



Ecology
Action
Centre

Building Nova Scotia's Green Workforce:

*Addressing Labour Gaps
for a Net-Zero Future.*

Ecology Action Centre

TABLE OF CONTENTS

Acknowledgements 3

Executive Summary 4

Section 1: Introduction 5

Section 2: Methodology 7

Section 3: Literature Review..... 8

Section 4: Job Forecasts for Meeting Net-Zero Target..... 11

Section 5: Pathways to Education & Training 18

Section 6: Key Findings 20

Section 7: Policy Recommendations..... 23

Appendix A..... 29

Appendix B 32

1. Employment Projections: Scenario 1 32

2. Employment Projections: Scenario 2 34

3. Employment Projections: Scenario 3 36

Gaps For Scenario 1, 2, and 3 38



ACKNOWLEDGEMENTS

ASBB Economics and Research Ltd. would like to extend our sincere gratitude to all those who contributed to the development of this report. We acknowledge the valuable insights and collaboration provided by the Ecology Action Centre's (EAC) Energy & Climate team, whose expertise and feedback were instrumental in shaping our analysis.

We also extend our appreciation to the industry experts, policymakers, and training institutions who shared their perspectives and data, helping to enrich our understanding of Nova Scotia's labour market trends and workforce challenges.

A special thanks to the steering committee for invaluable contributions, expertise, and commitment to fostering a sustainable and inclusive labour market.

We also extend our gratitude to the students and other participants who took part in the surveys. Your input provided crucial insights that helped shape this report's findings and recommendations.

Finally, we recognize the skilled trades professionals and workers in Nova Scotia whose commitment and adaptability are key to achieving the province's energy efficiency and net-zero goals.

EXECUTIVE SUMMARY

This report examines Nova Scotia's workforce readiness for energy-efficient building retrofits, a critical component in achieving the province's net-zero targets. It explores labour market trends, workforce shortages, and training gaps while identifying opportunities to build a skilled workforce. The analysis is based on industry data, key-informant interviews, and job forecasting.

KEY FINDINGS:

- **Aging Workforce & Labour Shortages:** Over 35% of the workforce in energy-efficient retrofits is aged 55+, with major shortages expected in carpentry, HVAC, and electrical work. Too few workers are entering these fields, with low graduation rates at just 5.8% for electricians and 2% for carpenters—far below industry demand.

- **Diversity Gaps:** In Nova Scotia, women represent less than 12% of workers in primary professions required for retrofits and less than 7% of secondary professions required for retrofits.

Women represent less than 10% of workers in key retrofitting professions, with electricians and plumbers having as few as 1–3% women participation. Black, Indigenous, and People of Colour (BIPOC) are also underrepresented, making up less than 5% of many trades despite comprising 9.8% of Nova Scotia's population.

- **Job Demand & Workforce Gaps:** Strong demand is projected for construction managers, electricians, ironworkers, and plumbers due to increasing energy efficiency investments. However, by 2030, shortages of 7,010 carpenters and 4,292 electricians are expected, creating potential bottlenecks in retrofitting projects.

- **Policy Uncertainty:** Nova Scotia plans to adopt Tier 3 building codes by 2029 but has not established a timeline for Tiers 4 and 5, despite a 2030 federal agreement. This lack of clarity may affect industry stability and job growth.

- **Training & Education Gaps:** Current programs are insufficient to meet industry demands, and apprenticeships are lagging. Rural and Indigenous communities face limited training access, reducing their participation in energy efficiency jobs.

WORKFORCE CHALLENGES & SOLUTIONS:

To address these labour gaps, Nova Scotia must expand apprenticeships, increase vocational funding, and promote inclusive workforce participation. Strengthening policy commitments, accelerating Tier 4 and 5 adoption, and fostering industry collaboration will be critical to building a resilient labour market capable of supporting the province's energy transition.

SECTION 1: INTRODUCTION

CONTEXT:

Achieving Nova Scotia's ambitious climate goals—80% renewable energy by 2030 and net-zero electricity emissions, by 2050—requires significant progress in energy efficiency, particularly in reducing building-related emissions.

According to an [Atlantic Economic Council](#) report, approximately 41,000 homes and 2 million square meters of commercial space will require upgrades in the Atlantic region annually until 2040, at an estimated cost of \$1.5 billion. [Pembina Institute's 2021 report](#) estimates that in Nova Scotia about 16,500 homes, and several commercial properties will require upgrades at an estimated cost of approximately \$0.6 billion annually.

Several challenges limit progress: a shortage of skilled workers, outdated building codes, barriers to workforce participation, and an aging population.

In laying the groundwork for strengthening the local economy in Nova Scotia, this report aligns with the key priorities outlined in [Nova Scotia's 2025-26 budget](#). It outlines opportunities to uplift equity-deserving communities in skilled trades. It supports **making life more affordable** via the expansion of capacity in the construction sector to build energy-efficient housing and complete energy retrofits to lower energy bills. Reducing emissions also plays a vital role in **building a healthy population**, as cleaner air and greener electricity contribute to public health while mitigating the impacts of climate change.

¹ In this report, gender diversity is represented by accounting for individuals who identify as men, women, or non-binary. To protect confidentiality due to the small size of the non-binary population, data for non-binary persons is combined with the other two gender categories, ensuring inclusivity while maintaining privacy.

On February 19, 2025, the government of [Nova Scotia introduced legislation](#) aimed at addressing worker shortages and establishing consistent governance standards across universities. While these measures hope to align educational offerings with provincial objectives, it remains uncertain whether they will solve the existing workforce gaps.

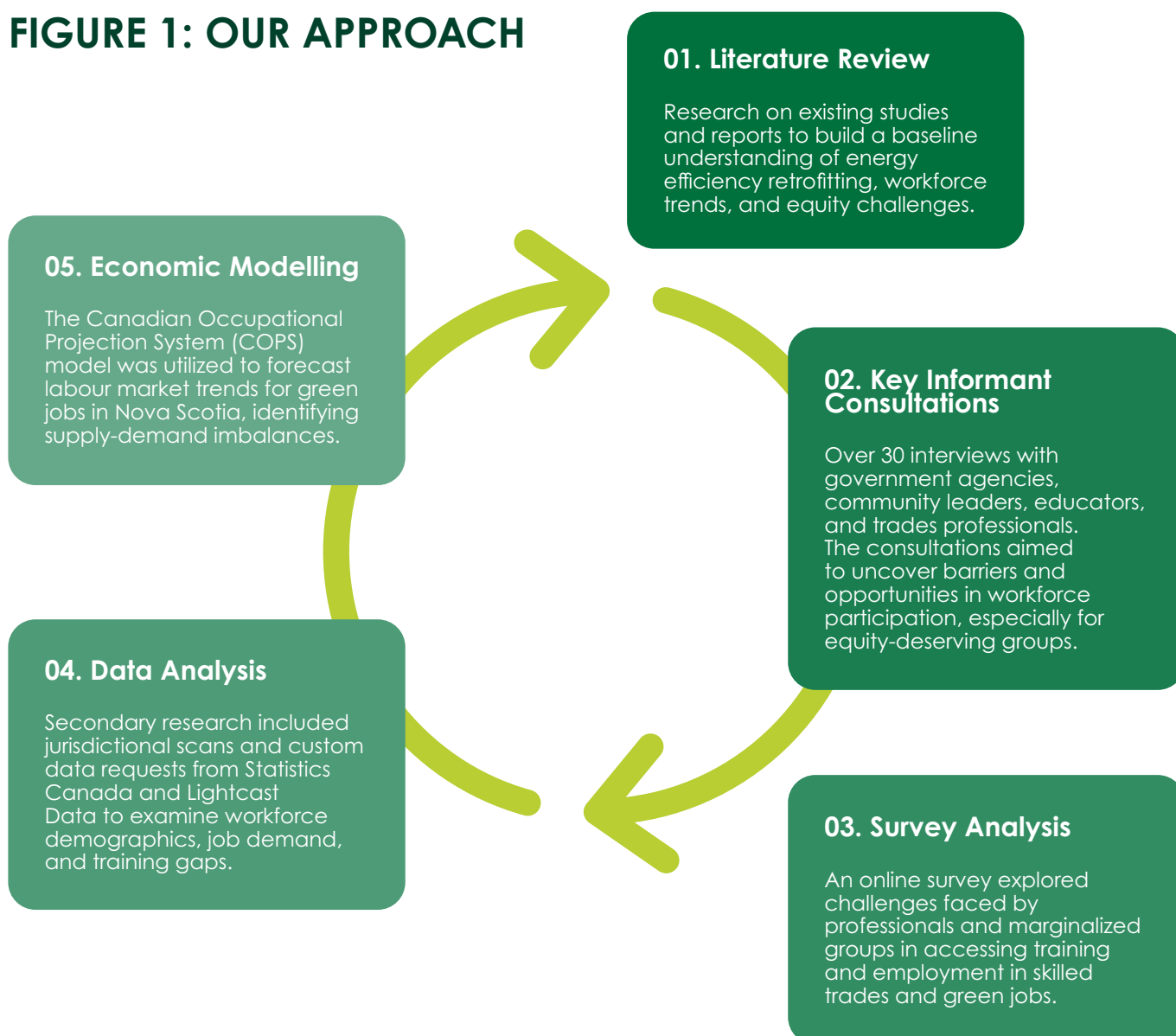
The global market for clean energy technologies is expanding rapidly, surpassing US\$700 billion in 2023. Clean technology investments also rose by 50% to US\$235 billion, representing almost 10% of global investment growth ([Environment and Climate Change Canada, 2025](#)). This is why it is important that Nova Scotia doesn't stay behind in the global efforts to improve energy efficiency.

PROJECT OBJECTIVES:

This report investigates the barriers, solutions, and socioeconomic implications of developing the workforce and skills needed for Nova Scotia's energy transition. It focuses on developing an understanding of Nova Scotia's national position in energy efficiency, identifying the key challenges to develop workforce capacity, and providing clear recommendations for policy makers. The research is centred primarily on residential and commercial energy retrofits.

Figure 1 below, is an overview of ASBB's approach to the research.

FIGURE 1: OUR APPROACH



SECTION 2: METHODOLOGY

This study employed a three-phase methodology: literature review, secondary research, and key informant consultations, to understand barriers to energy efficiency implementation in Nova Scotia's building standards, focusing on retrofits and challenges in skilled trades and green jobs.

