrofits to reduce heating and cooling loads.
- Electrification of space and water heating, primarily through heat pumps.
- High-performance standards for new construction.
- Enhanced building controls, automation, and operational optimization.
- Commissioning and re-commissioning, ensuring systems perform as designed.[33] [34]

These pathways have broad agreement among governments, utilities, industry associations, and researchers. The limiting factor is not technology or cost; rather, it is **workforce readiness and delivery capacity, especially given that financing challenges continue to limit the scale and consistency of retrofit activity.**

The labour supply required for electrification, envelope upgrades, commissioning, and building automation far exceeds current availability.

Particularly high-demand roles include:

- HVAC technicians
- Electricians
- Building automation specialists
- Envelope retrofit and air-sealing teams
- Commissioning and re-commissioning professionals[31]

32 Public Services and Procurement Canada. (2022, July 1). *2030 emissions reduction plan: Canada's next steps to clean air and a strong economy.: En4-460/2022E-PDF - Government of Canada Publications - canada.ca*. publications.gc.ca. https://publications.gc.ca/site/eng/9.909338/publication.html.

33 Kennedy, M., & Frappé-Sénéclauze, T.-P. (2021). *Canada's Renovation Wave A plan for jobs and climate*. Pembina Institute. https://www.pembina.org/reports/canadas-renovation-wave.pdf.

34 Canada Green Building Council, & Delphi. (2022). *Green Retrofit Economy Study*. https://delphi.ca/wp-content/uploads/2022/09/Green-Retrofit-Economy-Study-20220602.pdf.

The literature emphasizes that decarbonization is not a shift within any single trade – it is a multi-trade transformation requiring integrated sequencing and systems thinking.[30]

A recurring insight across sources is that Canada cannot simply train or recruit its way to decarbonization. Workforce development must be embedded directly into program funding and project delivery models. Readiness depends on predictable capital flows, stable multi-year retrofit pipelines, and synchronized funding cycles that give employers the confidence to invest in people. This finding is elaborated on further in the Recommendations section.

2 *There is a labour shortage of integrated trades*

Labour shortages in the skilled trades that combine mechanical, electrical, digital, and building-operations expertise are a major constraint on building decarbonization. These roles are fundamental to electrification, deep retrofits, building automation, and achieving actual performance outcomes. However, demand for these workers is growing much faster than current recruitment and training systems can meet. The most consistently high-demand roles include:

- HVAC-R technicians
- Electricians
- Building automation and controls specialists
- Building operators
- Envelope retrofit and air-sealing teams
- Commissioning and re-commissioning professionals[31]

Crucially, decarbonization is not a single-trade shift, but a re-organization of how multiple trades work together.[31] Sequencing, integration, and commissioning are increasingly central to project delivery,[35] requiring new supervisory and cross-disciplinary competencies.[36]

3 *Training levels cannot meet demand without systemic change*

Canada cannot train or recruit its way to a decarbonized building sector under current conditions. Training systems must be redesigned to align directly with project delivery models, capital programs, procurement, and financing cycles. Otherwise, contractors – particularly SMEs, which deliver most retrofit and residential construction work – cannot justify hiring apprentices, releasing workers for training, or undertaking costly upskilling.

Workforce readiness cannot be separated from broader structural issues: access to capital, predictable retrofit pipelines, permitting timelines, and multi-year program funding have direct impacts on workforce development.

Crucially, decarbonization is not a single-trade shift, but a re-organization of how multiple trades work together.

35 See, for example: Future Skills Centre. (2024). *The Future of Work Addressing Skill Imbalances in Canada*. Future Skills Centre. https://fsc-ccf.ca/wp-content/uploads/2024/12/the-future-of-work_2024.pdf.

36 The Conference Board of Canada, & Future Skills Centre. (2024, December 2). *The Future of Work: Addressing Skill Imbalances in Canada*. fsc-ccf.ca. https://fsc-ccf.ca/research/addressing-skill-imbalances-in-canada/.

Efficient, low-carbon buildings need skilled workers

Envelope performance

Walls, roofs, windows and doors

Relevant trades:

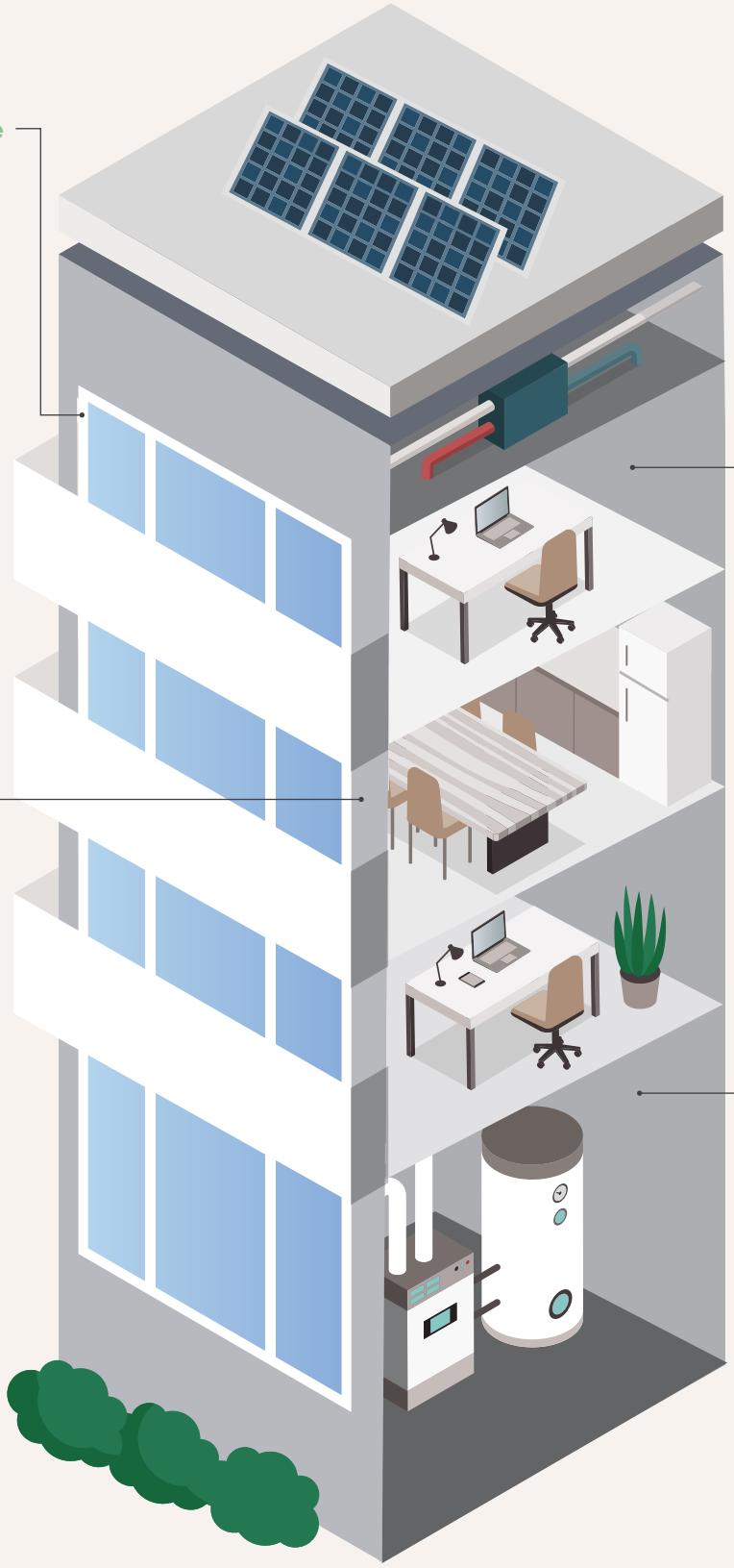
- Carpenters
- Sheet Metal Workers
- Glaziers
- Insulators
- Electricians

