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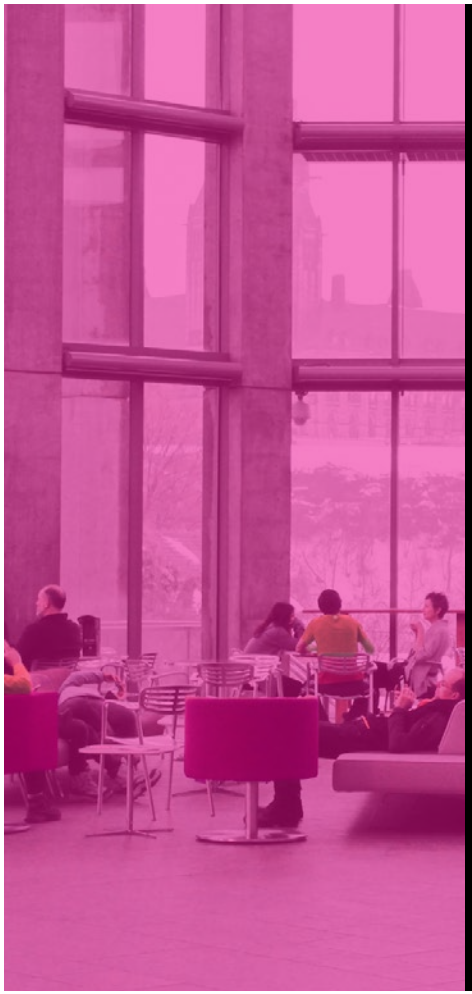
Building Tomorrow

Canada's Emissions Reduction Plan and Future Demand for Skilled Trades

Issue briefing | August 14, 2025



Future Skills Centre | Centre des Compétences futures

The Future Skills Centre – Centre des Compétences futures (FSC-CCF) is a forward-thinking centre for research and collaboration dedicated to preparing Canadians for employment success. We believe Canadians should feel confident about the skills they have to succeed in a changing workforce. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure, and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead.

The Future Skills Centre was founded by a consortium whose members are Toronto Metropolitan University, Blueprint, and The Conference Board of Canada.

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Contents

Key findings

- Policies described in Canada's 2030 Emissions Reduction Plan (ERP), released by the federal government in March 2022, will transform the demand for skilled trades, shifting focus away from areas like rail and residential construction toward clean water, renewable energy, and large-scale sustainable infrastructure.
- Roles such as water well drillers and power system electricians are projected to see the largest increases in demand under the ERP, with demand rising by around 13 and 8 per cent, respectively, by 2040.
- Already-high demand for heavy equipment operators will continue to grow, as will their relative share of the workforce (i.e., employment propensity), because more workers skilled in operating heavy machinery will be needed to support large-scale sustainable infrastructure projects.
- Other trades set to grow under the ERP include welders, pipefitters and sprinkler system installers, and transport truck drivers—key roles supporting renewable energy infrastructure and clean economy logistics.
- Roles in residential construction that are currently in high demand, such as carpenters, home renovation managers, and plumbers, are expected to see a decline in both demand and relative share of the workforce, driven by lower overall economic output and shifting priorities under the 2030 ERP.

Navigating a changing policy landscape

Canada's push to meet its climate targets will reshape both the construction sector and the broader demand for skilled trades. If policies outlined in the 2030 Emissions Reduction Plan (ERP)[1] continue to take effect, demand for skilled trades in construction and supporting sectors (e.g., rail) will shift dramatically, driven by new sustainability standards, infrastructure priorities, and green technology advancements.

To understand how the implementation of proposed ERP policies will impact future demand for skilled trades workers, we drew on two of The Conference Board of Canada's (CBoC) most powerful forecasting tools:

- **The National Model** predicts how Canada's economy might grow or change in the future. It draws on 1,700 variables (including 600 behavioural equations) that reflect how people and businesses behave. This model looks closely at key factors that shape the economy over the long term, including how Canada's population is growing and aging, employment, the price of goods, and investment expenditures.
- **The Model of Occupations, Skills, and Technology (MOST)** is powered by millions of data points drawn from multiple regularly updated sources of labour market information, including the Census of Population, the Labour Force Survey, the Job Vacancy and Wage Survey, CBoC's high-frequency labour market data (formerly Vicinity Jobs), and CBoC's own employment and demographic projections. The MOST provides a comprehensive and detailed view of the labour market.