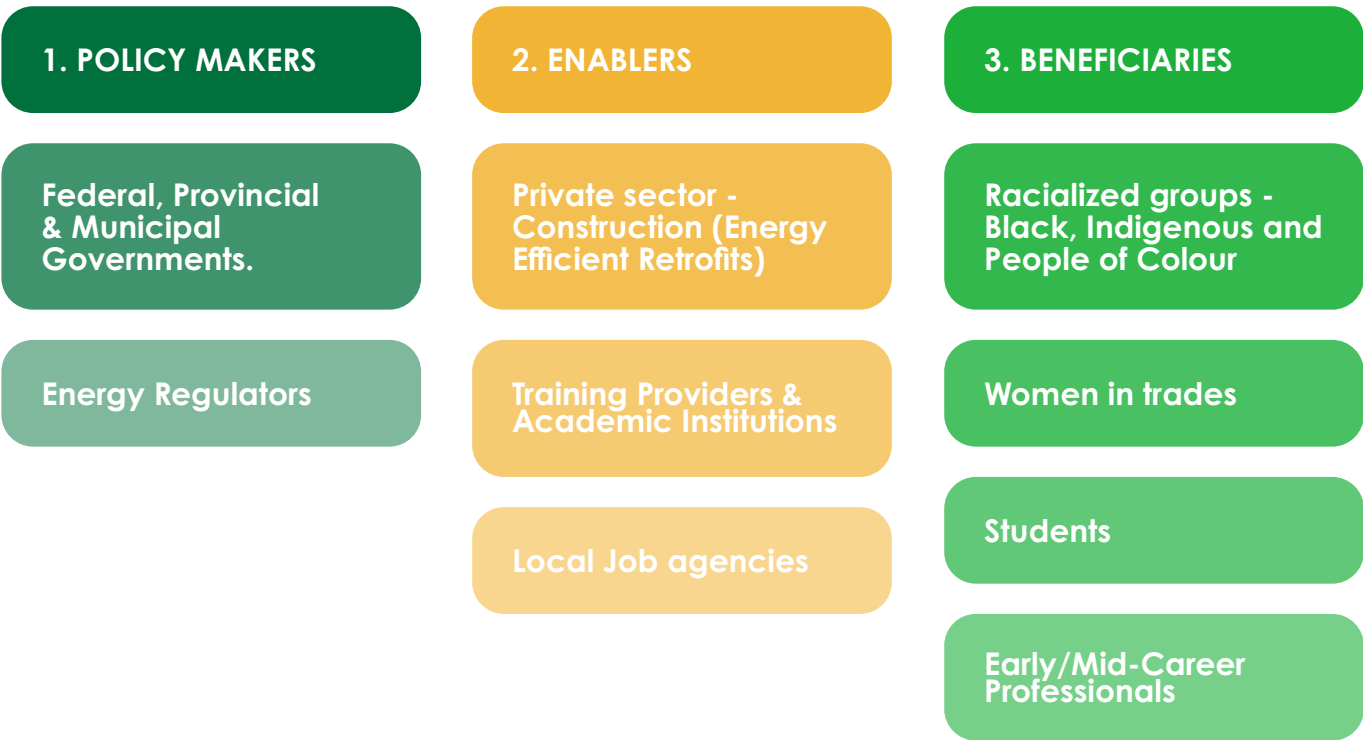
Phase 1: Literature Review: A steering committee of energy and industry experts was assembled to identify and review key literature, current challenges and knowledge gaps. Industry publications (e.g., BuildForce Canada, Canadian Coalition of Women in Engineering, Science, Trades and Technology (CCWEST), YWCA Halifax) and Canadian energy efficiency programs informed this phase (e.g., CleanBC, Plan for a Green Economy QC).

Phase 2: Secondary Research: Background reviews and jurisdictional scans of energy efficiency and equity initiatives helped identify key programs across Canada. Statistics Canada and Lightcast data supplemented findings and were used to forecast demand for critical occupations for retrofits.

Phase 3: Key Informant Consultations: To verify individual opinions reflecting the changes in job demand, we consulted with key informants from diverse groups listed in Figure 2 below. We conducted over 30 interviews and one survey, targeted to the "beneficiaries" category, which had 78 respondents. These consultations highlighted gaps in energy efficiency, skilled trades, and green jobs awareness.

Figure 2 below, summarizes all the informant categories consulted during this research.

FIGURE 2: SUMMARY OF KEY GROUPS CONSULTED



SECTION 3: LITERATURE REVIEW

3.1 PURPOSE AND SCOPE

This literature review examines governmental reports, academic research, and public policy studies relevant to Nova Scotia's energy transition and net-zero objectives, focusing on energy efficiency retrofitting. Primary objectives:

1. Assess job market impacts, including job creation and displacement.
2. Address barriers and opportunities for equity-deserving communities.
3. Identify resources available for education, training assets, and knowledge gaps.
4. Investigate resources and skills needed for net-zero retrofits and building construction.

3.2 BACKGROUND ON ENERGY EFFICIENCY & RETROFITS

Importance of Retrofitting: Achieving Nova Scotia's net-zero targets by 2050 demands significant retrofitting of older buildings, with about 21% of the housing stock constructed before 1960. Older homes, which are less energy-efficient, contribute to higher GHG emissions making retrofitting critical ([Atlantic Economic Council, 2024](#)).

RETROFIT CATEGORIES:

Minor: Low-cost adjustments like sealing and insulation.

Major: Larger upgrades, including HVAC and energy management systems.

Deep: Comprehensive overhauls that can reduce energy costs by up to 60% including roof replacement, window installation, significantly interior reconfiguration, and HVAC upgrades ([Natural Resources Canada](#)).

Costs and Challenges: Annual retrofitting requirements in the Atlantic region include 41,000 residential units and 2 million square metres of commercial space, costing approximately \$1.5 billion annually until 2040. On average residential retrofits cost \$56,000-\$96,000 for detached housing and \$33,000-\$43,000 per unit for apartments. Commercial retrofit costs vary from \$250 to \$500 per square meter. Challenges include a lack of data standardization, outdated housing stock, and limited workforce capacity. Despite the added cost – up to 8-9% higher – constructing new buildings to net-zero standards is essential, with the added benefit of annual savings of about 24% due to lower energy bills and operating costs. These savings can be generated because the highest tier of the 2020 NBC results in buildings that are over 70% more energy efficient than those built to the 2015 NBC standard ([Atlantic Economic Council, 2024](#)).

3.3 WORKFORCE IMPACTS: JOB GAINS AND LOSSES

Job Creation: There is a projected increase in demand for skilled labour in retrofitting and renewable energy sectors to meet Nova Scotia's targets of 80% renewable energy by 2030 ([NSPower, 2024](#)).

- By 2033, Nova Scotia will require 10,600 additional workers in the construction industry due to retirements and new project demands. This takes into consideration the expected 8,200 workers, about 22% of the 2023 construction labour force, who are expected to retire, and the 7,400 new entrants to the industry ([BuildForce Canada, 2024](#)).
- Green jobs in Nova Scotia are projected to require approximately 3,190 new green job positions by 2033, with significant roles in energy efficiency and renewable energy projects, and an additional 11,720 job openings due to retirements ([ECO Canada, 2024](#)).

Job Displacement: A shift to lower emission-intensive industries and away from traditional non-renewable energy sources has been a big driver of change.

- The Information and Communications Technology Council (ICTC) predicts significant job losses in Canada's traditional energy sectors like fossil fuels and coal mining by 2050. Employment in the industry is projected to decrease by up to 9% by 2030. By 2050, 50-70% of oil and gas jobs (approximately 312,000 to 450,000 people) could be eliminated. (Clark, A. and Matthews, M., [Clean energy and pathways to net-zero, 2023](#)).
- Emission-intensive goods-producing industries in Nova Scotia have shifted towards providing services that are less emission-intensive. Between 2005-2018 most of Nova Scotia's GDP growth came from the service industry, while the oil and gas sector fell by 87%, coal mining by 84%, and forestry and logging by 42% ([Canadian Climate Institute, 2020](#)).

3.4 TRAINING & SKILLS DEVELOPMENT

Training Needs: In Nova Scotia, the adoption of more ambitious energy-efficient building codes and standards is a big driver of the demand for skilled workers.

- It's crucial to accommodate workers who are already employed full-time, as a big portion of the job gap will be filled by their upskilling. Specialized training for green construction workers, including flexible options like micro-credentials, is essential to meet new demands ([Atlantic Economic Council, 2024](#)).
- Programs like "[Building it Green](#)" and "[Quick Train Canada](#)" aim to prepare workers for energy-efficient practices and retrofitting.

Barriers to Participation: Post-pandemic levels of apprentice enrolment and graduation might impact long-term needs, while people from equity-deserving groups continue to face structural barriers to succeeding in the workforce.

² The Environmental Goals and Climate Change Reduction Act sets ambitious greenhouse gas emissions reduction targets: 1) Reduce greenhouse gas emissions by 53% below 2005 levels by 2030. 2) Achieve net-zero greenhouse gas emissions by 2050.

³ [Canada Green Building Council](#), 2019, Making the Case for Building to Zero Carbon.

⁴ [Canadian Home Builders Association](#), 2018, A study by Industry for Consumers.

⁵ Nova Scotia is working toward 80% renewable energy by 2030. These are targets set by the federal and provincial government.

- Low apprenticeship rates during 2019-20 may result in an insufficient number of newly certified journeypersons to sustain the requirements over the long run despite recent upward trends in completion rates ([BuildForce Canada, 2024](#)).

- Increasing the participation of traditionally underrepresented groups in the workforce can help mitigate labour shortages in the skilled trades. Participation can be promoted by reducing harassment levels, providing more accessible facilities in worksites, supplying Personal Protective Equipment (PPE) that fits more body types, and other initiatives ([CCWEST, N/A](#)).

Opportunities: Current and future targeted retraining for net-zero building projects in Nova Scotia could significantly benefit smaller and rural communities, particularly Indigenous populations, where unemployment remains high.

- In 2016, the Eskasoni First Nation in Cape Breton had the highest unemployment rate in the province at 26%. The same year, in the Atlantic Region, the unemployment rate of Indigenous people was over 18% compared to 15% nationally ([Canadian Climate Institute, 2020](#)).



SECTION 4: JOB FORECASTS FOR MEETING NET-ZERO TARGET

4.1 WORKFORCE COMPOSITION AND CHALLENGES

Nova Scotia's retrofitting related construction sector is facing significant workforce challenges, primarily due to an aging labour pool, low new entrant rates, and underrepresentation of certain demographic groups.

Aging Workforce: Over **35% of skilled trade workers** are over the age of 55, posing an imminent replacement challenge. The highest attrition risks exist in carpentry, electrical, and HVAC trades. Without targeted workforce renewal, these shortages could slow down retrofitting projects and impact Nova Scotia's energy efficiency goals.

New Entrants Deficit: Graduation rates in key trades cover only **2-10% of workforce needs**. This gap signals a long-term labour supply issue. Carpenters see a **2% replacement rate**, while electricians fare slightly better at **5.8%**. The lack of a robust talent pipeline threatens the sector's ability to scale up energy efficiency initiatives in line with provincial targets.

Diversity and Inclusion Deficiencies: The sector continues to suffer from demographic imbalances. Women account for only **3% of electricians and 1% of plumbers**, while Black, Indigenous and People of Colour (BIPOC) represent **less than 5%** of skilled trade workers. Without increased inclusivity, the sector is missing out on potential sources of talent that could alleviate labour shortages.

4.2 PROJECTED GROWTH AND INDUSTRY TRENDS

Despite workforce challenges, Nova Scotia's retrofitting industry is poised for continued expansion, driven by government incentives, infrastructure investments, and climate-focused policies.

Sustained Job Growth: Residential and non-residential construction (including retrofitting-related construction) is expected to grow at **1-2% annually** post-2025, ensuring steady demand for skilled trades.

Emerging Job Opportunities: Retrofitting efforts will fuel high demand for **HVAC specialists, electricians, and building-finishing trades**, given the province's commitment to energy efficiency measures.

Declining Roles: Traditional facility operation managers and manual labour roles may experience **declines** due to increased automation and prefabrication trends, shifting labour needs toward specialized technical roles.

4.2 BASELINE RESULTS

Table 1 provides a straightforward job forecast for Nova Scotia's retrofitting sector from 2024 to 2030, based on current job demands and listings. This forecast uses lightcast data to predict employment trends across various construction-related roles. It shows a general increase in demand for skilled labour, especially for positions like construction managers, carpenters, and HVAC mechanics. For example, the number of construction managers is expected to grow from 2,049 workers in 2024 to 2,151 by 2030, indicating a need for more oversight in housing and infrastructure projects. Carpenters are also expected to rise from 5,134 to 5,404 workers, driven by ongoing construction work.

On the other hand, welders are expected to see a slight decline in their numbers, decreasing from 2,147 in 2024 to 2,131 in 2030, likely due to more prefabricated parts being used in construction, which require less on-site welding. Similar growth is expected for heavy equipment operators and electricians, with their numbers increasing to meet the needs of large-scale construction and electrical projects.

Plumbers are also projected to increase from 1,425 in 2024 to 1,521 by 2030, as demand for efficient water systems in new and renovated buildings continues. Small increases are noted for roles like construction helpers and labourers, emphasizing the steady need for support in the construction industry.