Mass timber construction

Low-carbon materials and construction innovation

Relevant trades:

- Carpenters
- Machinist
- Riggers
- BIM Modellers



Advanced electrical systems

- Lighting
- Plug loads and digitization

Relevant trades:

- Electricians
- Controls Technician

High efficiency mechanical systems

- Space heating and cooling
- Ventilation
- Hot water heating

Relevant trades:

- Plumbers
- RAC Mechanics
- Controls Technicians
- Electricians
- Sheet Metal Workers
- BIM Modellers

Interviews, focus groups and survey findings

CAGBC conducted 15 interviews, facilitated two focus groups, and surveyed 111 respondents to explore the workforce requirements for building decarbonization — including current gaps, emerging needs, and opportunities. Overall, the findings closely aligned with the literature: while decarbonization pathways are well defined, financing and workforce constraints remain deeply interconnected. Participants emphasized that workforce capacity depends on coordinated changes across planning, procurement, financing, training systems, workplace practices, and project delivery models.

1 *Financing and workforce constraints are deeply intertwined*

Across industry engagement, participants highlighted the tight linkage between financing constraints and workforce capacity – a nuance that was less explicitly discussed in the literature. Many developers and contractors delay or scale back green building projects due to higher capital costs and loan premiums. One interviewee noted that even a small (2%) premium caused by higher borrowing costs can postpone major retrofit investments.

When financing for green buildings is unpredictable, project volumes become unstable, and workforce development collapses. Contractors avoid hiring apprentices, reduce training opportunities, or revert to business-as-usual construction practices.

2 *Capacity among SME contractors and gaps in delivery, integration and operations skills are the critical bottleneck*

Industry engagement revealed that lack of awareness about decarbonization technologies is not the main barrier. Contractors generally understand what needs to happen; the challenge is having enough skilled tradespeople and professionals across key roles to deliver projects at scale. Skills related to delivery, integration, commissioning, and operations – rather than basic technical awareness – emerged as the most significant bottleneck. Commissioning and operations were consistently described as the least standardized yet among the most critical for achieving energy and emissions targets.

A second nuance not captured in the literature is the disproportionate pressure on small and mid-sized contractors, who make up most of the sector. These firms cannot absorb productivity losses associated with training unless those costs are explicitly built into project budgets or supported by program funding. Without this, they struggle to upskill staff or take on apprentices, perpetuating labour shortages.

Stakeholders identified acute shortages across several roles, including electricians, HVAC-R technicians, controls specialists, building operators, envelope trades, and commissioning professionals. These gaps, combined with limited training capacity and inconsistent delivery models, were seen as major constraints on scaling building decarbonization.

3 *Structural challenges impede the workforce transition*

Broad alignment emerged around the need for systemic change in how retrofit and construction work is procured, financed, and scheduled. Key barriers include:

- Short-term and fragmented incentive programs. Funding windows of 1 to 3 years create volatility that discourages training investments.
- Contractor uncertainty. Without visibility into future retrofit activity, firms hesitate to hire or upskill workers.
- Program rules changing mid-stream. Inconsistent or evolving incentive criteria undermine predictable project pipelines.
- Municipal–provincial–federal misalignment. BPS timelines, retrofit incentives, and capital financing programs often do not synchronize.
- Grid upgrade timelines. Electrification rollouts are not fully coordinated with local utility upgrade schedules, slowing project sequencing.

Stakeholders stressed that a workforce transition cannot succeed without structural reforms that enable long-term planning.

Implications for the workforce

- Upskilling mid-career workers will have greater impact than recruitment alone, but requires stable financing to support paid training.
- Training must be tied directly to project delivery – onsite, earn-and-learn models suited for SMEs.
- New interdisciplinary skills are essential, combining mechanical-electrical-digital competencies and new supervisory abilities.
- Retention of underrepresented groups is critical to meeting labour needs.
- Stable multi-year retrofit pipelines support retention, especially for groups facing employment volatility.
- Without predictable financing, Canada cannot train or maintain enough skilled workers to meet decarbonization targets.

Building an inclusive workforce

Canada's transition to low-carbon buildings requires a larger and more skilled workforce than the current system can supply through traditional recruitment and retainment channels alone. Increasing participation and retention of underrepresented groups is both a labour market necessity and a core requirement of a just transition. Both the literature and industry engagement emphasized that recruitment alone is insufficient; retention gaps remain substantial. These gaps are driven by jobsite culture, inconsistent supervision, limited mentorship, and uneven access to advancement opportunities.

This component of the study draws on 15 interviews, two focus groups, and a national survey. Together, the findings make clear that inclusion is not a "social add-on." It must be embedded into the operational fabric of projects, workplaces, and training systems to grow and sustain the workforce required for decarbonization.

Increasing participation and retention of underrepresented groups is both a labour market necessity and a core requirement of a just transition.

Literature findings:

1 *Workplace conditions are determinants of retention*

While underrepresented groups are entering trades in growing numbers – largely through pre-apprenticeship and introductory programs – retention remains low. Most departures occur within the first two to four years due to workplace culture, site conditions, and barriers to advancement.[37] For example, only about 64 percent of women apprentices complete their programs compared to 100 percent of men—an effective completion gap of around 36 percentage points (reflecting IWPR's reporting that women's median earnings post-completion are 64.6 percent that of men).[38]

Across multiple sources, a consistent conclusion emerges: workplace culture, supervision, and crew-level norms – not technical difficulty – determine whether underrepresented workers stay or leave.

Findings include:

- Women and racialized workers frequently report isolation and increased harassment risk when they are the only person like themselves on site.
- Supervisors and journeypersons often gatekeep access to complex tasks, slowing skill development.[39]
- Indigenous workers frequently report racism, lack of cultural safety, and expectations to relocate far from community to complete apprenticeships.[40]
- 2SLGBTQ+ workers report psychological unsafety, identity concealment, and lack of visible role models.[41]

These conditions directly contribute to the "retention cliffs" observed across trades.

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37 Statistics Canada. (2022, September 27). *Educational pathways of individuals who discontinue their apprenticeship programs*. www150.statcan.gc.ca. https://www150.statcan.gc.ca/n1/pub/81-595-m/81-595-m2022006-eng.htm.