1 Environment and Climate Change Canada, "2030 Emissions Reduction Plan: Clean Air, Strong Economy," March 29, 2022, https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030.html.

Measuring and understanding the ERP's impact

The 2030 ERP outlines Canada's strategy to cut greenhouse gas (GHG) emissions by 40 per cent from 2005 levels by 2030, with the goal of achieving net zero emissions by 2050.[2]

To estimate how the ERP might reshape skilled trades employment in the future, we developed two scenarios:

- **Baseline scenario:** This scenario reflects the status quo, where existing climate policies (e.g., output-based pricing system) are in place, but proposed ERP policies (e.g., upstream oil and gas cap regulatory framework) never come into effect. Under this scenario, oil and gas production continues to grow until 2042 before declining slightly as global demand falls.
- **Realistic scenario:** This scenario assumes that proposed policies from Canada's ERP are implemented as intended, though Canada still falls short of meeting its GHG targets by the year 2050. In this hypothetical but more realistic future, oil and gas production follows the status quo until the year 2030, but after that, stricter climate policies start to slow it down.[3] Due to these heightened regulations, overall economic activity is assumed to be lower under the ERP than in the baseline scenario, which will contribute to shifts in the demand for skilled trades.

Across both scenarios, overall demand for skilled trades in construction and supporting sectors is projected to grow. By looking at the difference in demand for skilled trades between each scenario, we can isolate the specific impact of ERP policies.

Interpreting differences in demand

Any increase or decrease in demand under the ERP should be understood relative to the baseline scenario, where no additional ERP policies are implemented. For instance, a positive difference implies that ERP implementation increases demand for the specific skilled trade mentioned, relative to the baseline scenario.

2 Environment and Climate Change Canada.

3 The Conference Board of Canada, Assessing the Socio-Economic Impacts of Canada's 2030 Emissions Reduction Plan, Ottawa: CBoC, January 31, 2025, https://open.alberta.ca/publications/assessing-the-socio-economic-impacts-of-canada-s-2030-emissions-reduction-plan-final-report

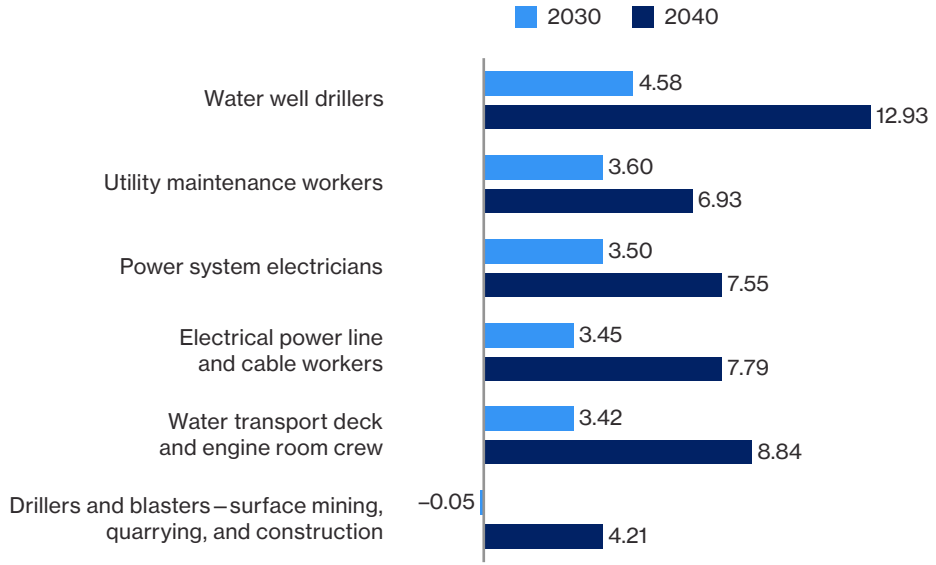
Sector-wide ERP impacts

Clean water and renewable energy on the rise

As shown in Chart 1, the skilled trades expected to see the most growth in demand under the 2030 ERP include:

- **Water well drillers:** Essential to expanding Canada's water management systems, which will be integral to climate resilience and resource sustainability.
- **Electrical power line and cable workers:** Crucial for building and maintaining renewable energy infrastructure, including power grids and energy storage systems.
- **Power system electricians:** Key to optimizing and maintaining renewable energy power systems such as solar, wind, and hydroelectric grids.
- **Utility maintenance workers:** Critical for retrofitting existing utility systems to make them more energy-efficient.