Additionally, technical roles such as electrical engineers, construction estimators, and regulatory officers are expected to see modest increases, highlighting the need for precise skills in project estimation and compliance. Overall, this forecast reflects the growing labour market in Nova Scotia's construction sector, driven by current job demands and ongoing construction and retrofitting projects.



TABLE 1: JOB FORECASTS BY MAJOR NOCS IN NS'S RETROFITTING SECTOR (2024-2030)

NOCs	Description	2024	2025	2026	2027	2028	2029	2030
70010	Construction managers	2,049	2,051	2,077	2,088	2,113	2,128	2,151
72310	Carpenters	5,134	5,220	5,296	5,346	5,361	5,381	5,404
72106	Welders and related machine operators	2,147	2,139	2,136	2,135	2,135	2,131	2,131
72402	Heating, refrigeration and air conditioning mechanics	1,213	1,235	1,257	1,285	1,309	1,331	1,352
73400	Heavy equipment operators	2,358	2,384	2,430	2,468	2,490	2,505	2,526
72200	Electricians (except industrial and power system)	2,821	2,856	2,901	2,946	2,986	3,025	3,068
72300	Plumbers	1,425	1,443	1,463	1,482	1,496	1,509	1,521
75110	Construction trades helpers and labourers	4,269	4,268	4,285	4,309	4,326	4,348	4,374
21310	Electrical and electronics engineers	706	704	706	707	710	711	712
22303	Construction estimators	417	417	418	421	423	425	427
22231	Engineering inspectors and regulatory officers	214	216	218	221	223	225	227

To better understand potential changes in job demand within the retrofitting sector, ASBB constructed three scenarios to predict a more accurate job forecast based on anticipated changes.

4.3 LABOUR DEMAND SCENARIOS (2025-2031) & RESULTS

This analysis evaluates labour demand growth for selected NOCs under three scenarios:

1) Scenario 1 (Immediate adoption of Tier 1 of the 2020 NBC): This business-as-usual scenario analyzes housing supply and demand under current market conditions. It assumes the 2020 National Building Code (NBC) is in place, with construction companies building to Tier 1 standards starting April 1, 2025. Tier 1 maintains existing energy performance standards without mandating higher efficiency. Scenario 1 represents the current trajectory without significant policy or industry disruptions.

2) Scenario 2 (Immediate adoption of Tier 5 of the 2020 NBC): This scenario explores the impact of immediately adopting the highest efficiency standards from the 2020 National Building Code (and provincial commitments to Net-Zero Buildings/Retrofits). Under this approach, all new buildings would be constructed to Tier 5, achieving 80% greater energy efficiency than the current minimum requirements. It does not include mandatory alterations to existing buildings through retrofits. Scenario 2 assumes that federal and provincial governments prioritize stimulus spending on green building initiatives.

3) Scenario 3 (Immediate adoption of the 2025 NBC): This scenario evaluates the effects of immediately adopting a more strict 2025 federal energy efficiency standard. The 2025 National Building Code (NBC) is expected to build upon previous energy efficiency requirements while introducing important changes, including the Alterations to Existing Buildings (AEB) Code, which extends standards beyond new construction to existing buildings. Additionally, it incorporates measures to reduce operational GHG emissions, which are those produced during the building's use phase.

Growth rates were adjusted based on historical trends, forecasted labour demand, and scenario-specific impacts, with adjustments tailored by NOC category.

The scenarios were based on insights from key reports that provided crucial context for labour market trends. [The Net Zero Buildings Report](#) highlighted challenges related to retrofitting and regulatory compliance. [The Nova Scotia Construction & Maintenance Report](#) offered data on labour shortages in the industry. The Step Code Costing Report detailed how energy efficiency standards impact labour demand. Finally, the [National Labour Market Report](#) provided a broader perspective on workforce trends in the transition to a green economy. We describe the scenarios briefly below.

Baseline Growth Rates (Status Quo): The baseline growth rate is calculated by taking the difference between the projected employment in 2031 and the employment level in 2024. This difference is then divided by the 2024 employment level and multiplied by 100 to express the growth rate as a percentage. This baseline reflects trends before applying the scenarios below.

Scenario Descriptions and Adjustments:

Scenario 1: (Tier 1 of the 2020 NBC): This business-as-usual scenario represents the current trajectory without significant policy or industry disruptions.:

- 10–15% for construction and technical roles, driven by extensive retrofitting needs as per adopting the [2020 federal building standards](#).
- 5% for administrative roles, reflecting indirect impacts of demand.

Scenario 2 (Tier 5 of 2020 NBC): Addresses projected labour shortages in trades and skilled roles due increased energy efficiency requirements.

- 15% for trades, where shortages are critical (e.g., carpenters, welders).
- 10% for technical roles and 5% for administrative roles.

Scenario 3 (Immediate adoption of 2025 NBC): Reflects stricter standards requiring advanced skills and technologies due to adopting [2025 Federal standards](#) which have higher technical requirements in GHG emissions and alterations to existing buildings (AEB). (Speculative)

- 20–25% for construction and engineering roles due to increased technical complexity.
- 10% for administrative roles to support compliance and communication efforts.

Scenario 1: Adopting Tier 1 of the 2020 National Building Code

Under Scenario 1, the labour market from 2025 to 2031 reveals critical demand gaps and the need for strategic workforce planning. Notably, there is a strong growth forecast in specialized energy-efficiency trades: the need for electricians is projected to grow by 8.8%, HVAC mechanics by 11.1%, and plumbers by 6.1%. The demand gap in the retrofitting sector highlights an increasing need for professionals proficient in advanced electrical systems, high-efficiency HVAC systems, and sustainable plumbing. This surge in demand is predicted due to stricter regulatory requirements (2020 Federal Standards) and a shift towards more sustainable building practices.

Conversely, traditional roles such as bricklayers and electrical power line workers are expected to decline by 10.8% and 7.7%, respectively, suggesting a move away from older, more labour-intensive construction practices towards technologies that are more efficient and less reliant on manual labour.

The sector also anticipates moderate growth in supervisory and structural roles, with construction managers and ironworkers seeing increases of 5.8% and 10.2% as more projects ramp up in the retrofitting related construction sector. This growth reflects the need for more project oversight and expert coordination in increasingly complex and compliance-heavy retrofitting projects. However, the demand for these supervisory roles is not as high as for technical specialists, pointing to a potential need for developing leadership and project management skills among existing workers.

Moreover, significant increases in demand for roofers, steamfitters, and plasterers—ranging from 7.5% to 14%—further highlight the expanding scope of retrofitting projects that require advanced technical skills for energy-efficient installations and interior upgrades. To address this, there is a call for targeted training and education to not only improve the skills of current workers but also to attract new talent. The sector needs a comprehensive workforce development strategy that includes retraining, recruiting, and educational efforts to bridge labour gaps and meet the rising focus on sustainable and energy-efficient building practices.

For detailed results on the number of forecasted professionals related to the retrofitting sector please refer to Appendix B for [Scenario 1](#).

Scenario 2: Natural Workforce Expansion Due to Increased Provincial Demand (Tier 5 of 2020 NBC)

Under Scenario 2, the labour market reflects diverse trends across various construction and trade sectors between 2025 and 2031. High-demand trades such as electricians, HVAC mechanics, and plumbers are set to experience substantial growth due to infrastructure expansions, renewable energy projects, and urban development which demands advanced skill sets for energy-efficient systems and net-zero retrofits. Specifically, electricians are expected to see an 8.8% increase in employment, HVAC mechanics 11.1%, and plumbers 6.1%. Supervisory and structural roles like construction managers, contractors, and ironworkers are also predicted to expand, reflecting the need for effective leadership and coordination in increasingly complex projects.

Additionally, specialized trades like carpenters, steamfitters, and roofers are anticipated to grow due to strong demand in housing, and commercial building projects, and adaptations to extreme weather conditions. Overall, the labour market under Scenario 2 indicates a significant shift towards specialized skills and leadership roles in construction, emphasizing the critical need for training and apprenticeships to address potential labour shortages and support sector growth.

For detailed results on the number of forecasted professionals related to the retrofitting sector please refer to Appendix B for [Scenario 2](#).

Scenario 3: 2025 National Building Code Adoption (Aggressive Growth)

Scenario 3 anticipates significant shifts in the labour market due to the adoption of the 2025 Federal Energy Efficiency standards, which mandate stricter technical requirements. This scenario reflects an increased need for advanced skills and technologies, particularly in construction and engineering roles, as these standards introduce higher specifications for building efficiency, renewable energy integration, and advanced infrastructure systems. The demand for skilled workers in energy-efficiency trades such as electricians, HVAC mechanics, and plumbers is projected to rise significantly—8.7%, 11.1%, and 6.1% respectively—due to requirements for smart grid technologies, high-efficiency HVAC systems, and advanced water conservation technologies.

Additionally, the complexity and regulation-heavy nature of projects under these new standards are set to increase demand for supervisory roles, with construction managers and contractors expected to see growth rates of 5.8% and 3.6%, respectively. These professionals are essential for overseeing high-efficiency projects and ensuring compliance.

Furthermore, the standards have catalyzed growth in retrofit-specific trades such as roofers, steamfitters, and plasterers, who are crucial for updating existing structures to meet new energy standards. This involves the installation of specialized insulation materials, energy-efficient roofing, and advanced mechanical systems. Administrative roles are also seeing a boost, with a 10% increase to support the enhanced compliance and communication efforts required by these rigorous standards.

For detailed results on the number of forecasted professionals related to the retrofitting sector please refer to Appendix B for [Scenario 3](#).

4.4 KEY LABOUR MARKET GAPS

Immediate Workforce Gaps: The most pressing labour shortages exist in carpentry, electricians, and HVAC mechanics, all of which are critical to large-scale retrofitting projects.

Workforce Aging Risk: With over a third of the workforce nearing retirement, Nova Scotia faces significant knowledge and skills loss unless new training and recruitment strategies are implemented.

Diversity Challenges: The continued underrepresentation of Women, Black, Indigenous, and People of Colour (BIPOC) within the trades limits the available talent pool, exacerbating workforce shortages.

For the detailed labour market gaps please refer to [Appendix B under gaps](#).



SECTION 5: PATHWAYS TO EDUCATION & TRAINING

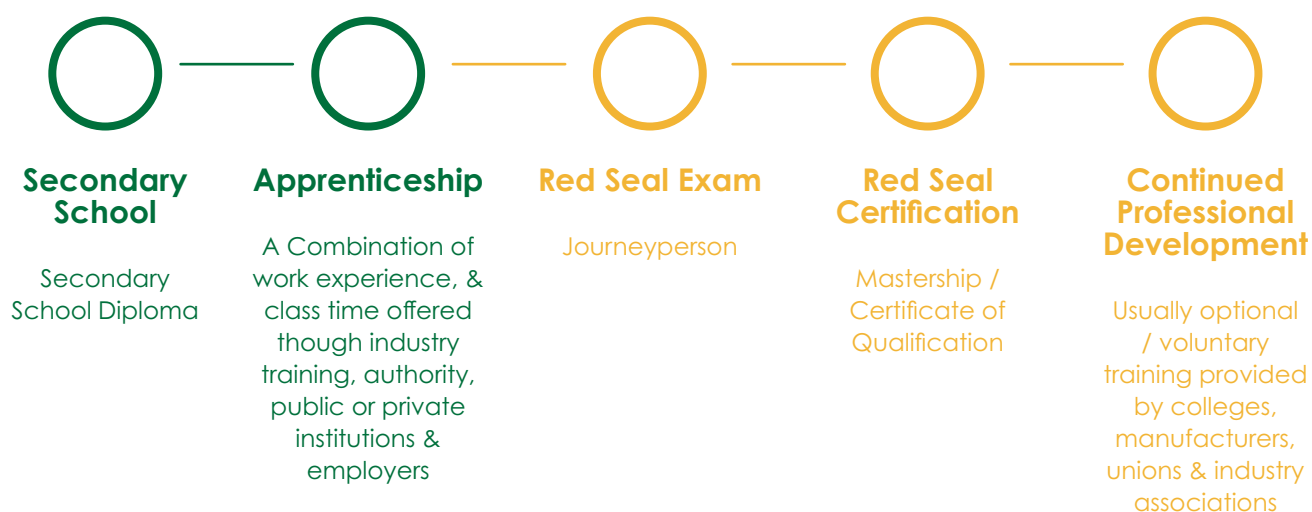
5.1 MAPPING OF PATHWAYS TO EDUCATION

University and apprenticeship programs in Nova Scotia, including Nova Scotia Community College (NSCC), offer limited specialized training in energy efficiency, low-carbon materials, and sustainability needed for green retrofits and net-zero buildings. This puts pressure for the construction sector to rely on voluntary continuation of professional development for its workforce, leading to inconsistent skill adoption. There is an opportunity to integrate green-energy training in curriculums and to develop shorter programs to meet the growing demand.