38 Institute for Women's Policy Research. (2023). *Apprenticeships Can Deliver High Earnings but Do So Less for Women than Men*. https://iwpr.org/wp-content/uploads/2023/11/Quick-Figure-Apprenticeship-2023.pdf.

39 The Ontario Building and Construction Tradeswomen (OBCT). (2025). *Advancing Recruitment and Retention of Women in the Building Trades*. https://680183a4-ac6e-414c-95c1-50d5cffeb450.filesusr.com/ugd/8b599e_7c3ae59d15ba4bed8836e57182a93efd.pdf; BC Centre for Women in the Trades: Final Evaluation Report Funding provided through the Canada-British Columbia Labour Market Development Agreement. The Social Research and Demonstration Corporation (SRDC). https://srdc.org/wp-content/uploads/2022/07/bccwitt-final-evaluation-report.pdf.

40 Canadian Apprenticeship Forum. (2024). *SUPPORTING RETENTION FOR INDIGENOUS PEOPLES IN THE SKILLED TRADES*. https://caf-fca.org/wp-content/uploads/2024/07/2024-CAF-FCA-report-EN.pdf.

41 Appiah, A., Halpenny, C., & Pakula, B. (2023). *2S/LGBTQ+ populations in the trades in Canada: Exploratory insights: Final report*. The Social Research and Demonstration Corporation (SRDC). https://srdc.org/wp-content/uploads/2023/09/2SLGBTQ-in-the-Trades-final-report.pdf.

2 *Mentorship and supervisory practices are the strongest predictors of retention*

Evidence from across literature shows retention rises sharply when mentorship is structured, paid, and supported by supervisors.[42] Tradeswomen in BCCWITT programs report that peer mentorship increased their likelihood of remaining in the trades by 25 percent.[43]

3 *Apprenticeship and certification systems unintentionally disadvantage underrepresented groups*

Additionally, apprenticeship and certification systems unintentionally disadvantage women, Indigenous workers, and newcomers due to:

- Mobility requirements
- Unpredictable work hours
- EI ineligibility during training blocks
- Lack of clear and transparent advancement criteria

4 *There is a lack of clear skilled pathways*

The literature highlights that many women, youth and equity-deserving groups lack exposure to skilled trades pathways. Targeted outreach and early education initiatives are needed to increase awareness and reduce barriers to entry for these groups.[44]

Application processes for apprenticeships were frequently described as complex, inconsistent across regions, and difficult to navigate.

The shortage of employers willing to sponsor apprenticeships make it competitive and challenging for new entrants to access the system.[45]

The literature points to a need for more streamlined, standardized, and accessible pathways – including simplified application processes and centralized tools that help prospective apprentices understand requirements, identify opportunities, and connect with employers.

Interviews, focus group, and survey findings:

1 *Endorsement of inclusion as part of procurement and ESG commitments*

There was strong endorsement for connecting inclusion to procurement and environmental, social and governance (ESG) commitments – particularly among real estate investment trusts (REITs) and large developers who increasingly view inclusion as part of risk management and talent attraction.

Industry stakeholders emphasizes that these requirements are strategic workforce tools that improve retention, expand access to skilled labour, strengthen project delivery capacity, enhance organizational performance, and reduce volatility linked to chronic shortages of experienced tradespeople.

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42 See, for example: Canadian Apprenticeship Forum. (2023). *Best Practices for Recruitment and Retention Guide Recruiting and Retaining a Dynamic and Diverse Workforce*. Canadian Apprenticeship Forum. https://cupe.on.ca/wp-content/uploads/2024/01/Best-Practices-Guide-Recruitment-and-Rentention.pdf; Pakula, B., & Gurr, S. (2020). *BC Centre for Women in the Trades: Final Evaluation Report Funding provided through the Canada-British Columbia Labour Market Development Agreement*. The Social Research and Demonstration Corporation (SRDC). https://srdc.org/wp-content/uploads/2022/07/bccwitt-final-evaluation-report.pdf, Kanhai, L., Gagnon, S., & Cukier, W. (2024). *Bridging the Gender Gap Skills for the Advancement of Women*. fsc-ccf.ca. https://fsc-ccf.ca/research/bridging-the-gender-gap/, Ontario Society of Professional Engineers. (2018). *Breaking Barriers for Women in STEM*. https://ospe.on.ca/wp-content/uploads/2019/11/breaking_barriers_white_paper_report_single.compressed.pdf.

43 BC *Centre for Women in the Trades: Final Evaluation Report Funding provided through the Canada-British Columbia Labour Market Development Agreement*. The Social Research and Demonstration Corporation (SRDC). https://srdc.org/wp-content/uploads/2022/07/bccwitt-final-evaluation-report.pdf, Kanhai, L., Gagnon, S., & Cukier, W. (2024). Bridging the Gender Gap Skills for the Advancement of Women. fsc-ccf.ca. https://fsc-ccf.ca/research/bridging-the-gender-gap/.

44 Canadian Apprenticeship Forum. (2025). *Facilitating Pathways into Apprenticeship: Barriers and Opportunities*. caf-fca.org. https://caf-fca.org/fr/research_reports/facilitation-des-parcours-vers-les-programmes-dapprentissage-obstacles-a-surmonter-et-occasions-a-occasions-a-saisir/, Kanhai, L., Gagnon, S., & Cukier, W. (2024). *Bridging the Gender Gap Skills for the Advancement of Women*. fsc-ccf.ca. https://fsc-ccf.ca/research/bridging-the-gender-gap/.

45 Canadian Apprenticeship Forum. (2025). *Facilitating Pathways into Apprenticeship: Barriers and Opportunities*. caf-fca.org. https://caf-fca.org/research_reports/facilitating-pathways-into-apprenticeship-barriers-and-opportunities/.

2 *A need for focus on retention tactics*

Across industry engagement, participants consistently emphasized that retention – note recruitment – is the most significant workforce challenge for underrepresented groups. While targeted recruitment initiatives have expanded pathways into the trades, the methods reaffirmed that Canada loses a substantial proportion of these workers within the first few years, long before they reach journeyperson status or have opportunities to enter advanced decarbonization roles.

A central theme across all engagement activities was that workplace conditions – particularly mentorship, supervision, and psychological safety – are decisive in determining whether underrepresented workers stay or leave. Survey respondents identified workplace culture and supervision as the top barrier to retention, surpassing wages, physical working conditions, or job demands. Build a Dream and Canada's Building Trades Unions (CBTU) reinforced that retention improves dramatically when mentorship is formalized as a site policy rather than left to individual discretion, a finding strongly aligned with the literature. The survey mirrored this insight: participants ranked structured peer mentorship and onsite support as the most effective retention strategies.

The engagement also highlighted the lived experience of exclusion on job sites. Women and racialized workers frequently described being "the only one" on site, heightening feelings of isolation and vulnerability to harassment. Indigenous participants reported direct experiences of racism and a lack of cultural safety. 2SLGBTQ+ tradespeople often concealed their identities due to psychological safety concerns, limiting their ability to fully participate in the workplace. These patterns directly erode retention and reinforce systemic barriers to advancement.