Chart 1
Water and renewable energy-related jobs see rising labour demand under ERP
(percentage change in labour demand due to ERP implementation)



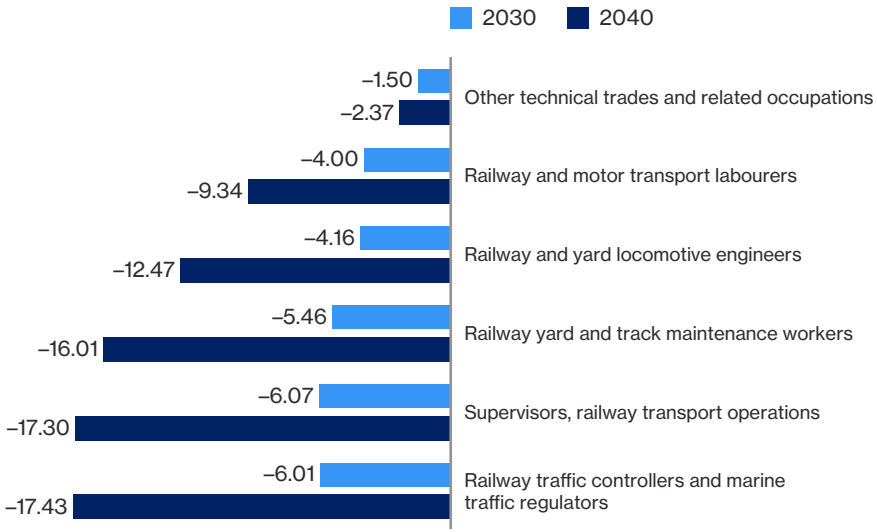
Notes: Data classified by five-digit occupation level. Percentage change is calculated as the percentage difference in labour demand between the realistic and the baseline scenario.
Source: The Conference Board of Canada.

Decreasing reliance on rail

Certain railway-related occupations, such as railway traffic controllers and maintenance workers, are expected to see the largest declines in demand under the 2030 ERP. (See Chart 2.)

As stricter climate policies under the ERP slow oil and gas production, which traditionally relies on rail[4] to transport heavy equipment and materials, demand for rail services is expected to decrease. Reduced need for shipments of oil by rail will have a negative impact on the demand for workers in the rail industry.

Chart 2
ERP leads to steep job losses in railway and transport trades
(percentage change in labour demand due to ERP implementation)



Notes: Data classified by five-digit occupation level. Percentage change is calculated as the percentage difference in labour demand between the realistic and the baseline scenario.
Source: The Conference Board of Canada.