While apprenticeship training is managed by the Nova Scotia Apprenticeship Agency (NSAA) and delivered through NSCC, core trades programs are separately designed and delivered by NSCC. Expanding sustainability-focused content in both pathways will be essential to equipping workers with the skills needed for the green transition.

Figure 3 below, is an overview of a common education pathway for construction trades.

FIGURE 3: COMMON EDUCATION PATHWAYS FOR CONSTRUCTION TRADES



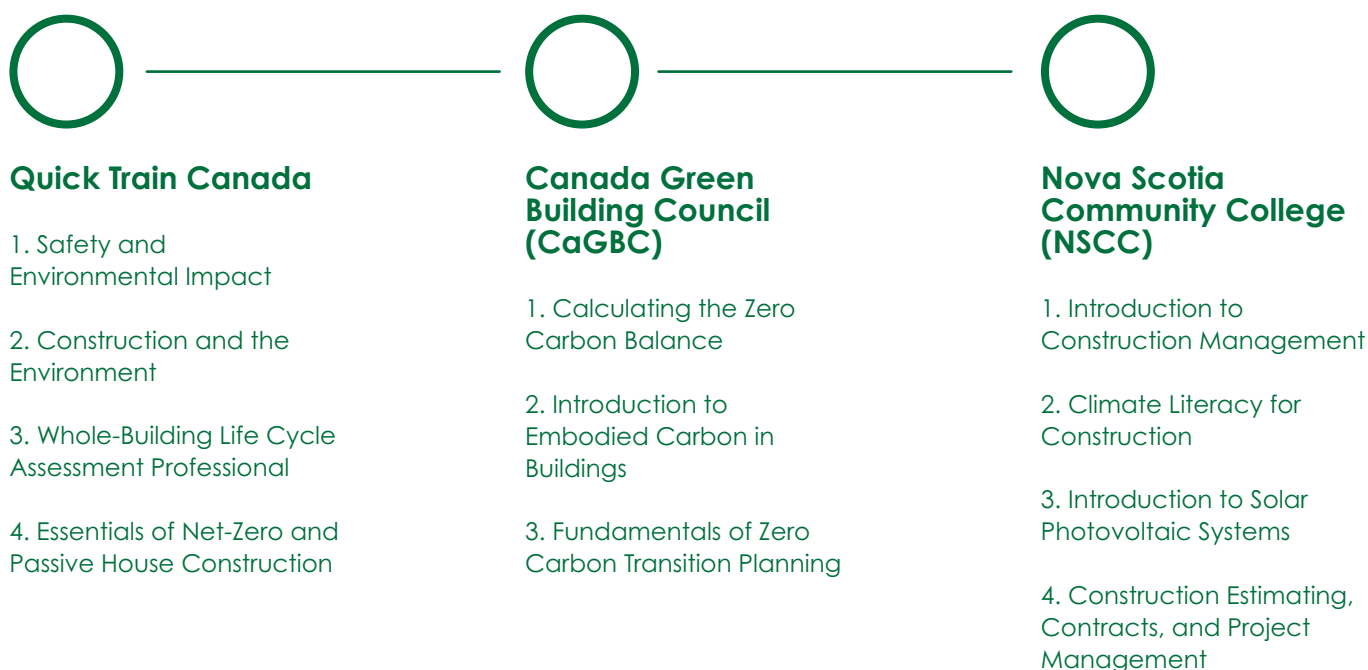
5.2 MAPPING OF TRAINING ASSETS FOR NEW AND UPGRADING WORKERS

Key Skills for Energy Efficiency Retrofits:

- Building Science (insulation, air sealing, HVAC retrofits)
- Energy-Efficient Technologies (LEDs, BAS, heat pumps, solar)
- Sustainable Materials & Practices (low-carbon, embodied carbon)
- Digital Analysis (Building Information Management or BIM, monitoring, lifecycle assessments)
- Codes & Certifications (energy efficiency, Leadership in Energy and Environmental Design or LEED, Net Zero)

Figure 4 is a list of micro credential programs for rapid upskilling

FIGURE 4: MICRO CREDENTIAL PROGRAMS OFFERED



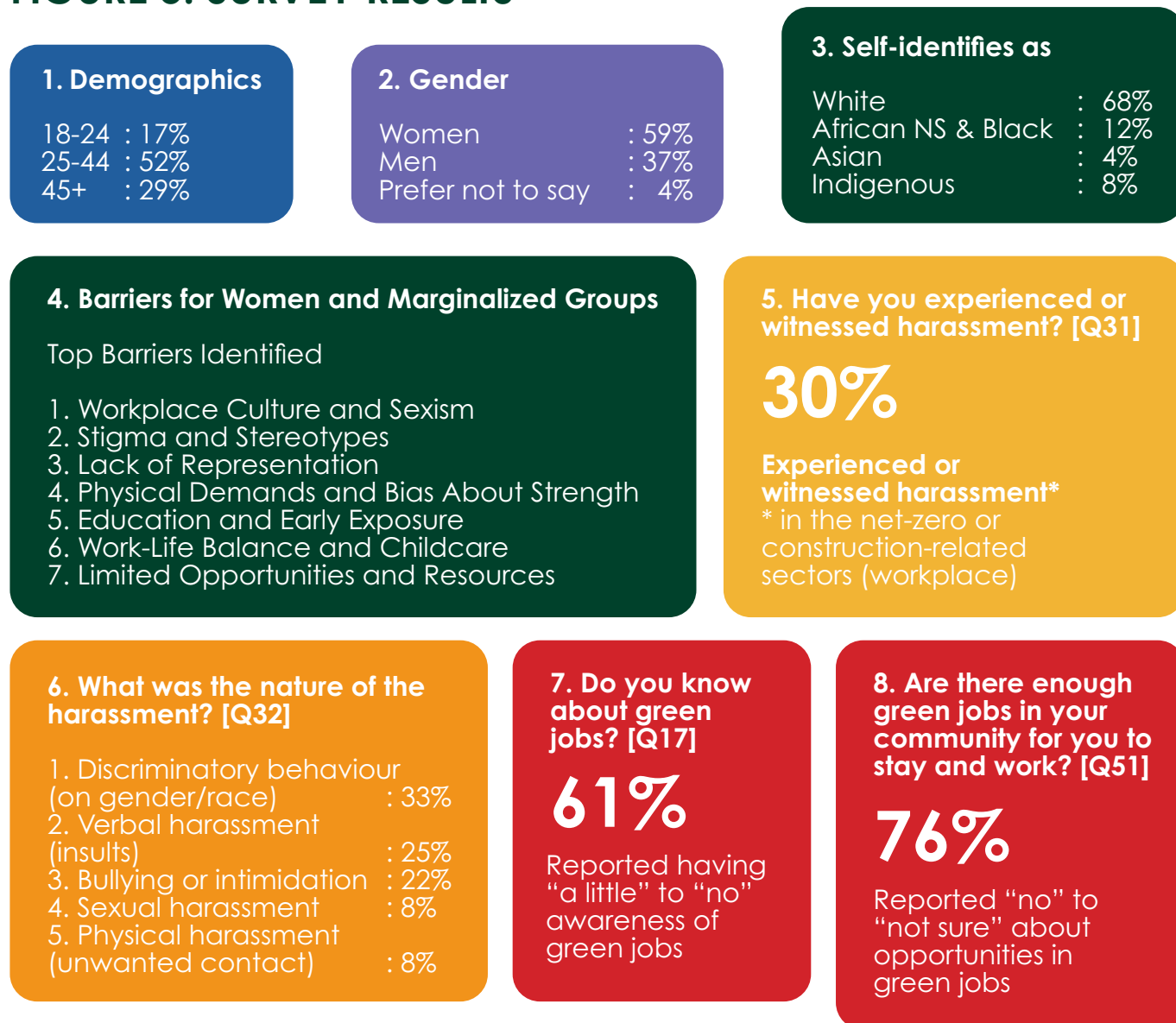
SECTION 6: KEY FINDINGS

6.1 SURVEY RESULTS

We conducted an online survey that had 78 respondents to explore perspectives, challenges, and opportunities in Nova Scotia's green jobs and skilled trades.

Figure 5 below, highlights the main findings from our survey.

FIGURE 5: SURVEY RESULTS



6.2 GAPS IDENTIFIED: INTERVIEWS & LITERATURE REVIEW

This section outlines key gaps in Nova Scotia's energy-efficiency retrofit sector, categorized into four main areas:

1

LOW GREEN LITERACY & LACK OF AWARENESS

- **Low green literacy and awareness** about energy efficiency create barriers to adoption. Homeowners are unaware of practical benefits i.e. savings of up to \$2,200 annually with a heat pump. They report that information is scattered & rebates difficult to access.
- **Resistance to energy efficiency** standards in the construction industry, as they can elevate costs by about 8%. Short-term costs prevent benefiting from long-term savings. Lack of binding building codes makes building above standard an unpopular practice.
- **Limited awareness of career pathways into green jobs**, particularly among marginalized communities, including newcomers, as they struggle to access information on training and bursaries. Perception of trades as a lesser career reduces youth interest.

2

CULTURAL REPRESENTATION & WORKSITE READINESS

- **Low women & BIPOC representation, and high rates of harassment** in skilled trades creates barriers to inclusion. Over 90% of women reported harassment in YWCA's 2024, Sexual and Gender-Based Harassment in the Skilled Trades in Nova Scotia report. Students interviewed outlined low diversity levels and a white male dominated construction sector.
- **Worksites are not adequately prepared for diverse workers**, as personal protective equipment (PPE) often doesn't fit all body types, and accessible facilities and accommodations for disabled workers and women remain limited.
- **Mentorship challenges for women & BIPOC** make it hard to find someone with a shared background to guide them through completion of apprenticeships and Red Seal Certification.

3

SLOW BUILDING CODE ADOPTION (RESIDENTIAL & COMMERCIAL)

- **Nova Scotia's building codes lag behind**, and the province's commitment to reaching Tier 3 of the federal standard won't be met until 2029. Delays adopting the 2020 national building code (NBC), and limited information on timelines, slow efficiency implementation.
- **Lags in regulation on existing buildings** are a missed opportunity to address the 21% of old housing – built before 1960s – requiring retrofitting in NS. This can potentially be addressed through the federal Alterations to Existing Buildings (AEB) retrofit code.
- **Complex permitting & incentive processes** limit energy efficiency from becoming standard practice. These cause longer project timelines and result in added costs making developers prioritize affordability over sustainability.