In addition, interviews and focus groups reaffirmed the exclusionary nature of current apprenticeship structures, echoing concerns well documented in the literature. Travel-based rotations, long or irregular hours, and block-release training disproportionately burden caregivers (predominantly women) and Indigenous workers who maintain close ties to their communities. These conditions create structural barriers that prevent many from completing apprenticeship programs and advancing in their trade.

Newcomers, by contrast, encounter more significant barriers at the point of entry rather than retention, including language barriers, informal hiring networks, and challenges with credential recognition.[46]

Participants also emphasized how practical access barriers matter. Childcare, transportation, and training proximity were repeatedly identified as barriers to retention. Survey findings reinforced this: the top barrier to entry was lack of awareness of career pathways, while the top barrier to retention was workplace culture and supervision. Participants stressed that without clear opportunities for advancement, workers – particularly those from underrepresented groups – are less motivated to stay and develop the specialized skills needed for decarbonization roles.

One insight that emerged more strongly from the engagement methods than from the literature was the central importance of representation in leadership. Workers reported higher retention when supervisors, forepersons, and site leaders reflected their identities or lived experiences. This leadership gap is significant: 67 percent of survey respondents rated diversity in leadership as "low" or "very low," suggesting that many workplaces lack visible role models in senior positions and reinforcing systemic barriers to advancement. Overall, survey results reinforced these findings, with participants identifying supervision, mentorship, and workplace culture as the most important factors affecting retention - above wages or physical working conditions.

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46 The Conference Board of Canada. (2025). *Learning From One Another Skill Gaps in Labour Markets in Northern Ontario, Yukon, and Nunavut.* Future Skills Centre. https://fsc-ccf.ca/wp-content/uploads/2025/04/skills-gaps-in-labour-markets-N-Ontario-Yukon-Nunavut_mar2025.pdf.

Implications for the workforce

Recruitment is increasing, but retention is not. Solutions must prioritize sustaining participation through:

- Structured, paid mentorship
- Supervisor training
- Local, community-based, flexible apprenticeship pathways
- Training programs that encourage workplace psychological safety
- Targeted progression pathways into technical, advanced roles – not just entry-level ones
- Leadership development for underrepresented groups
- Stable, multi-year project pipelines that reduce employment volatility and are critical to retaining diverse workers who otherwise leave the sector.
- Inclusion embedded into procurement and financing – not as a voluntary initiative

Without these conditions, Canada will be unable to build or maintain the workforce required for decarbonization.

04 RECOMMENDATIONS: BUILDING A WORKFORCE READY FOR DECARBONIZATION AND INCLUSIVE BY DESIGN

Canada's ability to meet its climate, housing, and economic goals depends on a workforce strategy that integrates skills development, predictable financing and project pipelines, and equity and inclusion. Interviews, focus groups, and literature show that these elements are inseparable: decarbonization goals cannot be met without an inclusive labour force, and inclusion efforts cannot succeed without stable, well-designed decarbonization programs that provide reliable employment and training opportunities.

The following recommendations combine the decarbonization and inclusion pathways into a single, coordinated set of actions.

1 Embed training into real retrofit and construction projects

Federal and provincial funders should:

- Integrate paid training release time into retrofit incentives and capital financing programs.
- Require large retrofit and public construction bids to include workforce training plans.
- Fund demonstration sites and on-the-job training models.

This creates predictable project pipelines and reduces cost barriers for contractors.

2 Stabilize retrofit pipelines through predictable, multi-year funding and policy alignment

To enable contractors, unions, and training providers to confidently invest in hiring and upskilling, governments must create retrofit pipelines that are stable, coordinated, and long-term. This requires not only adequate funding, but continuity and predictability of existing funding streams, paired with coherent policy direction.

Governments should:

- Align municipal building performance standards with provincial and federal retrofit funding timelines.
- Map electrification and deep retrofit rollouts against grid upgrade schedules.
- Coordinate permitting, code updates, and retrofit program windows.
- Publish multi-year retrofit and public building renewal schedules.

Predictability – not new funding – is the most powerful lever for workforce investment. The issue is less about expanding funding volumes and more about ensuring that funding remains stable, synchronized, and long-term, giving contractors the confidence to hire, retain, and train the skilled workforce needed for decarbonization.

3 Create shared resource hubs for SME contractors

Because SMEs perform the majority of retrofit work, support should be provided by the federal and provincial governments, as well as workers' rights associations, that includes:

- Shared training facilitators and equipment
- Wage subsidies for workers in training
- Invoice-eligible training hours
- Regional retrofit resource centres

These models enable SMEs to participate in decarbonization markets they cannot currently access.

4 Strengthen interdisciplinary skills: Mechanical–electrical–digital integration, sequencing, and commissioning

Decarbonized buildings need tradespeople who understand how envelope, mechanical, electrical, and digital systems interact. Commissioning and controls – critical to performance – are the least standardized and most understaffed.

Training providers, unions, colleges, industry associations should:

- Develop national and regional training modules for interdisciplinary deep retrofit sequencing.
- Prioritize commissioning, re-commissioning, and building automation training programs.
- Create advancement pathways into controls, commissioning, and supervisory roles.

5 Formalize and fund mentorship to improve retention

Mentorship is the strongest predictor of retention across women, Indigenous workers, newcomers, youth, and 2SLGBTQ+ tradespeople. Informal mentorship fails; structured mentorship works.

Federal and provincial governments, unions, contractors, community organizations should:

- Fund paid mentorship programs modeled on effective approaches, such as those from BC Centre for Women in Trades[47] [48] and Canada's Building Trades Union[49], as well as Indigenous-led[50] approaches.
- Require mentorship plans in procurement and financing programs.
- Support employer-based mentorship training for supervisors and forepersons.

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47 BC Centre for Women in the Trades. (2025). *ConnectHER* | BCCWITT. bccwitt.ca. https://bccwitt.ca/connecther/.

48 BC Centre for Women in the Trades. (2023). *Leaders in Trades Program* | *BCCWITT*. bccwitt.ca. https://bccwitt.ca/leaders-in-trades-program/.

49 Canada's Building Trades Union. (2024, November 12). *Women in the Trades* | *Canada's Building Trades Unions*. Canada's Building Trades Unions. https://buildingtrades.ca/en/women-in-the-trades/.

50 For example: The Canadian Apprenticeship Forum offers a National Program for Journeypersons Supporting Indigenous Apprentices that equips journeypersons with the skills to support Indigenous apprentices in trades, focusing on cultural competency, communication, and supportive mentorship that acknowledges Indigenous contexts and backgrounds. Canadian Apprenticeship Forum. (2025b). *Supporting Indigenous Apprentices*. caf-fca.org; Canadian Apprenticeship Forum. https://leadership.caf-fca.org/supporting-indigenous-apprentices/.

6 Grow and diversify the workforce through evidence-based inclusion practices

Recruitment is improving, but retention remains low due to culture, task gatekeeping, harassment, travel requirements, and lack of support.