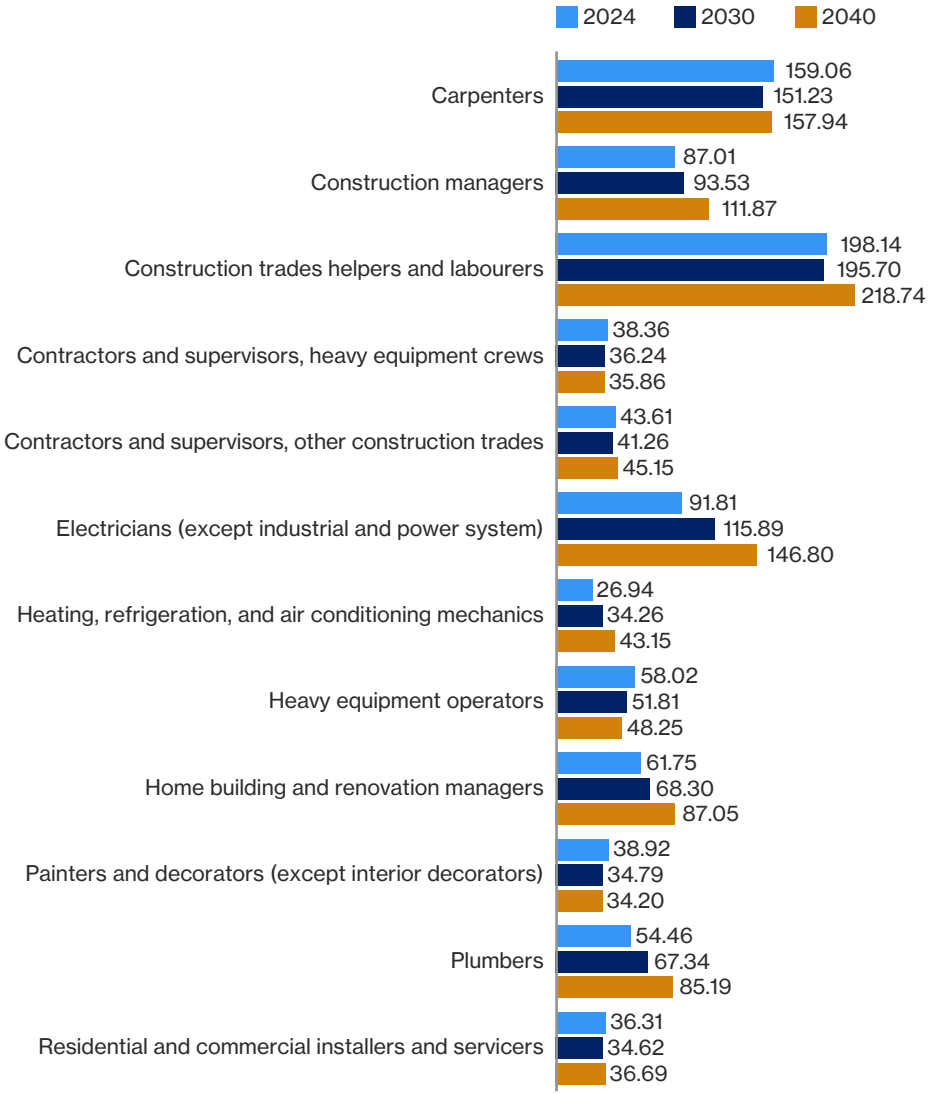
4 Natural Resources Canada, "Petroleum Products Distribution Networks," last modified January 7, 2025, https://natural-resources.canada.ca/energy-sources/fossil-fuels/petroleum-products-distribution-networks.

The ERP's impact on today's top trades

Chart 3 outlines the skilled trades experiencing the highest demand today and into 2040 under the baseline scenario.

We examined which of these occupations will grow in priority under the ERP and which will become less central to an ERP future. While demand for most trades is forecast to grow over the long term, we project that demand for some occupations will decline slightly over the next few years until 2030, largely due to a weakening economy dampening near-term construction and infrastructure activity.

Chart 3
Top labour demanded in construction occupations over the years
(number of workers, thousands)

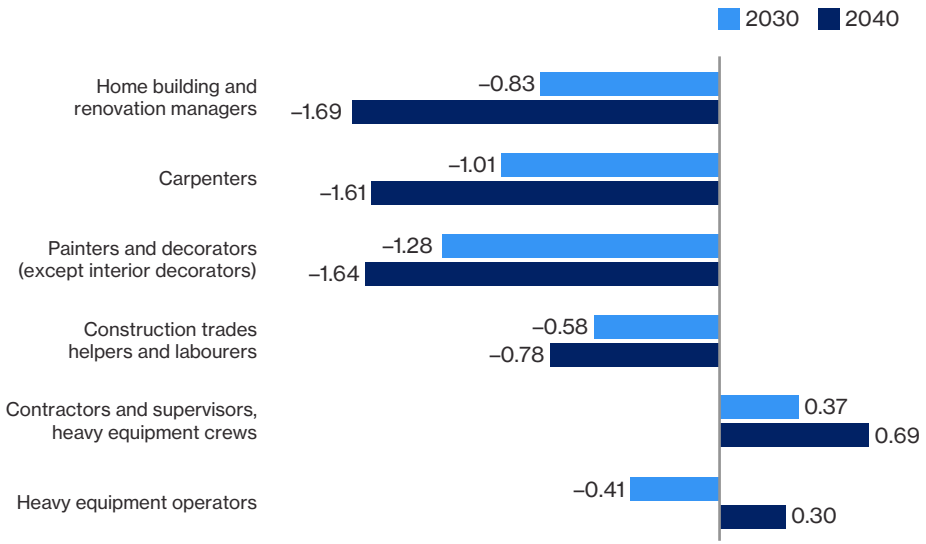


Notes: Data classified by five-digit occupation level. Top occupations are based on the largest number of workers in the baseline-scenario labour demand category from 2024 to 2040.
Source: The Conference Board of Canada.