4

EDUCATIONAL & TRAINING BARRIERS

- **Limited access to training in rural areas**, transportation barriers, and historical traumas, reduce exposure and participation, particularly among marginalized groups.
- **Trades curricula adapt slowly to industry demands**, creating knowledge gaps in emerging efficient technologies, which lead to bottlenecks in implementations. Installing heat pumps requires 2 certifications with over +5,000 hours of training.
- **Financial barriers & long program durations affect BIPOC** groups disproportionately, as they are unable to go through unpaid training periods due to personal and family responsibilities. Wraparound supports from The Mainland Nova Scotia Building trades have increased trade exam pass rates, from 42% to 70%, highlighting its effectiveness.
- **Lack of learning disability support** to accommodate learning needs of tradespeople who struggle with theoretical training and exam anxiety.

SECTION 7: POLICY RECOMMENDATIONS

SECTION 7.1: WORKFORCE TRANSITION

Context:

Nova Scotia's construction sector faces a workforce crisis, with an aging population, insufficient new graduates, and rural labour gaps.

Nova Scotia's **aging workforce**, with over 35% of skilled-trades professionals nearing retirement, has limited replacement strategies in place. There are **training mismatches** in current programs that do not adequately address new technologies, energy-efficient retrofitting skills, or industry demand. These challenges are greater in **rural areas and reserves** where communities and Mi'kmaq often lack access to modern training facilities and sufficient incentives.

We make the following four recommendations to the Governments of Canada and Nova Scotia, in collaboration with industry, trade unions, and training institutions:

Recommended Solutions:

- 1) Create workforce transition and mentorship programs** that provide initiatives for retiring tradespeople to become mentors and instructors in training programs, ensuring knowledge transfer to new and transitioning professionals. This can be especially helpful for young Black, Indigenous, and People of Colour (BIPOC), as having more mentors from their background can drastically improve their professional development.
- 2) Offer fast-track apprenticeship matching grants** to encourage companies to hire and train replacements before experienced workers retire, helping the industry get ahead of the forecasted 10,600 workers who are expected to retire in Nova Scotia during the next decade.
- 3) Expand immigration pathways for skilled trades**, improving the validation of foreign credentials and experience, and creating internship programs for mid-career professionals and newcomers over 30. This will help foreign-trained professionals fill critical labour shortages.
- 4) Expand rural and on-reserve training** through mobile training units, providing hands-on instruction in retrofitting, HVAC, and green construction. Partnering with Mi'kmaw communities to deliver energy efficiency education will ensure training is accessible and culturally relevant. Successful models like [Trade Winds to Success](#) in Alberta demonstrate how tailored programs can help Indigenous workers succeed in the trades. Increasing support for similar initiatives in Nova Scotia will strengthen workforce development within Indigenous communities.

SECTION 7.2: INCLUSION

Context:

Inclusion in Nova Scotia's skilled trades workforce remains a challenge, as equity-deserving groups often experience systemic exclusion, harassment, and inadequate accommodations.

There are high rates of **harassment and underrepresentation**. A 2024 report by YWCA Halifax⁶ reported that over 90% of women and gender-diverse workers report such issues. A lack of mentors from similar backgrounds as equity-deserving groups limits their professional development, especially in apprenticeships where they are required to have a mentor to learn skills outside of textbooks and understand workplace culture. Low inclusivity in hiring processes and non-inclusive facilities worsen **accessibility gaps**. For example, personal protective gear has been reported to not adequately fit and inaccessible changerooms exclude workers with disabilities, women and gender-diverse professionals.

We make the following three recommendations to the Governments of Canada and Nova Scotia, in collaboration with the trades sector:

Recommended Solutions:

1) Increase representation from equity-deserving communities in leadership roles by directing more support to mentorship programs and by supporting equity policies to prepare these professionals for management roles. Empower next generations through more partnerships with organizations like [PREP Academy](#) (in partnership with EfficiencyOne), which pairs Black mentors in the Clean Energy sector with students for direct learning from industry professionals.

2) Increase accessibility practices in the hiring process through to the worksite. There is an opportunity to capture more diverse applicants by wording job postings with more gender-neutral language and inclusive and accessible descriptions. For example using the word “move” instead of “walk”. Eliminate stigmas and enhance hiring practices by partnering with successful programs like the [CWB Welding Foundation's Women of Steel initiative](#). Provide adequate changerooms, washrooms, personal protective equipment, and support for individuals with a physical or cognitive disabilities.

3) Address workplace harassment proactively with mandatory workshops and inclusivity training for management and staff. Expand partnerships with programs that improve workplace culture and inclusivity, like [YWCA's](#) Shift Change, to create a more welcoming trades sector. Taking a strong stance against all forms of harassment experienced, especially by women, in trade worksites, is essential in creating a more inclusive environment.

SECTION 7.3: EQUITY

Context:

Equity-deserving communities—including African Nova Scotians, Indigenous peoples, women, newcomers, 2SLGBTQIA+, and persons with disabilities—face systemic barriers rooted in historical inequities, which affect their access to opportunities in the energy and construction sectors.

⁶ YWCA Halifax, 2024, Sexual and Gender-Based Harassment in the Skilled Trades in Nova Scotia report.

Historical injustices continue to cause **generational trauma**, wealth gaps, and mistrust in institutions. These affect rural communities disproportionately. **Limited career support**, beyond STEM fields, for other careers like trades and green energy receive less targeted support.

We make the following three recommendations to the Governments of Canada and Nova Scotia in collaboration with the private sector and learning institutions:

Recommended Solutions:

1) Expand wraparound support for more adults and youth. This includes supporting food, housing, security, and education initiatives to better prepare equity-deserving groups for success. Increase the support to organizations like [Iron & Earth](#) (Non-Profit), [Energy Trailblazer Program](#) (Efficiency Canada), and [Building UP](#) (Non-Profit Social Enterprise) to increase their impact. Wraparound programs have proven to considerably increase exam pass rates. Industry can be better educated on how to include and accept specific needs of Indigenous, African Nova Scotian, and other cultures.

2) Increase cultural sensitivity by building cultural awareness as it helps foster pride in equity-deserving cultures. Improve collaboration with existing models like [YWCA's Shift Change](#), which works toward the full inclusion of marginalized groups in skilled trades workplaces.

3) Support a broader range of careers for racialized students. There is an opportunity to improve their confidence if they are supported regardless of what their dream career is. Supporting a broader range of career options, beyond STEM fields, can help build a positive personal perspective for many youth members. Partnerships with education institutions like [Nova Scotia Community College \(NSCC\)](#) can be leveraged to help students explore and succeed in a broader range of careers and programs.

SECTION 7.4: ADOPTION

Context:

Adopting higher energy-efficiency building codes is key to Nova Scotia's transition to net-zero. Although the province has committed to Tier 3 by 2029, the majority of the construction sector informants and sustainability consultants interviewed believe that more aggressive measures are needed to achieve the 2050 objective.

There is a **perception of higher costs** with higher efficiency levels from enhanced insulation & specialized materials. **Unpredictable implementation timelines** create uncertainty leading developers and contractors to stick with baseline standards until legally bound to upgrade. **Inconsistencies in funding** undermine trust in incentive programs, as seen in the recent pause and reduced funding for the Canada Greener Homes Grant in 2024. Current retrofits rely on voluntary measures resulting in a **missed opportunity** for mandatory upgrades during renovations.

We make the following two recommendations to the Governments of Canada and Nova Scotia, in collaboration with the construction sector:

⁷ The statement reflects what we heard during our key informant interview process.

Recommended Solutions:

1) Tailor incentives and improve public-private communication to develop more stable incentive programs. Streamlined programs are essential for consumer awareness and trust. Diversifying funding sources can be beneficial to protect against government changes and could support creation of long-lasting programs. There is an opportunity to address industry concerns of meeting the high demand for new housing and the government's 2050 Net-Zero targets jointly. Closer dialogues can shine a light on mitigating cost concerns from industry to build to higher energy standards, and the need for clearer implementation timelines.

2) Incorporate efficiency upgrades during retrofits. This is an opportunity previously missed. Buildings will eventually need to meet Tier 5, net-zero energy ready, therefore major renovations should be used as an opportunity to improve efficiency. Encouraging constructing new buildings to net-zero standards at the planning stage is a more cost-effective solution, as on average this proactive approach only represents an 8-9% higher initial investment. Higher energy efficiency results in savings from lower electricity bills in the long term, without the need for costly and disruptive renovations. Expanding the Alterations to Existing Buildings (AEB) code to require mandatory energy efficiency improvements during renovations (minor and major) is a great starting point.

SECTION 7.5: EDUCATION & EXPANSION

Context:

Marginalized individuals often face lower success rates in trades due to financial constraints, exam anxiety, and unclear career pathways. This affects apprenticeship and graduation rates, particularly in green jobs and skilled trades.

Financial Constraints including high costs for tuition, training materials, and living expenses impede participation in trades programs. **Exam anxiety & academic struggles** caused by lengthy, technical exams create stress, especially for people from equity-deserving communities with historical educational trauma. For example, residential schools have created much educational anxiety for Indigenous students, especially when leaving home for school. **A lack of support systems** due to insufficient mentorship, limited accommodations for different learning styles, and poor outreach in rural areas create further (or additional) challenges for students from equity-deserving groups.

We make the following five recommendations to Governments of Canada and Nova Scotia, in collaboration with the construction sector, educational institutions, and community organizations:

Recommended Solutions:

1) Increase availability of micro-credential programs for a more flexible and accessible way to build workforce capacity. Shorter, online programs offered at a lower cost can address barriers such as transportation, affordability, and long program durations. These programs can be developed in specialized areas such as heat pump installation and maintenance, to facilitate a faster adoption of these technologies in the province.

2) Increase availability of wraparound support programs to address childcare, transportation, housing, and other barriers are crucial for marginalized individuals to succeed in trades. [The Mainland Nova Scotia Building Trades initiative](#) demonstrates how tailored support can significantly improve apprenticeship completion and exam pass rates.

⁸ Canada Green Building Council, 2019, Making the Case for Building to Zero Carbon

3) Increase awareness of career pathways through outreach programs, like [Shift Change from YWCA Halifax](#), providing clear, accessible information about careers in trades and the green energy sector. There is an opportunity for trades agencies, construction industry, and education centres to partner and focus on rural areas and marginalized communities, partnering with schools, community organizations, and employers to offer mentorship and resources. This can provide opportunities to showcase the viability and financial rewards of trades careers.

4) Combat stigma through public campaigns highlighting success stories, featuring trades workers from diverse backgrounds, emphasizing sustainability and showcasing the financial opportunities within these fields. This approach can reduce stigma and encourage more people from equity-deserving communities to consider trades as a respected career option.

5) Partner with Mi'kmaw communities, post-secondary institutions, and public-education-focused programming like [Green Schools](#) to offer local energy-efficiency education on First Nation schools and reserves. Bringing training solutions to these communities can help overcome trust challenges posed by intergenerational trauma and the difficulty of leaving for urban education.

SECTION 7.6: COLLABORATION

Context:

Effective coordination between public and private sectors is necessary to address workforce shortages, align training with industry needs, and secure sustainable funding for energy efficiency initiatives.

The lack of a centralized framework results in misalignment between government policies, industry demands, and educational programs. The construction industry is very cost sensitive and is reluctant to face the estimated 8-9% rise in construction cost to meet higher standards, while the government is motivated by reaching Net-Zero by 2050. Education curriculums have **limited industry involvement** resulting in a lack of real-time input from industry experts, creating a skills gap. Funding models **lack public-private frameworks**, which limit long-term development.

We make the following three recommendations to Governments of Canada and Nova Scotia, in collaboration with industry, trade unions, and educational institutions:

Recommended Solutions:

1) Establish a provincial green workforce council, a dedicated space for representatives from government agencies, trade unions, industry associations, and post-secondary institutions to guide workforce strategy for the energy-efficiency sector. Increasing support and collaboration with agencies like the [Building to Zero Exchange \(BTZx\)](#), to implement best practices in Nova Scotia will help the province catch up with other energy efficiency leaders in Canada.