Key actions by employers, unions, provincial training authorities, Indigenous organizations, immigrant-serving agencies should include:

- Embedding inclusion requirements in public procurement.
- Funding structured, paid mentorship programs.
- Supporting supervisor training focused on psychological safety.
- Reforming apprenticeship systems to reduce mobility and scheduling barriers.
- Creating advancement pathways for underrepresented workers into supervisory roles.

These measures address the primary drivers of retention.

7 Reform apprenticeship and employment insurance structures to improve completion rates

Only half of apprentices complete training, and EI ineligibility during block release disproportionately harms women, Indigenous workers, and newcomers.

Federal government and provincial apprenticeship authorities should:

- Modernize EI to support apprenticeship training interruptions.
- Expand local apprenticeship models to reduce travel burdens.
- Require transparent, competency-based evaluation and advancement criteria in apprenticeship pathways.

8 Align procurement, financing, and ESG requirements with workforce and inclusion outcomes

Inclusion and training should not be voluntary; they must be built into the design of decarbonization programs and capital projects.

Municipalities, Crown corporations, public infrastructure agencies, large building owners should:

- Tie workforce inclusion, mentorship, and local hiring commitments to public-sector retrofit and construction bids.
- Require contractors to include workforce development and equity strategies in financing applications.
- Encourage REITs and large developers to integrate inclusive workforce practices into ESG reporting.

9 Expand awareness and on-ramps into green and decarbonization trades

Many potential workers (including youth, women, newcomers, and career switchers) do not see clear pathways into green building careers.

Provincial governments, school boards, trade associations, community groups should:

- Invest in early-exposure programs, pre-apprenticeships, and school-to-site transition pathways.
- Promote clear communication of decarbonization-related career opportunities through sector partnerships.
- Support community-based recruitment and outreach initiatives.

CONCLUSION

Strategic policy support, innovation, and targeted investment can unlock nearly $150 billion in GDP and create over a million green jobs by 2030, while also accelerating decarbonization, improving housing affordability, and strengthening community resilience.

Canada's green building sector is at a decisive inflection point, uniquely positioned to drive the nation's transition toward a prosperous, net-zero future. This report confirms that strategic policy support, innovation, and targeted investment can unlock nearly $150 billion in GDP and create over a million green jobs by 2030, while also accelerating decarbonization, improving housing affordability, and strengthening community resilience.

Achieving these economic outcomes is not guaranteed. Decarbonizing the building sector will require a coordinated and stable set of policies, investments, and regulatory improvements, including a significant expansion of low-carbon residential housing policies and investments. A stable, long-term green building investment environment is necessary to facilitate market transformation.

Achieving this outcome also demands immediate action to strengthen the capacity of the green building workforce. Workforce training, inclusive mentorship, stable funding streams, and integrating inclusion into hiring and project delivery must be prioritized to close persistent labour gaps and ensure a just transition for all Canadians.

With broad alignment on technological pathways and a rising momentum for sustainable building practices, the magnitude of impact now rests on Canada's collective resolve to coordinate regulatory, financial, and workforce reforms. By embracing these recommendations, Canada's green building industry will not only meet its climate and housing obligations but also anchor sustainable growth and opportunity for generations to come.

APPENDICES

Appendix 1: Research overview and summary methodology

Research overview and methodology

This Decarbonization Pathways for the Green Building Workforce research project provided an assessment of the economic, environmental, and social impact of Canada's green building sector, with a primary focus on measuring the economic contribution of green building in Canada (GDP) and on sustainable jobs (job creation). The project builds on previous versions of this research, including the foundational methodology established in the 2020 edition, the original market assessment in 2016, and the 2022 "Green Retrofit Economy Study." The 2025 research expanded on the scope to reflect emerging sector priorities, particularly the need for an inclusive workforce and the job potential and labour requirements for low carbon growth in the construction and building sectors. The research is designed to support decision-makers with timely insights into how the green building sector can contribute to Canada's climate objectives while also fostering equitable workforce development and economic opportunity.

At the heart of this work is an exploration of how likely decarbonization pathways will shape the supply and demand for skilled trades within Canada's green building sector. As CAGBC and its industry partners lead the transformation of the built environment, there is a growing need to understand the sector's evolving labour requirements - including the specific occupations, skills, and demographic considerations that will define a future-ready workforce. This is particularly relevant as Canada seeks to increase its housing supply and advance the construction industry.

The study was designed to answer the following research questions:

1. What is the growth potential for Canada's green building industry over the next 5 years?
2. What are the economic, environmental, and social contributions of Canada's green
3. building industry, and what factors must be considered to optimize impact?
4. How can Canada's green building industry increase participation of underrepresented groups in the workforce and support a just transition?
5. How can Canada's green building industry help Canada meet its climate targets?
6. What are the key market trends and drivers accelerating Canada's shift to high-efficiency, zero-emissions buildings?
7. What are the decarbonizing pathways in Canada that affect demand for and supply of skilled tradespeople?

To address the six research questions, this study applied a mixed methods approach that integrated quantitative economic and GHG emissions modeling, structured and semi-structured qualitative research (interviews, surveys, and focus groups), and secondary research. Each method was aligned to a specific topic of inquiry. A secondary research review will inform the basis for all questions, ensuring that all methods build upon an extensive body of relevant research.

A quantitative economic model was built to answer Question 1 (*What is the growth potential for Canada's green building industry over the next 5 years?*) by applying green building intensity ratios to clean and environmental products through Statistics Canada's input-output macro-economic model and the related supply and use tables (see Appendix 2 for detail).

A baseline forecast for 2030 was developed, along with two additional "medium" and "high decarbonization" scenarios created in consultation with CAGBC. These scenarios incorporate assumptions related to policy, technology adoption, and market trends derived from secondary research, key informant interviews, and the project team's expertise.

A secondary research review informed the basis of questions 2 (*What are the economic, environmental, and social contributions of Canada's green building industry, and what factors must be considered to optimize impact?*), 4 (*How can Canada's green building industry help Canada meet its climate targets?*), and 6 (*What are the decarbonizing pathways in Canada that affect demand for and supply of skilled tradespeople?*), augmented by primary qualitative research (interviews, survey, and focus groups) and the project team's analysis to generate new insights. Question 2 drew exclusively on existing literature to summarize the sector's economic, environmental, and social benefits.

To explore themes of inclusion and equitable transition, Question 3 (*How can Canada's green building industry increase participation of underrepresented groups in the workforce and support a just transition?*) was addressed through industry-expert focus groups and anonymous surveys, co-designed with CAGBC. These highlighted opportunities and challenges faced by underrepresented groups within the green building workforce. Question 4 was addressed via secondary research and technical analysis. To support Questions 5 (*What are the key market trends and drivers accelerating Canada's shift to high-efficiency, zero-emissions buildings?*) and 6 (*What are the decarbonizing pathways in Canada that affect demand for and supply of skilled tradespeople?*), targeted interviews were conducted with industry experts. These interviews validated and enriched the findings from the literature review and contributed to creating the assumptions used in the decarbonization scenarios (modeled in Question 1). A focus group was also used to support Question 6 (*What are the decarbonizing pathways in Canada that affect demand for and supply of skilled tradespeople?*) to help understand the needs of the green building workforce under the decarbonization scenarios.