Heavy equipment operators needed

Among the skilled trades in high demand today, heavy equipment workers are expected to see the most growth in demand under the ERP. (See Chart 4.)

Chart 4
ERP boosts demand for heavy equipment trades, lowers demand for carpenters
(percentage change in labour demand due to ERP implementation)



Notes: Data classified by five-digit occupation level. Top occupations are based on the largest number of workers in the baseline-scenario labour demand category in 2024. Percentage change is calculated as the percentage difference in labour demand between the realistic and the baseline scenario.
Source: The Conference Board of Canada.

The ERP will drive a growing need for skilled operators to manage heavy machinery in large-scale sustainable infrastructure projects, including energy-efficient building construction, renewable energy installations (e.g., wind and solar farms), and eco-friendly transportation systems (e.g., electric-vehicle charging infrastructure and sustainable public transport networks).

The rising demand for heavy equipment operators is accompanied by an increase in employment propensity—the likelihood of workers being employed in this specific occupation relative to all other occupations in the economy.[5] (See Chart 5.)

What is employment propensity?

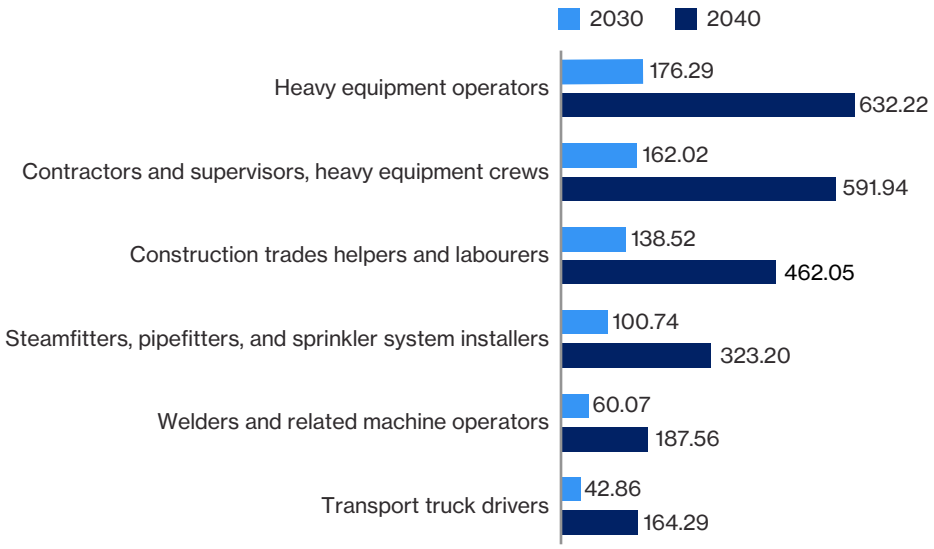
Employment propensity measures the share of workers employed in a specific occupation in the economy. It is the number of workers employed in a specific occupation, divided by the total number of employed workers.

Examining employment propensity helps provide a clearer picture of the expected shifts within the construction industry, even in a scenario where overall job numbers may decline due to lower assumed economic output.

See the methodology section for more details.

5 For a more detailed explanation of employment propensity, see the Methodology section in Appendix A.

Chart 5
ERP boosts employment potential in infrastructure and utility trades
(difference in employment propensity due to ERP; number of workers, thousands)



Notes: Data classified by five-digit occupation level. Employment propensity share is calculated as the number of workers employed in a specific occupation, divided by the total number of employed workers.
Source: The Conference Board of Canada.

In other words, heavy equipment operators are expected to make up a larger share of the overall workforce under the ERP than they would in a scenario without additional climate policies, highlighting their growing importance in the evolving economy.

Other occupations expected to see a rise in job share under the 2030 ERP include:

- **Pipefitters and sprinkler system installers:** Key to upgrading piping systems to meet energy-efficient standards for transporting gases and liquids.
- **Welders:** Essential for assembling and maintaining clean energy infrastructure, such as wind turbines and battery storage units.
- **Transport truck drivers:** Crucial to supporting logistics in the clean economy transition by moving renewable energy components, construction materials, and equipment across Canada.