2) Integrate industry-led curriculum development that requires trade schools and apprenticeship programs to collaborate with industry experts in designing training curricula. This should improve alignment with current and emerging job market needs. Institutions like Nova Scotia Apprenticeship Agency (NSAA) already hold yearly meetings with industry, but it is important to accelerate the rate in which emerging industry demands, like heat pumps, are adopted into the training. Solutions like micro-credentials and fast track training are essential to increase the responsiveness of the curricula to market demands, and to improve accessibility of upskilling.

3) Expand public-private funding partnerships through co-funded training initiatives where government investment is matched by private sector contributions, creating sustainable funding streams for upskilling and workforce expansion programs. It could be advantageous to also direct some of this funding to pre-existing training centres for equity-deserving groups, such as [YWCA's Shift Change](#) program, or [Women of Steel by the CWB Foundation](#), as they have a track record of driving impact and hold deep expertise in these initiatives.

SECTION 7.7: AWARENESS

Context:

Green literacy is essential for Nova Scotia's retrofitting and construction sector and for homeowners. With 21% of the housing stock built before 1960 and the phased introduction of the 2020 National Building Codes, raising awareness is critical to meeting Net-Zero targets by 2050 through both financial incentives and stronger regulatory standards.

Perceived high costs of building and upgrading to higher energy efficiency exist, as they can involve premium materials, extended permitting, and longer project timelines. For example, installing a heat pump legally requires two distinct certified tradespeople. (electrician and air mechanic). **Limited workforce capacity** exists due to a shortage of specialized workers, compounded by a slow adoption of 2020 National Building Codes, high upskilling costs, and unfamiliarity with incentive processes.

We make the following four recommendations to the Governments of Canada and Nova Scotia, in collaboration with industry, trade unions, and training institutions:

Recommended Solutions:

1) Improve green literacy and communication by educating homeowners, property managers, and tenants on practical benefits of energy efficiency. For example saving up to \$2,200 annually by switching from oil to heat pumps. Increase understanding of consequences of inaction like extreme weather due to climate change. The end goal will be to encourage consumers, and industry, to modify their long-term energy consumption habits with energy-efficient initiatives, and to become more familiar with permitting processes.

2) Improve awareness of the construction sector's role in meeting net-zero through government and industry-led campaigns. For example, expanding environmental awareness, short-term specialized micro-credentials, and education campaigns to educate the construction industry of the positive impact their work on energy-efficiency has for the province.

3) Standardize compulsory trades & update curricula to increase worker retention and limit brain drain to provinces with lower requirements than [Nova Scotia's 13 compulsory trades](#). Integrate energy efficiency standards into training programs, and ensure new industry demands, like heat pumps, are reflected in training to accelerate upskilling and workforce capacity.

4) Continue expanding incentive programs for energy efficiency retrofitting and new construction, following the lead of British Columbia, Quebec, Prince Edward Island and New Brunswick. Increase use of programs by streamlining the application process, and ensuring they are resilient to shifts in political leadership.

APPENDIX A

The table below lists policy recommendations that were derived from the findings of the research study.

Table 1: Policy Recommendations

Nº	Audience	Recommendation
1 - Workforce Transition	Governments of Canada and Nova Scotia, in collaboration with industry, trade unions, and training institutions	Implement a workforce transition program to train apprentices before retirements create labour shortages.
		Expand mobile training centres and workforce retention programs to ensure rural and Mi'kmaq communities have access to skilled labour.
		Establish fast-track immigration pathways for skilled tradespeople in energy efficiency and retrofitting sectors.
2 - Inclusion	The trades sector of Nova Scotia	Improve communication with equity-deserving communities to improve awareness of their specific challenges and accessibility needs, including:
		I. More accessible worksites with adequate changerooms, washrooms, and personal protective equipment.
		II. Greater support for individuals with physical or cognitive disabilities to thrive in the trades sector."
		Take strong action against all forms of harassment experienced in trade worksites, especially by women.
		Facilitate mentoring programs for workers and students from equity-deserving communities, founded on understanding their challenges to connect with mentors from similar backgrounds.
		Work towards fostering increased representation at all levels of the workforce, especially in management roles.
		Incorporate accessibility measures through hiring processes, including support for applicants with disabilities, and using inclusive language in job postings. These include:
		I. Using Inclusive Language in job postings: avoid terms like "must be able to walk" when not essential and instead say "must be able to move independently."
	Governments of Canada and Nova Scotia, in collaboration with the construction sector	II. Using gender-neutral language in job postings: Instead of "he/she will lead the team," say "the candidate will lead the team."
		III. Use clear and simple language: instead of "leverage cross-functional synergies," say "work with different teams to achieve shared goals".
	Governments of Canada and Nova Scotia, in collaboration with the construction sector	Adopt more partnerships with organizations with missions to eradicate negative preconceptions regarding equity-deserving groups.
		Monitor representation rates of women, African Nova Scotians, Mi'kmaq, people with disabilities, 2SLGBTQIA+, and other equity-deserving groups, in the sector, especially in management roles, and support each other to improve diversity.

Nº	Audience	Recommendation
3 - Equity	Governments of Canada and Nova Scotia in collaboration with the private sector and learning institutions	Increase wraparound-supports for youth, focusing on food security, housing, education, and employment.
		Provide cultural training for employers. Look to existing models such as YWCA's Shift Change, which is comprehensive and hands-on.
4 - Adoption	Governments of Canada and Nova Scotia, in collaboration with the construction sector	"Accelerate adoption of net-zero energy ready standards for new buildings and retrofitting projects to set the province up for success in meeting its 2050 Net-Zero objectives.
		Publish a clear timeline for the implementation of these standards to provide the construction sector with adequate preparation time."
		Expand the Alterations to Existing Buildings (AEB) code to require mandatory energy efficiency improvements during renovations (minor and major).
		Streamline application processes and establish long-term, diversified funding mechanisms to ensure the sustainability of financial incentives for energy efficiency projects.
		Enhance government-industry collaboration through recurrent meetings and joint task forces that help align industry needs and evolving market demands with government net-zero objectives.
5 - Education & Expansion	Governments of Canada and Nova Scotia, working with post-secondary institutions and nonprofit partners like Green Schools Nova Scotia, the Mi'kmaq Employment Training Secretariat, and Building to Zero Exchange	Increase availability of micro-credential programs to provide accessible, flexible pathways for marginalized groups to build workforce capacity, particularly in skilled trades and green energy sectors.
	Governments of Canada and Nova Scotia, in collaboration with educational institutions, the construction sector, and local employers to	Work closely with Mi'kmaq communities, including housing directors and employment directors, to extend energy-efficiency educational opportunities into Mi'kmaq communities, where intergenerational colonial trauma makes leaving the community for urbanized educational experiences particularly daunting.
		Develop targeted outreach programs to raise awareness of career pathways in skilled trades and green energy, focusing on rural areas and marginalized communities.
	Governments of Canada and Nova Scotia, in collaboration with the construction sector, educational institutions, and community organizations	Combat stigma around trades careers by promoting success stories, emphasizing the financial viability, and showcasing growth opportunities to make these professions more attractive to diverse groups.
		Expand wraparound support programs to address barriers like childcare, transportation, housing, and accessibility, ensuring marginalized groups have the resources to succeed in apprenticeship programs and green jobs.

Nº	Audience	Recommendation
6 - Collaboration	Governments of Canada and Nova Scotia, in collaboration with industry, trade unions, and educational institutions	Establish a Provincial Green Workforce Council to align workforce planning efforts with industry demands and policy goals.
		Mandate industry involvement in training curriculum development to ensure programs produce job-ready graduates.
		Develop co-funded workforce investment models to encourage long-term employer participation in workforce training and hiring initiatives.
7 - Awareness	Governments of Canada and Nova Scotia	Continue and expand the incentive programs for energy efficiency retrofitting and new constructions, following the leads of British Columbia, Quebec, Prince Edward Island and New Brunswick.
	Governments of Canada and Nova Scotia, in collaboration with the construction sector	Provide a clear timeline for implementing the 2020 National Building Codes in full and enough time for the construction industry to prepare.
		Streamline the application process to access financial incentives and other supports for energy efficiency retrofits and new construction.
		Structure incentive programs to be more resilient to political changes, ensuring stable funding mechanisms that can withstand shifts in government priorities.
	Governments of Canada and Nova Scotia, in collaboration with the construction sector, and with learning and apprenticeship institutions	Better align the skills, training, and certificates required for incorporating higher energy efficiency standards into building codes.

APPENDIX B

1. EMPLOYMENT PROJECTIONS: SCENARIO 1.

2: Scenario 1: Employment projections (2025-2031) as per 2020 standards for each NOC.

Construction and Trade		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
70010	Construction managers	2256.1	2284.7	2296.8	2324.3	2340.8	2366.1	2387
70012	Facility operation and maintenance managers	807.4	795.3	786.5	783.2	779.9	778.8	778.8
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	1734.7	1745.7	1760	1767.7	1777.6	1787.5	1796.3
72102	Sheet metal workers	636.9	635.8	635.8	638	639.1	640.2	642.4
72103	Boilermakers	179.3	179.3	180.4	181.5	183.7	184.8	185.9
72105	Ironworkers	622.6	636.9	650.1	660	669.9	678.7	686.4
72106	Welders and related machine operators	2352.9	2349.6	2348.5	2348.5	2344.1	2344.1	2339.7
72200	Electricians (except industrial and power system)	3141.6	3191.1	3240.6	3284.6	3327.5	3374.8	3416.6
72201	Industrial electricians	1138.5	1141.8	1145.1	1148.4	1151.7	1156.1	1159.4
72203	Electrical power line and cable workers	441.1	431.2	420.2	416.9	412.5	410.3	407
72300	Plumbers	1587.3	1609.3	1630.2	1645.6	1659.9	1673.1	1684.1
72301	Steamfitters, pipefitters and sprinkler system installers	1098.9	1118.7	1138.5	1147.3	1156.1	1169.3	1181.4
72302	Gas fitters	204.6	210.1	214.5	216.7	218.9	221.1	224.4
72310	Carpenters	5742	5825.6	5880.6	5897.1	5919.1	5944.4	5965.3
72320	Bricklayers	255.2	247.5	238.7	235.4	231	228.8	227.7
72321	Insulators	295.9	297	299.2	300.3	302.5	302.5	304.7
72402	Heating, refrigeration and air conditioning mechanics	1358.5	1382.7	1413.5	1439.9	1464.1	1487.2	1509.2
72500	Crane operators	425.7	425.7	430.1	434.5	440	443.3	445.5
73100	Concrete finishers	238.7	242	244.2	244.2	245.3	247.5	249.7
73101	Tilesetters	172.7	172.7	173.8	173.8	173.8	173.8	174.9
73102	Plasterers, drywall installers and finishers and lathers	838.2	856.9	874.5	887.7	900.9	913	924
73110	Roofers and shinglers	840.4	871.2	898.7	911.9	928.4	943.8	958.1
73111	Glaziers	227.7	229.9	233.2	235.4	237.6	237.6	240.9
73112	Painters and decorators (except interior decorators)	1337.6	1349.7	1357.4	1362.9	1361.8	1365.1	1371.7
73113	Floor covering installers	370.7	378.4	383.9	385	385	386.1	388.3
73200	Residential and commercial installers and servicers	1511.4	1532.3	1545.5	1547.7	1553.2	1560.9	1568.6