The stakeholder interviews aimed to gather valuable insights and feedback from key stakeholders in the building sector on existing pain points, opportunities, and hindrances that affect: 1. Canadian decarbonization pathways and related skilled tradespeople; and 2. underrepresented groups participating in the green building workforce in Canada. The data collected was used solely for the Project's research purposes and to prepare resulting research products/outputs (e.g. related report(s)) that aim to improve and address the challenges faced by: 1. decarbonization and related skilled tradespeople; and 2. underrepresented groups' representation, participation, and uptake in the green building sector.

Table A1: Research methods overview

Research Question	Secondary Research	Quantitative Analysis	Interviews	Focus Groups	Surveys
1	✓	✓	✓		
2	✓				
3	✓			✓	✓
4	✓	✓			
5	✓		✓		
6	✓		✓	✓	

Appendix 2: Quantifying the economic impact of green buildings – projecting green building job and GDP scenarios to 2030 (economic impact estimation)

Methodology overview

The statistical framework used in previous reports was refined to estimate the size and economic impact of Canada's green building sector. The underlying methodology used in this report is consistent with methods used in the 2020 Canada's Green Building Engine. Key updates were made including updating relevant NAICS codes to reflect new developments and expanding the analysis to include all provinces and territories. By leveraging intensity ratios and detailed data sources, the methodology quantifies green building activity, employment, and GDP across the value chain, while addressing regional and industry-specific characteristics.

Estimating the direct and indirect green building value chain

The statistical framework is based on defining relevant sub-industries that collectively comprise the 'Green Building Sector' based on North American Industry Classification System (NAICS) codes at the four-digit level. The green building economic model is built from Statistics Canada's supply and use tables, and estimated intensity ratios for each sub-industry, including:

Statistics Canada. Table 14-10-0220-01 Employment and average weekly earnings (including overtime) for all employees by industry, monthly, seasonally adjusted, Canada.

Statistics Canada. Table 36-10-0434-03 Gross domestic product (GDP) at basic prices, by industry, annual average (x 1,000,000).

Intensity ratios

Intensity ratios represent the estimated percentage of each industry that can be assumed as being dedicated to green building activity as defined in this research. The intensity ratios were estimated using green building and related engineering construction activities published by Statistics Canada clean and environmental product detailed tables. These Statistics Canada clean and environmental accounts are consistent with the NAICS terminology in the System of National Accounts (SNA) which facilitates the calculation of green intensity ratios for both employment and GDP.

The industry segments that are used in the Green Building Sector definition include:

- Construction and Trades (building construction, revocations, repair construction, and related construction engineering for land and municipal servicing)
- Materials & Manufacturing (wood products, plastics, cement, concrete, primary and fabricated metals, electronic equipment and machinery manufacturing.
- Professional Services (professional science and technical services, finance and insurance, architectural and engineering, administrative support and wholesale and retail services.)
- Utilities (electric power generation and sewage and other systems)
- Waste & Recycling (waste management and remediation services)
- Policy & Education (non-profit institutions, education services, federal, provincial, municipal and indigenous governments.

The following shows the average green intensity ratio for each industry segment. Individual ratios are used in the modeling for each sub-industry at NAICS code level.

Industry Segment	2024 Green Intensity Ratio
Utilities	14.66%
Construction & Trades	14.65%
Materials & Manufacturing	16.67%
Professional Services	4.91%
Waste & Recycling	22.06%
Policy & Education	2.68%

Growth scenarios

Three different growth scenarios were developed for green building jobs and GDP to quantify the potential for green building and related activity growth over the next five years to 2030.

Each scenario is constructed based on 5 key modeling factors, each estimated from industry and statistical sources:

- Green intensity ratio adjustment
- Investment growth
- Productivity gains
- GDP adjustment
- Labour adjustment

In each scenario, the model ramps up current intensity ratios and synthesizing medium term forecasts from sourced from key think tanks, research agencies, and government statistics. For example, construction data forecasts (building and engineering) are extracted from Build Force projections from 2024 to 2034. These forecasts were validated and compared to other leading forecast groups. These include construction forecasts prepared by the Canadian Occupational Projection System (COPS) model managed by Employment and Social Development Canada and the TD Bank.

Decarbonization pathways and anticipated policies are then factored in and refined for each scenario in the adjustment factors for green intensity ratio, investment and productivity.

Growth projections that informed our modelling

- Build Force Canada forecast that residential investment levels are projected to grow steadily between 2026 and 2034. Investment in residential renovations records a series of increases across the forecast period, with growth strongest in the later years.
- Non-residential construction investment, meanwhile, is projected to ebb and flow across the forecast period, in line with the timing of current and proposed major projects.
- The federal COPS model forecasts that construction real GDP is slated to grow at an average annual rate of 1.7 percent. On the non-residential side, investments in engineering structures are expected to be supported by energy and transportation projects.
- Employment is projected by COPS to increase by 1.5 percent annually. The housing shortage and the transition towards a greener infrastructure should provide “clean” job opportunities for the residential sector. Employment growth, however, will be limited by an aging workforce and a shortage of skilled workers.

Adjustment Factor	Low Growth	Moderate Growth	High Growth
Annual Intensity Ratio Adjustment	1.02	1.03	1.05
Annual Investment Growth	0.01	0.01	0.02
Annual Target Productivity Gains	0.002	0.025	0.035
Annual Adjustment Factor GDP	1.03	1.07	1.10
Annual Adjustment Factor Labour	1.03	1.04	1.07

Appendix 3: Green building industry NAICS

Industry code (NAICS), industry segment, and sub-industry

Utilities

- 2211 Electric power generation, transmission, and distribution
- 2212 Natural gas utilities

Construction & Trades

- 2361 Residential building construction
- 2362 Non-residential building construction
- 2371 Utility system construction
- 2372 Land Subdivision
- 2379 Other heavy and civil engineering construction
- 2381 Foundation, structure, and building exterior contractors
- 2382 Building equipment contractors
- 2383 Building finishing contractors
- 2389 Other specialty trade contractors

Materials & Manufacturing

- 3141 Textile furnishings mills
- 3211 Sawmills and wood preservations
- 3212 Veneer, plywood and engineered wood product manufacturing
- 3219 Other wood product manufacturing
- 3255 Paint, coating and adhesive manufacturing
- 3261 Plastic product manufacturing
- 3273 Cement and concrete product manufacturing
- 327 Non-metallic mineral product manufacturing (except cement and concrete
- 3323 Architectural and structural manufacturing
- 3324 Boiler, tank and shipping container manufacturing
- 3334 Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing
- 3342 Communications equipment manufacturing
- 3344 Semiconductor and other electronic component manufacturing
- 3345 Navigational, measuring, and control instruments manufacturing
- 3351 Electric lighting equipment manufacturing
- 3353 Electrical equipment manufacturing
- 3359 Other electrical equipment and component manufacturing
- 3372 Office furniture (including fixtures) manufacturing
- 416 Building material and supplies wholesalers-distributors
- 444 Building material and garden equipment and suppliers dealers (retail)