These shifts highlight the essential role of skilled trades in advancing energy-efficient systems, executing large-scale infrastructure projects, and performing crucial utility retrofits.

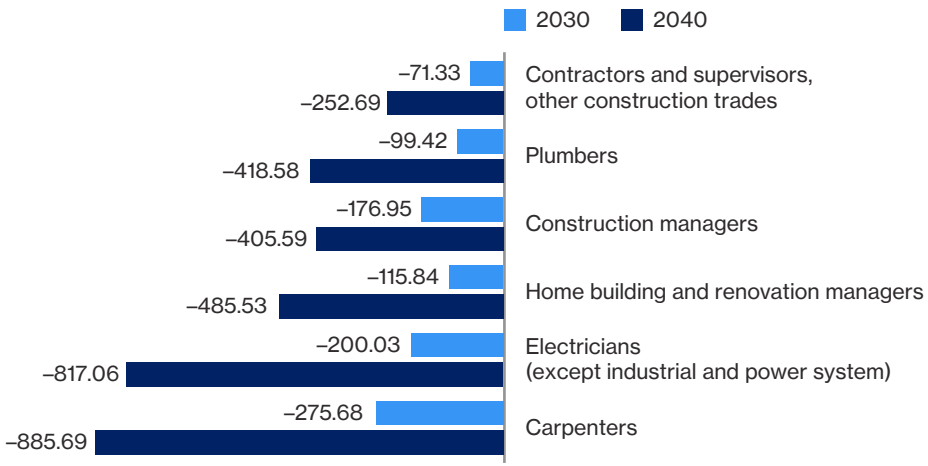
Residential construction takes a back seat

While skilled trades in residential construction are currently in high demand, changes related to the ERP are expected to reduce this demand. These roles include home building and renovation managers, carpenters, painters and decorators, and construction helpers.

These trades are also expected to see a decline in their employment propensity under the ERP, meaning workers in these roles will make up a smaller share of the overall economy than they would without the implementation of additional climate policies. (See Chart 6.)

This shift is likely driven by the lower level of economic activity assumed under the ERP. With slower expected economic growth, consumer spending on residential building and home improvements is expected to fall.

Chart 6
ERP lowers employment potential for residential construction trades
(difference in employment propensity due to ERP; number of workers, thousands)



Notes: Data classified by five-digit occupation level. Employment propensity share is calculated as the number of workers employed in a specific occupation, divided by the total number of employed workers.
Source: The Conference Board of Canada.

Looking ahead

Canada's path to reducing GHG emissions will reshape not only what gets built, but which workers and skills are needed to build it. The demand for skilled trades is set to undergo a large rebalancing, with the focus shifting away from traditional areas like rail and residential construction toward roles focused on clean water, renewable energy, and large-scale sustainable infrastructure. This shift will require some workers to apply their skills in new areas and others to develop new skills and expertise as part of Canada's green transition.

Appendix A

Methodology

To assess the impact of Canada's 2030 Emissions Reduction Plan (ERP) on skilled-trades labour demand and employment propensity in construction and supporting sectors, we considered two future emissions scenarios and deployed advanced forecasting tools. These are described in greater detail below.

Scenario descriptions

Baseline scenario

The baseline scenario reflects the long-term national economic outlook forecast by The Conference Board of Canada (CBoC) as of December 2023. No additional 2030 ERP or Canada Net-Zero 2050 policies, goals, or technological adoption rates are included in this forecast. Baseline GHG emissions intensities are forecast based on the historical pace of emissions intensity growth, validated against the current inventory of intensity-improving projects (e.g., carbon capture, utilization, and storage projects).

Realistic scenario

The realistic scenario assumes that proposed policies from Canada's 2030 ERP are implemented as intended, but Canada does not meet its GHG targets by the year 2050. In this scenario, emissions targets are not reached for several reasons, including:

- a lack of or delay in funding for large abatement projects;
- delays in development and construction;
- abatement technologies are less efficient than expected at reducing GHG emissions;
- the costs of abatement technologies are too high to implement fully;
- households purchase lower-emitting heating appliances and vehicles at a slower pace than needed, due to high costs and uncertainty around new technologies.

Isolating the ERP's impact

The difference between the realistic and baseline scenarios, in terms of labour demand and employment propensity, indicates the estimated impact of the ERP on these metrics.