NOCs	Description	2025	2026	2027	2028	2029	2030	2031
73300	Transport truck drivers	8435.9	8577.8	8705.4	8827.5	8941.9	9073.9	9205.9
73400	Heavy equipment operators	2622.4	2673	2714.8	2739	2755.5	2778.6	2803.9
75101	Material handlers	5468.1	5500	5523.1	5557.2	5583.6	5617.7	5649.6
75110	Construction trades helpers and labourers	4694.8	4713.5	4739.9	4758.6	4782.8	4811.4	4846.6
Engineering / Technology		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
21200	Architects	415.15	409.4	405.95	404.8	403.65	403.65	402.5
21300	Civil engineers	1460.5	1463.95	1469.7	1478.9	1486.95	1495	1504.2
21310	Electrical and electronics engineers	809.6	811.9	813.05	816.5	817.65	818.8	818.8
21311	Computer engineers (except software engineers and designers)	432.4	433.55	433.55	438.15	440.45	445.05	448.5
21321	Industrial and manufacturing engineers	409.4	422.05	430.1	437	445.05	450.8	455.4
21322	Metallurgical and materials engineers	79.35	82.8	86.25	88.55	92	94.3	95.45
22211	Industrial designers	171.35	171.35	172.5	172.5	173.65	173.65	173.65
22212	Drafting technologists and technicians	801.55	798.1	796.95	795.8	794.65	793.5	793.5
22214	Technical occupations in geomatics and meteorology	318.55	324.3	330.05	332.35	335.8	338.1	340.4
22301	Mechanical engineering technologists and technicians	402.5	407.1	410.55	418.6	424.35	427.8	433.55
22303	Construction estimators	479.55	480.7	484.15	486.45	488.75	491.05	494.5
22311	Electronic service technicians (household and business equipment)	1775.6	1799.75	1823.9	1840	1859.55	1874.5	1891.75
22231	Engineering inspectors and regulatory officers	248.4	250.7	254.15	256.45	258.75	261.05	263.35
72400	Construction millwrights and industrial mechanics	2854.3	2921	2977.35		3067.05	3105	3138.35
Administrative		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
10022	Advertising, marketing and public relations managers	868.35	888.3	907.2	925.05	942.9	959.7	977.55
41405	Education policy researchers, consultants and program officers	1551.9	1583.4	1615.95	1650.6	1675.8	1702.05	1727.25
52121	Interior designers and interior decorators	379.05	385.35	391.65	394.8	399	402.15	405.3

2. EMPLOYMENT PROJECTIONS: SCENARIO 2.

Table 2: Scenario 2: Employment projections (2025-2031) as per 2020 standards for each NOC.

Construction and Trade		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
70010	Construction managers	2358.65	2388.55	2401.2	2429.95	2447.2	2473.65	2495.5
70012	Facility operation and maintenance managers	844.1	831.45	822.25	818.8	815.35	814.2	814.2
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	1813.55	1825.05	1840	1848.05	1858.4	1868.75	1877.95
72102	Sheet metal workers	665.85	664.7	664.7	667	668.15	669.3	671.6
72103	Boilermakers	187.45	187.45	188.6	189.75	192.05	193.2	194.35
72105	Ironworkers	650.9	665.85	679.65	690	700.35	709.55	717.6
72106	Welders and related machine operators	2459.85	2456.4	2455.25	2455.25	2450.65	2450.65	2446.05
72200	Electricians (except industrial and power system)	3284.4	3336.15	3387.9	3433.9	3478.75	3528.2	3571.9
72201	Industrial electricians	1190.25	1193.7	1197.15	1200.6	1204.05	1208.65	1212.1
72203	Electrical power line and cable workers	461.15	450.8	439.3	435.85	431.25	428.95	425.5
72300	Plumbers	1659.45	1682.45	1704.3	1720.4	1735.35	1749.15	1760.65
72301	Steamfitters, pipefitters and sprinkler system installers	1148.85	1169.55	1190.25	1199.45	1208.65	1222.45	1235.1
72302	Gas fitters	213.9	219.65	224.25	226.55	228.85	231.15	234.6
72310	Carpenters	6003	6090.4	6147.9	6165.15	6188.15	6214.6	6236.45
72320	Bricklayers	266.8	258.75	249.55	246.1	241.5	239.2	238.05
72321	Insulators	309.35	310.5	312.8	313.95	316.25	316.25	318.55
72402	Heating, refrigeration and air conditioning mechanics	1420.25	1445.55	1477.75	1505.35	1530.65	1554.8	1577.8
72500	Crane operators	445.05	445.05	449.65	454.25	460	463.45	465.75
73100	Concrete finishers	249.55	253	255.3	255.3	256.45	258.75	261.05
73101	Tilesetters	180.55	180.55	181.7	181.7	181.7	181.7	182.85
73102	Plasterers, drywall installers and finishers and lathers	876.3	895.85	914.25	928.05	941.85	954.5	966
73110	Roofers and shinglers	878.6	910.8	939.55	953.35	970.6	986.7	1001.65
73111	Glaziers	238.05	240.35	243.8	246.1	248.4	248.4	251.85
73112	Painters and decorators (except interior decorators)	1398.4	1411.05	1419.1	1424.85	1423.7	1427.15	1434.05
73113	Floor covering installers	387.55	395.6	401.35	402.5	402.5	403.65	405.95
73200	Residential and commercial installers and servicers	1580.1	1601.95	1615.75	1618.05	1623.8	1631.85	1639.9
73300	Transport truck drivers	8819.35	8967.7	9101.1	9228.75	9348.35	9486.35	9624.35
73400	Heavy equipment operators	2741.6	2794.5	2838.2	2863.5	2880.75	2904.9	2931.35
75101	Material handlers	5716.65	5750	5774.15	5809.8	5837.4	5873.05	5906.4
75110	Construction trades helpers and labourers	4908.2	4927.75	4955.35	4974.9	5000.2	5030.1	5066.9

Engineering / Technology		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
21200	Architects	397.1	391.6	388.3	387.2	386.1	386.1	385
21300	Civil engineers	1397	1400.3	1405.8	1414.6	1422.3	1430	1438.8
21310	Electrical and electronics engineers	774.4	776.6	777.7	781	782.1	783.2	783.2
21311	Computer engineers (except software engineers and designers)	413.6	414.7	414.7	419.1	421.3	425.7	429
21321	Industrial and manufacturing engineers	391.6	403.7	411.4	418	425.7	431.2	435.6
21322	Metallurgical and materials engineers	75.9	79.2	82.5	84.7	88	90.2	91.3
22211	Industrial designers	163.9	163.9	165	165	166.1	166.1	166.1
22212	Drafting technologists and technicians	766.7	763.4	762.3	761.2	760.1	759	759
22214	Technical occupations in geomatics and meteorology	304.7	310.2	315.7	317.9	321.2	323.4	325.6
22301	Mechanical engineering technologists and technicians	385	389.4	392.7	400.4	405.9	409.2	414.7
22303	Construction estimators	458.7	459.8	463.1	465.3	467.5	469.7	473
22311	Electronic service technicians (household and business equipment)	1698.4	1721.5	1744.6	1760	1778.7	1793	1809.5
22231	Engineering inspectors and regulatory officers	237.6	239.8	243.1	245.3	247.5	249.7	251.9
72400	Construction millwrights and industrial mechanics	2730.2	2794	2847.9	2894.1	2933.7	2970	3001.9
Administrative		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
10022	Advertising, marketing and public relations managers	868.35	888.3	907.2	925.05	942.9	959.7	977.55
41405	Education policy researchers, consultants and program officers	1551.9	1583.4	1615.95	1650.6	1675.8	1702.05	1727.25
52121	Interior designers and interior decorators	379.05	385.35	391.65	394.8	399	402.15	405.3

3. EMPLOYMENT PROJECTIONS: SCENARIO 3

Table 3: Scenario 3: Employment projections (2025-2031) as per 2020 standards for each NOC

Construction and Trade		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
70010	Construction managers	2563.75	2596.25	2610	2641.25	2660	2688.75	2712.5
70012	Facility operation and maintenance managers	917.5	903.75	893.75	890	886.25	885	885
72014	Contractors and supervisors, other construction trades, installers, repairers and servicers	1971.25	1983.75	2000	2008.75	2020	2031.25	2041.25
72102	Sheet metal workers	723.75	722.5	722.5	725	726.25	727.5	730
72103	Boilermakers	203.75	203.75	205	206.25	208.75	210	211.25
72105	Ironworkers	707.5	723.75	738.75	750	761.25	771.25	780
72106	Welders and related machine operators	2673.75	2670	2668.75	2668.75	2663.75	2663.75	2658.75
72200	Electricians (except industrial and power system)	3570	3626.25	3682.5	3732.5	3781.25	3835	3882.5
72201	Industrial electricians	1293.75	1297.5	1301.25	1305	1308.75	1313.75	1317.5
72203	Electrical power line and cable workers	501.25	490	477.5	473.75	468.75	466.25	462.5
72300	Plumbers	1803.75	1828.75	1852.5	1870	1886.25	1901.25	1913.75
72301	Steamfitters, pipefitters and sprinkler system installers	1248.75	1271.25	1293.75	1303.75	1313.75	1328.75	1342.5
72302	Gas fitters	232.5	238.75	243.75	246.25	248.75	251.25	255
72310	Carpenters	6525	6620	6682.5	6701.25	6726.25	6755	6778.75
72320	Bricklayers	290	281.25	271.25	267.5	262.5	260	258.75
72321	Insulators	336.25	337.5	340	341.25	343.75	343.75	346.25
72402	Heating, refrigeration and air conditioning mechanics	1543.75	1571.25	1606.25	1636.25	1663.75	1690	1715
72500	Crane operators	483.75	483.75	488.75	493.75	500	503.75	506.25
73100	Concrete finishers	271.25	275	277.5	277.5	278.75	281.25	283.75
73101	Tilesetters	196.25	196.25	197.5	197.5	197.5	197.5	198.75
73102	Plasterers, drywall installers and finishers and lathers	952.5	973.75	993.75	1008.75	1023.75	1037.5	1050
73110	Roofers and shinglers	955	990	1021.25	1036.25	1055	1072.5	1088.75
73111	Glaziers	258.75	261.25	265	267.5	270	270	273.75
73112	Painters and decorators (except interior decorators)	1520	1533.75	1542.5	1548.75	1547.5	1551.25	1558.75
73113	Floor covering installers	421.25	430	436.25	437.5	437.5	438.75	441.25
73200	Residential and commercial installers and servicers	1717.5	1741.25	1756.25	1758.75	1765	1773.75	1782.5

NOCs	Description	2025	2026	2027	2028	2029	2030	2031
73300	Transport truck drivers	9586.25	9747.5	9892.5	10031.25	10161.25	10311.25	10461.25
73400	Heavy equipment operators	2980	3037.5	3085	3112.5	3131.25	3157.5	3186.25
75101	Material handlers	6213.75	6250	6276.25	6315	6345	6383.75	6420
75110	Construction trades helpers and labourers	5335	5356.25	5386.25	5407.5	5435	5467.5	5507.5
Engineering / Technology		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
21200	Architects	451.25	445	441.25	440	438.75	438.75	437.5
21300	Civil engineers	1587.5	1591.25	1597.5	1607.5	1616.25	1625	1635
21310	Electrical and electronics engineers	880	882.5	883.75	887.5	888.75	890	890
21311	Computer engineers (except software engineers and designers)	470	471.25	471.25	476.25	478.75	483.75	487.5
21321	Industrial and manufacturing engineers	445	458.75	467.5	475	483.75	490	495
21322	Metallurgical and materials engineers	86.25	90	93.75	96.25	100	102.5	103.75
22211	Industrial designers	186.25	186.25	187.5	187.5	188.75	188.75	188.75
22212	Drafting technologists and technicians	871.25	867.5	866.25	865	863.75	862.5	862.5
22214	Technical occupations in geomatics and meteorology	346.25	352.5	358.75	361.25	365	367.5	370
22301	Mechanical engineering technologists and technicians	437.5	442.5	446.25	455	461.25	465	471.25
22303	Construction estimators	521.25	522.5	526.25	528.75	531.25	533.75	537.5
22311	Electronic service technicians (household and business equipment)	1930	1956.25	1982.5	2000	2021.25	2037.5	2056.25
22231	Engineering inspectors and regulatory officers	270	272.5	276.25	278.75	281.25	283.75	286.25
72400	Construction millwrights and industrial mechanics	3102.5	3175	3236.25	3288.75	3333.75	3375	3411.25
Administrative		Scenario 1						
NOCs	Description	2025	2026	2027	2028	2029	2030	2031
10022	Advertising, marketing and public relations managers	909.7	930.6	950.4	969.1	987.8	1005.4	1024.1
41405	Education policy researchers, consultants and program officers	1625.8	1658.8	1692.9	1729.2	1755.6	1783.1	1809.5
52121	Interior designers and interior decorators	397.1	403.7	410.3	413.6	418	421.3	424.6

GAPS FOR SCENARIO 1, 2, AND 3

Table 4 :Gaps For Scenario 1, 2, and 3 for Construction and Trade Group.