Professional Services

- 5223 Activities related to credit intermediation (incl. mortgage brokers)
- 5241 Insurance carriers
- 5311 Lessors of real estate
- 5313 Activities related to real estate, including real estate agents and brokers
- 5413 Architectural, engineering and related services
- 5414 Specialized design services
- 5415 Computer systems design and related services
- 5416 Management, scientific and technical consulting services
- 5417 Scientific research and development services
- 561 Facilities services incl. services to buildings and dwellings

Waste & Recycling

4181 Recyclable material wholesaler-distributors
562 Waste management and remediation services

Policy & Education

6112 Community colleges and C.E.G.E.P.s
6113 Universities
6115 Technical and trade schools
813 Grant-making, civic, and professional organizations
911 Other federal services
912 Provincial and territorial public administration (9121 to 9129)
913 Local, municipal and regional public administration (9131 to 9139)
914 Aboriginal public administration

Appendix 4: Provincial results

The following shows the full results by Province for Jobs and GDP.

	Jobs (Low)		GDP (Low)	
Provinces	2024	2030	2024	2030
Canada	501,716	602,330	80,790,714	98,127,058
BC	80,818	97,025	$13,307,392	16,162,936
AB	57,715	69,289	$9,263,147	11,250,864
SK	9,854	11,831	$1,552,272	1,885,364
MB	14,525	17,438	$2,551,248	3,098,703
ON	217,419	261,020	$33,086,368	40,186,152
QC	94,512	113,466	$15,921,187	19,337,609
NB	8,217	9,865	$1,809,016	2,197,201
NS	10,376	12,457	$1,890,584	2,296,271
PEI	1,127	1,353	$186,981	227,104
NL	5,712	6,857	$959,479	1,165,367
YT	621	745	$119,594	145,257
NWT	539	647	$88,289	107,235
NU	281	338	$55,159	66,995

	Jobs (Moderate)		GDP (Moderate)	
Provinces	2024	2030	2024	2030
Canada	501,716	634,831	80,790,714	117,885,148
BC	80,818	102,260	$13,307,392	19,417,378
AB	57,715	73,028	$9,263,147	13,516,249
SK	9,854	12,469	$1,552,272	2,264,985
MB	14,525	18,379	$2,551,248	3,722,633
ON	217,419	275,104	$33,086,368	48,277,719
QC	94,512	119,588	$15,921,187	23,231,277
NB	8,217	10,397	$1,809,016	2,639,612
NS	10,376	13,129	$1,890,584	2,758,631
PEI	1,127	1,426	$186,981	272,832
NL	5,712	7,227	$959,479	1,400,016
YT	621	785	$119,594	174,504
NWT	539	682	$88,289	128,827
NU	281	356	$55,159	80,485

	Jobs (High)		GDP (High)	
Provinces	2024	2030	2024	2030
Canada	501,716	748,518	80,790,714	146,237,265
BC	80,818	120,573	$13,307,392	24,087,379
AB	57,715	86,106	$9,263,147	16,766,992
SK	9,854	14,702	$1,552,272	2,809,729
MB	14,525	21,671	$2,551,248	4,617,950
ON	217,419	324,371	$33,086,368	59,888,813
QC	94,512	141,004	$15,921,187	28,818,545
NB	8,217	12,259	$1,809,016	3,274,455
NS	10,376	15,480	$1,890,584	3,422,098
PEI	1,127	1,681	$186,981	338,450
NL	5,712	8,521	$959,479	1,736,729
YT	621	926	$119,594	216,474
NWT	539	804	$88,289	159,810
NU	281	420	$55,159	99,842

Appendix 5: Focus groups, interviews and surveys

To capture a diversity of perspectives across stakeholder groups and inform the analysis, the project included three qualitative methods: focus groups, interviews and surveys.

Qualitative Research Methods: We expected to recruit up to 40 Participants for the focus groups (we ended up recruiting 11 participants), and we included a wide range of experiences from key green building workforce sectors, such as:

- The public sector;
- The private sector;
- Design and construction sectors;
- Sustainable development sectors;
- Decarbonization sectors;
- Workforce development;
- Skilled-trade sectors; and
- Researchers.

Participants were selected based on their professional experience and/or affiliation(s). Although Participants may identify as part of an underrepresented group (which can helpfully inform their contributions), this research did not require Participants to have that or another analogous personal characteristic.

We were specifically looking for Participants who fell into one of two groups of industry professionals for the focus groups:

Group 1: Decarbonization pathways in construction. The central topic of discussion for this focus group was decarbonization pathways in Canada, and the goal was to seek recommendations and professional insight on the externalities that affect demand for, and supply of, skilled tradespeople. This group looked holistically at factors affecting decarbonization of the building sector, including: updates to the National Building Code and provincial adoption of the 2025 version; investor expectations related to environmental performance in the commercial real estate sector; other provincial and municipal building policies and incentives; and market demand for green building.

Group 2: Underrepresented groups in construction. The central topic of discussion for this focus group was on documenting existing strategies to support underrepresented groups in the green building workforce. The goal was to discuss existing and potential strategies and make recommendations for how to increase the participation and representation of underrepresented groups in the green building industry.

Focus groups

The research procedure included the following:

1. We conducted a focus group interview that lasted about one (1) hour. This session included questions focusing on the general questions/themes of the research. This allowed us to assess and propose ways forward for decarbonization pathway issues and the inclusion and participation of underrepresented groups in the green building workforce.
2. The focus group was conducted via Zoom. Zoom had implemented technical, administrative, and physical safeguards to protect the information provided via their internet services from loss, misuse, and unauthorized access, disclosure, alteration, or destruction. However, please be aware that no internet transmission can ever be fully secure or error free.
3. The focus group interview was audio recorded through Zoom to ensure an accurate capture of the information provided. If technical issues prevented a good quality recording of the session through Zoom, the interviewer(s) was to obtain the Participants' consent for using an alternative method instead.
4. The audio recordings were transcribed, with the final version de-identified to maintain confidentiality. Once a recording's transcription and de-identification was complete, the raw audio recording was deleted. The final de-identified versions of the focus group interview transcripts will be kept for at least six years as part of the Project's research data (as discussed below in the "Privacy and confidentiality" section).

Interviews

Semi-structured interviews were conducted with subject matter experts, industry leaders, government representatives, and academics. These interviews were designed to explore specific themes in greater depth—such as decarbonization scenarios, workforce projections, or training innovation—and to validate or challenge preliminary findings from the economic modelling and literature review.

Surveys

The survey gathered perceptions on labour market challenges, inclusion of underrepresented groups, best practices, and emerging trends. Most questions were closed-ended (e.g., multiple choice, scales), with a limited number of open-response questions to allow for deeper insight.