To isolate and better understand the impact of the realistic scenario, we held employment projections static in the model, rather than allowing them to adjust dynamically over time. In reality, when structural shifts occur and unemployment rises in a particular occupation or sector, workers tend to respond by gradually exiting those roles and seeking opportunities in areas with stronger demand. This natural reallocation of labour helps reduce unemployment over time. However, allowing for such dynamic adjustments can obscure the immediate effects of the policy shock being studied. By holding employment patterns constant, we are able to more clearly identify the direct impact of the realistic scenario on unemployment across specific occupations. Further details on scenario design and assumptions can be found in a previous report.[1]

We also examine employment propensity, a measure that shows the share of workers employed in a specific occupation in the economy. In addition to overall demand for specific trades, the 2030 ERP will influence the relative distribution of workers across occupations within the construction sector. Examining employment propensity allows us to track how the share of workers in these trades changes relative to others in the economy and provides a clearer picture of the expected shifts within the construction industry, even in a scenario where overall job numbers may decline due to lower assumed economic output.

Forecasting tools

We used two CBoC models to forecast demand for skilled trades in the construction sector across the baseline and realistic scenarios: the national model and the Model of Occupations, Skills, and Technology (MOST).

1 The Conference Board of Canada, Assessing the Socio-Economic Impacts of Canada's 2030 Emissions Reduction Plan, Ottawa: CBoC, January 31, 2025, https://open.alberta.ca/publications/assessing-the-socio-economic-impacts-of-canada-s-2030-emissions-reduction-plan-final-report.

National model

The Conference Board of Canada's national model, also known as the Long-Term Forecasting Model (LTFM), is a quarterly macroeconomic model that emphasizes factors that are important for forecasting the economy's long-term prospects. These include a detailed consideration of the population and its age structure, a disaggregated modelling of prices, employment, and investment expenditures. The LTFM also treats the government sector in detail and reflects the most recent institutional environment. Projections of potential output allow the model to be used for long-term analysis.

There are roughly 1,700 variables in the model, of which 600 are behavioural equations. The LTFM variables refer to many of the variables in the National Income and Expenditure Accounts as well as related indicators for productivity, wages, prices, financial markets, international capital flows, and exchange rates. Over 900 of these variables form a single simultaneous block in the model, reflecting the large interdependence of its various sectors. The most important of the 600 exogenous variables in the model are foreign economic indicators and variables relating to government expenditures and revenues and population demographic characteristics.

The model is based on the neoclassical synthesis and thus possesses many of the properties associated with such models. It is a multi-sector model with wages and prices driven by sector-specific production functions. Investment expenditure is based on the capital stock solved as a factor in a constant elasticity of substitution (CES) production function. An effort is made to ensure that the rate of capital–labour substitution implicit in the investment equations is also reflected in the employment equations. Output is largely expenditure-determined in the model, but there are supply-side feedbacks through sector capacity measures that influence prices, imports and exports, and, in turn, output.

The Model of Occupations, Skills, and Technology

We used the Model of Occupations, Skills, and Technology (MOST) to forecast labour demand and employment propensity across selected occupations in the construction sector. The MOST is a tool developed by CBoC in partnership with the Future Skills Centre.[2] It differs from traditional labour market models in its innovative approach and exceptionally detailed labour market outlook. The MOST provides granularity by categorizing occupations into five-digit NOCs[3] and industries into four-digit NAICS[4] while also offering insights at the provincial and territorial levels. It also provides comprehensive and forward-looking analysis, with projections extending years into the future.

Drawing on multiple regularly updated data sources, including the Census of Population, the Labour Force Survey, the Job Vacancy and Wage Survey, CBoC's high-frequency labour market data (formerly Vicinity Jobs), and CBoC's employment and demographic projections, the MOST provides a comprehensive and detailed view of the labour market.

2 The Conference Board of Canada, "The Model of Occupations, Skills and Technology (MOST)", accessed July 17, 2025, https://www.conferenceboard.ca/future-skills-centre/tools/model-of-occupations-skills-and-technology-most/.

3 The National Occupational Classification (NOC) is a system used in Canada to classify and organize occupations based on skill type and skill level.

4 NAICS stands for North American Industry Classification System, which is used in Canada, the United States, and Mexico to classify businesses and industries based on similar economic activities.

Acknowledgements

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