Construction & Trade		Scenario 1 (Gaps)						Scenario 2 (Gaps)						Scenario 3 (Gaps)					
NOCs	Description	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030
70010	Construction managers	-205	-208	-209	-211	-213	-215	-308	-312	-313	-317	-319	-323	-513	-519	-522	-528	-532	-538
70012	Facility operation and maintenance managers	-73.4	-72.3	-71.5	-71.2	-70.9	-70.8	-110.1	-108.45	-107.25	-106.8	-106.35	-106.2	-183.5	-180.75	-178.75	-178	-177.25	-177
72014	Contractors and supervisors,	-158	-159	-160	-161	-162	-163	-237	-238	-240	-241	-242	-244	-394	-397	-400	-402	-404	-406
72102	Sheet metal workers	-57.9	-57.8	-57.8	-58	-58.1	-58.2	-86.85	-86.7	-86.7	-87	-87.15	-87.3	-144.75	-144.5	-144.5	-145	-145.25	-145.5
72103	Boilermakers	-16.3	-16.3	-16.4	-16.5	-16.7	-16.8	-24.45	-24.45	-24.6	-24.75	-25.05	-25.2	-40.75	-40.75	-41	-41.25	-41.75	-42
72105	Ironworkers	-56.6	-57.9	-59.1	-60	-60.9	-61.7	-84.9	-86.85	-88.65	-90	-91.35	-92.55	-141.5	-144.75	-147.75	-150	-152.25	-154.25
72106	Welders and related machine operators	-214	-214	-214	-214	-213	-213	-321	-320	-320	-320	-320	-320	-535	-534	-534	-534	-533	-533
72200	Electricians	-286	-290	-295	-299	-303	-307	-428	-435	-442	-448	-454	-460	-714	-725	-737	-747	-756	-767
72201	Industrial electricians	-104	-104	-104	-104	-105	-105	-155	-156	-156	-157	-157	-158	-259	-260	-260	-261	-262	-263
72203	Electrical power line and cable workers	-40.1	-39.2	-38.2	-37.9	-37.5	-37.3	-60.15	-58.8	-57.3	-56.85	-56.25	-55.95	-100.25	-98	-95.5	-94.75	-93.75	-93.25
72300	Plumbers	-144	-146	-148	-150	-151	-152	-216	-219	-222	-224	-226	-228	-361	-366	-371	-374	-377	-380
72301	Steamfitters, pipefitters and sprinkler system installers	-99.9	-102	-104	-104	-105	-106	-149.85	-153	-155	-156	-158	-159	-249.75	-254	-259	-261	-263	-266
72302	Gas fitters	-18.6	-19.1	-19.5	-19.7	-19.9	-20.1	-27.9	-28.65	-29.25	-29.55	-29.85	-30.15	-46.5	-47.75	-48.75	-49.25	-49.75	-50.25
72310	Carpenters	-522	-530	-535	-536	-538	-540	-783	-794	-802	-804	-807	-811	-1,305	-1,324	-1,337	-1,340	-1,345	-1,351
72320	Bricklayers	-23.2	-22.5	-21.7	-21.4	-21	-20.8	-34.8	-33.75	-32.55	-32.1	-31.5	-31.2	-58	-56.25	-54.25	-53.5	-52.5	-52
72321	Insulators	-26.9	-27	-27.2	-27.3	-27.5	-27.5	-40.35	-40.5	-40.8	-40.95	-41.25	-41.25	-67.25	-67.5	-68	-68.25	-68.75	-68.75
72402	Heating, refrigeration and air conditioning mechanics	-124	-126	-129	-131	-133	-135	-185	-189	-193	-196	-200	-203	-309	-314	-321	-327	-333	-338
72500	Crane operators	-38.7	-38.7	-39.1	-39.5	-40	-40.3	-58.05	-58.05	-58.65	-59.25	-60	-60.45	-96.75	-96.75	-97.75	-98.75	-100	-100.75
73100	Concrete finishers	-21.7	-22	-22.2	-22.2	-22.3	-22.5	-32.55	-33	-33.3	-33.3	-33.45	-33.75	-54.25	-55	-55.5	-55.5	-55.75	-56.25
73101	Tiles setters	-15.7	-15.7	-15.8	-15.8	-15.8	-15.8	-23.55	-23.55	-23.7	-23.7	-23.7	-23.7	-39.25	-39.25	-39.5	-39.5	-39.5	-39.5
73102	Plasterers, drywall installers and finishers and lathers	-76.2	-77.9	-79.5	-80.7	-81.9	-83	-114.3	-116.85	-119.25	-121.05	-122.85	-124.5	-190.5	-194.75	-198.75	-201.75	-204.75	-207.5
73110	Roofers and shinglers	-76.4	-79.2	-81.7	-82.9	-84.4	-85.8	-114.6	-118.8	-122.55	-124.35	-126.6	-128.7	-191	-198	-204.25	-207.25	-211	-214.5
73111	Glaziers	-20.7	-20.9	-21.2	-21.4	-21.6	-21.6	-31.05	-31.35	-31.8	-32.1	-32.4	-32.4	-51.75	-52.25	-53	-53.5	-54	-54
73112	Painters and decorators (except interior decorators)	-122	-123	-123	-124	-124	-124	-182	-184	-185	-186	-186	-186	-304	-307	-309	-310	-310	-310
73113	Floor covering installers	-33.7	-34.4	-34.9	-35	-35	-35.1	-50.55	-51.6	-52.35	-52.5	-52.5	-52.65	-84.25	-86	-87.25	-87.5	-87.5	-87.75
73200	Residential and commercial installers and servicers	-137	-139	-141	-141	-141	-142	-206	-209	-211	-211	-212	-213	-344	-348	-351	-352	-353	-355
73300	Transport truck drivers	-767	-780	-791	-803	-813	-825	-1,150	-1,170	-1,187	-1,204	-1,219	-1,237	-1,917	-1,950	-1,979	-2,006	-2,032	-2,062
73400	Heavy equipment operators	-238	-243	-247	-249	-251	-253	-358	-365	-370	-374	-376	-379	-596	-608	-617	-623	-626	-632
75101	Material handlers	-497	-500	-502	-505	-508	-511	-746	-750	-753	-758	-761	-766	-1,243	-1,250	-1,255	-1,263	-1,269	-1,277
75110	Construction trades helpers and labourers	-427	-429	-431	-433	-435	-437	-640	-643	-646	-649	-652	-656	-1,067	-1,071	-1,077	-1,082	-1,087	-1,094

Table 5: Gaps For Scenario 1, 2, and 3 for Engineering/Technology Group

Engineering		Scenario 1(Gaps)						Scenario 2 (Gaps)						Scenario 3 (Gaps)					
NOCs	Description	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030
21200	Architects	-36.1	-35.6	-35.3	-35.2	-35.1	-35.1	-36.1	-35.6	-35.3	-35.2	-35.1	-35.1	-90.25	-89	-88.25	-88	-87.75	-87.75
21300	Civil engineers	-127	-127	-128	-129	-129	-130	-127	-127	-128	-129	-129	-130	-318	-318	-320	-322	-323	-325
21310	Electrical and electronics engineers	-70.4	-70.6	-70.7	-71	-71.1	-71.2	-70.4	-70.6	-70.7	-71	-71.1	-71.2	-176	-176.5	-176.75	-177.5	-177.75	-178
21311	Computer engineers (except software engineers and designers)	-37.6	-37.7	-37.7	-38.1	-38.3	-38.7	-37.6	-37.7	-37.7	-38.1	-38.3	-38.7	-94	-94.25	-94.25	-95.25	-95.75	-96.75
21321	Industrial and manufacturing engineers	-35.6	-36.7	-37.4	-38	-38.7	-39.2	-35.6	-36.7	-37.4	-38	-38.7	-39.2	-89	-91.75	-93.5	-95	-96.75	-98
21322	Metallurgical and materials engineers	-6.9	-7.2	-7.5	-7.7	-8	-8.2	-6.9	-7.2	-7.5	-7.7	-8	-8.2	-17.25	-18	-18.75	-19.25	-20	-20.5
22211	Industrial designers	-14.9	-14.9	-15	-15	-15.1	-15.1	-14.9	-14.9	-15	-15	-15.1	-15.1	-37.25	-37.25	-37.5	-37.5	-37.75	-37.75
22212	Drafting technologists and technicians	-69.7	-69.4	-69.3	-69.2	-69.1	-69	-69.7	-69.4	-69.3	-69.2	-69.1	-69	-174.25	-173.5	-173.25	-173	-172.75	-172.5
22214	Technical occupations in geomatics and meteorology	-27.7	-28.2	-28.7	-28.9	-29.2	-29.4	-27.7	-28.2	-28.7	-28.9	-29.2	-29.4	-69.25	-70.5	-71.75	-72.25	-73	-73.5
22301	Mechanical engineering technologists and technicians	-35	-35.4	-35.7	-36.4	-36.9	-37.2	-35	-35.4	-35.7	-36.4	-36.9	-37.2	-87.5	-88.5	-89.25	-91	-92.25	-93
22303	Construction estimators	-41.7	-41.8	-42.1	-42.3	-42.5	-42.7	-41.7	-41.8	-42.1	-42.3	-42.5	-42.7	-104.25	-104.5	-105.25	-105.75	-106.25	-106.75
22311	Electronic service technicians	-154	-157	-159	-160	-162	-163	-154	-157	-159	-160	-162	-163	-386	-391	-397	-400	-404	-408
22231	Engineering inspectors and regulatory officers	-21.6	-21.8	-22.1	-22.3	-22.5	-22.7	-21.6	-21.8	-22.1	-22.3	-22.5	-22.7	-54	-54.5	-55.25	-55.75	-56.25	-56.75
72400	Construction millwrights and industrial mechanics	-248	-254	-259	-263	-267	-270	-248	-254	-259	-263	-267	-270	-621	-635	-647	-658	-667	-675

Table 6: Gaps For Scenario 1, 2, and 3 for Administrative Group

Administrative		Scenario 1(Gaps)						Scenario 2 (Gaps)						Scenario 3 (Gaps)					
NOCs	Description	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030
10022	Advertising, marketing and public relations managers	-41.35	-42.3	-43.2	-44.05	-44.9	-45.7	-41.35	-42.3	-43.2	-44.05	-44.9	-45.7	-82.7	-84.6	-86.4	-88.1	-89.8	-91.4
41405	Education policy researchers, consultants and program officers	-74	-75	-77	-79	-80	-81	-74	-75	-77	-79	-80	-81	-148	-151	-154	-157	-160	-162
52121	Interior designers and interior decorators	-18.05	-18.35	-18.65	-18.8	-19	-19.15	-18.05	-18.35	-18.65	-18.8	-19	-19.15	-36.1	-36.7	-37.3	-37.6	-38	-38.3



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