Appendix 6: Biographies

CAGBC – Researchers

Project Oversight

Laurna Strikwerda
Director of Project Development & Research
Canada Green Building Council (CAGBC)

Laurna Strikwerda leads CAGBC's research, partnerships, and capacity building efforts to advance green building in Canada. She has 15 years of experience advancing green building, sustainability and community engagement projects in Canada and the US. For this report, Laurna provided strategic guidance and project oversight, supporting the CAGBC team and project partners.

Principal Investigator

Divya Mallavarapu
Project Manager
Canada Green Building Council (CAGBC)

Divya Mallavarapu's work spans environmental design, curriculum and workforce development, and labour market inclusion research, with contributions to initiatives such as Solar Decathlon India and LEED India. She has over 14 years of experience in sustainability, energy efficient design, and project management. For this report, Divya led project management and research activities, supported data collection, and conducted stakeholder interviews and focus groups.

Delphi – Analysts and Economists

David Photiadis
Senior Director | Report Lead
Delphi

David Photiadis has over 15 years of experience advising governments, municipalities, and private-sector organizations on sustainability, ESG, and climate strategy. He combines strategic advisory expertise, management consulting experience, and strong analytical capabilities, and has led projects in ESG strategy, governance and risk assessment, GHG inventories, decarbonization pathways, net-zero target setting, climate risk and resilience analysis, biodiversity strategy, and ESG disclosure. As Report Lead, he directed the strategic approach, research design, and writing.

Eleanor Eden
Director | Contributing Economist and Director of Climate Risk & Sustainable Finance
Delphi

Eleanor Eden supports organizations in assessing, managing, and reporting on climate-related financial risks and developing strategies to strengthen long-term resilience and economic performance. She brings international expertise from her tenure at the Bank of England, where she contributed to climate risk quantification, risk management, disclosure, and regulatory initiatives, and from her work at Deloitte UK advising global financial institutions on climate risk modeling, scenario analysis, net-zero strategies, and transition planning. As a Contributing Economist, Eleanor provided economic analysis for this report.

Joanna Ah Yow
Analyst | Contributing Researcher/Analyst,
Delphi

Joanna Ah Yow specializes in climate and sustainability, providing research and analytical support across complex climate-related projects. Her multidisciplinary background in disaster response, recovery, and the lighting and construction industry gives her a practical, systems-oriented perspective on the built environment. For this report, Joanna conducted secondary research, data synthesis, and analytical support to inform the evidence base.

Kenneth White

Consulting Economist | Lead Economist,
Delphi

Kenneth White has extensive experience in economic analysis, econometric modelling, and socio-economic impact assessment related to climate change, clean technology, and industrial transformation. He has led or contributed to numerous studies, bringing deep expertise in supply chain analysis, alternative energy systems, and the cleantech economy, with project work spanning green buildings, renewable energy, bioproducts, biofuels, green chemistry, and more. For this report, Kenneh directed the economic modelling and analysis assessing the sector's economic contributions, innovation potential, and role in Canada's low-carbon transition.

Natalie Biringer

Contributing Researcher and Stakeholder Engagement Lead
Delphi

Natalie Biringer brings six years of experience delivering climate and sustainability projects across corporate, public, and non-profit sectors in Canada and internationally. She specializes in stakeholder engagement, climate transition planning, and clean technology adoption, and brings additional expertise in sustainable procurement and low-carbon mobility through multi-stakeholder and international collaboration initiatives. For this report, Ms. Biringer conducted secondary research and led stakeholder engagement to ensure industry, policy, and market perspectives informed the analysis.

GLOSSARY

Decarbonization: In the context of buildings, this term refers to reducing or eliminating carbon dioxide emissions and other GHGs produced by a building.

Decarbonization Pathways: As defined in the participant consent forms: “Decarbonization pathways refer to shifting technology and energy systems from fossil fuels to renewables, aiming to meet emissions targets in construction.” A more detailed definition used in this report is as follows: Decarbonization pathways are trajectories for different levels of low carbon activity in the green building sector over time that contribute to lowering the total greenhouse gas emissions of Canada’s building sector (‘decarbonization’). Pathways entail a holistic examination of factors affecting decarbonization of the building sector, including polices and market conditions such as: updates to the National Building Code and provincial adoption of the 2025 version; investor expectations related to environmental performance in the commercial real estate sector; other provincial and municipal building policies and incentives; and market demand for green buildings. These pathways in turn affect demand for, and supply of, skilled tradespeople.

Deep Energy Retrofit: A comprehensive and extensive renovation or upgrade of a building’s systems, equipment, and enclosure with a focus on energy efficiency and emission reduction.

Electrification: The replacement of systems that use fossil fuels (natural gas or fuel oil) with those that use electricity as their energy source.

GDP: A standard macroeconomic indicator representing the total monetary value of all final goods and services produced within a country’s borders over a specified period. In this report, GDP refers to the aggregate value of economic output in a given country or region over a set time period, expressed in monetary terms, and used to compare market size and growth.

Green Building: A green building is any new or existing building that is designed, constructed and/or renovated and operated to achieve clearly defined environmental and other sustainable objectives that are measurably above code, often adhering to industry standards (e.g., LEED®), stepped or tiered codes, and green building policies. Further, a new or existing green building typically has one or more of the following attributes:

- Reduced GHG emissions from building construction and operation
- Efficient use of energy, water and other resources
- Use of renewable energy, such as solar energy
- Pollution and waste reduction measures, and the enabling of re-use and recycling
- Excellent indoor air quality
- Use of non-toxic, ethical, and sustainable materials
- Consideration of occupant quality of life in design, construction, and operation
- Adaptable to a changing environment
- Consideration for additional environmental outcomes.

Induced Impact: Induced impact refers to economic effects, including job creation, that occur in the broader economy as a result of household spending by workers employed in the green building industry. These impacts arise from wages spent on goods and services such as housing, food, transportation, and healthcare, and are distinct from direct impacts associated with green building jobs and indirect impacts generated through the green building supply chain.

Intensity Ratios: Intensity ratios represent the estimated percentage of each industry that can be assumed as being dedicated to green building activity as defined in this research. These intensity ratios were developed for each industry that comprise Canada's full green building sector value chain according to its North American Industry Classification System (NAICS111) code at the three- or four-digit level. Provincial nuances were factored into the intensity ratios. Intensity ratios were then applied to each of these NAICS codes to estimate green building jobs and GDP by province or territory from total employment for each subsector.

Net-Zero Energy-Ready (NZER): Refers to buildings designed and constructed to achieve net-zero energy performance. They rely on a strong envelope – tight air sealing, better insulation, and efficient windows and doors – to cut heat loss and make it possible to use smaller, more efficient heating and hot water equipment, and typically have infrastructure ready for on-site renewable energy integration like solar panels.

SME: Denotes Small and Medium-sized Enterprises (between one to 499 paid employees) – key players in green building supply chains.

Underrepresented Groups: For the purposes of this study, underrepresented groups consist of women, youth, LGBTQ2S+ individuals, Indigenous peoples, racialized communities, and newcomers to Canada.

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