



# Green Buildings, Good Jobs

A National Green  
Homes & Buildings  
Strategy for Canada

Prepared by  
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## Acknowledgements

The Green Economy Network is a coalition of trade unions, environmental groups, and social justice organizations. We advocate for climate solutions that put workers and communities first. Our National Green Buildings Strategy was developed by the Common Platform Working Group, who presented a draft version of the document to our members at an interactive workshop for feedback and amendments.

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## Executive summary

Canada's homes and buildings are not energy efficient. This comes at a cost, both to the planet and Canadians' wallets: emissions from the buildings sector have increased significantly in recent decades, while many struggle to keep up with the high costs associated with energizing their homes.

To reduce carbon emissions from the sector, the government must increase investments aimed at providing deep retrofits for the country's home and building stock.

The government must also ensure that Canada has the training capacity and building standards needed to ensure the industry is prepared for

**We call for a \$65.5 billion investment over 5 years to accelerate the de-carbonization of Canada's home and buildings stock. These funds should go towards direct funding for deep retrofits for Canada's homes and buildings, as well as training to ensure we have the workforce needed to undertake this monumental task. Steps must also be taken to improve of Canada's building code, as well as its mass adoption across jurisdictions.**

Adoption of this plan would reduce carbon emissions and make life more affordable for Canadians, all while creating thousands of good jobs.

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## Introduction

To meet its commitment to mitigating the impact of climate change, Canada must dramatically reduce its energy consumption. It must also adapt its buildings to cope with the increasing number and severity of extreme weather events. However, Canada's building stock was not designed to meet these new challenges.

Building energy use must be reduced substantially to meet mitigation and adaptation goals. Standards of new construction must be much higher, and the existing building stock must undergo deep retrofitting to achieve successful energy conservation objectives.

Our current housing and building stock result in an enormous amount of energy waste: when electricity-related emissions are accounted for, 18% of Canada's greenhouse gas emissions are attributable to the buildings sector.<sup>1</sup> It is even more when we include manufacturing, transportation and decommissioning activities associated with the construction process.

Energy efficiency and conservation are our cleanest, cheapest, and most productive energy sources: the cheapest energy is the energy you don't use. Investing in energy efficiency and conservation boosts productivity, reduces costs, cleans our air and water, and creates jobs throughout the economy.

An energy efficient economy is a strong, competitive economy. It has lower electricity bills due to energy savings, freeing up capital for investment and discretionary income for personal spending. Energy efficiency is also unique among energy sources in that it pays for itself through savings over time. While we tend to think of energy savings in relation to our housing stock, there are major savings to be made in commercial and public buildings across the country.

Canada needs a bold plan to transform this country's housing and building stock. This means expanding the federal approach so it can adequately meet the climate challenge.

Improving Canada's approach to energy efficiency must focus on two key areas:

1. **Green Homes:** providing deep retrofits to Canada's existing residential dwellings and ensuring future homes meet net-zero standards.
2. **Green Buildings:** Making our current and future commercial and institutional building stock carbon neutral.

In both areas, Canada must improve its various building and energy codes to speed-up the process of decarbonizing Canada's physical infrastructure.

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## Gaps in Canada's Green Homes and Buildings Strategy

Canada has committed to a net-zero economy by 2050. However, our current approach to energy efficiency falls short.

For the past decade, our annual retrofit rate has been below 1% for residential buildings and 1.4% for commercial buildings.<sup>2</sup> At that rate, it would take over 100 years for Canada to reduce its existing building stock to net-zero, even though the government has committed to a net-zero economy by 2050.

To reach net-zero emissions in the building sector on time, we will need to retrofit our building stock at a rate of 5% per year, at a minimum.<sup>3</sup>

The federal government introduced plans for a Green Buildings Strategy in 2021, but the funding it has provided for its initiatives is not nearly enough to decarbonize our building stock to meet the government's ambitious climate targets.

Gaps in Canada's green infrastructure policy stems from a lack of funding for its current retrofit programs, inadequate focus on the needs of low-income Canadians, too little attention to workforce training and a lack of a universal building code that is up to the challenge of meeting net-zero emissions.

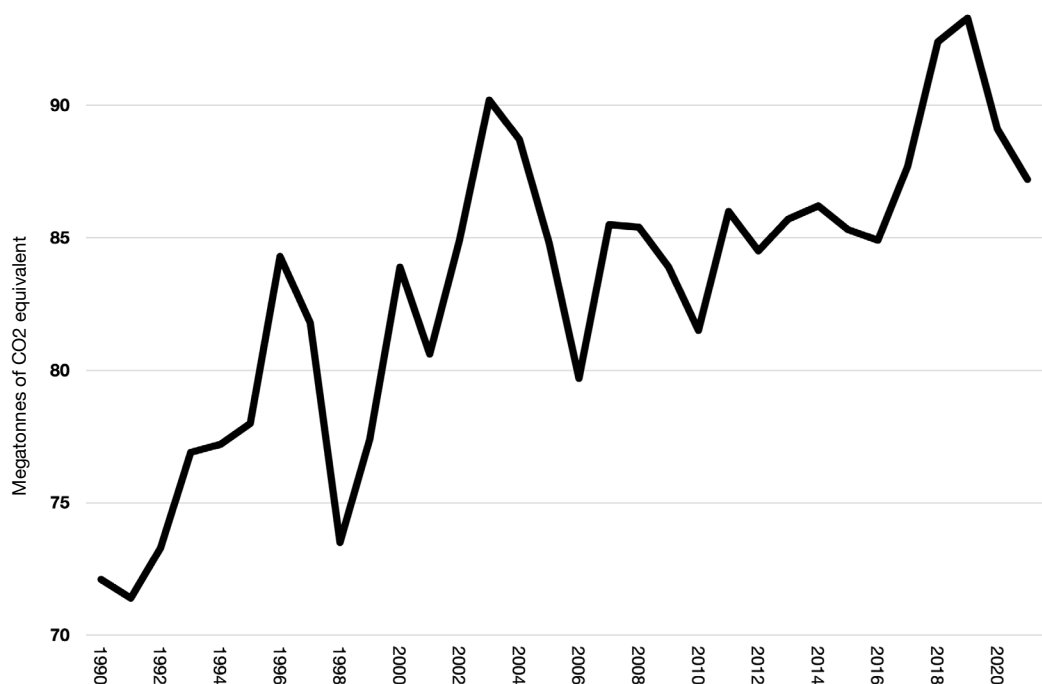


Chart 1  
**Canada's Buildings Sector Greenhouse Gas Emissions, 1990-2021**<sup>20</sup>

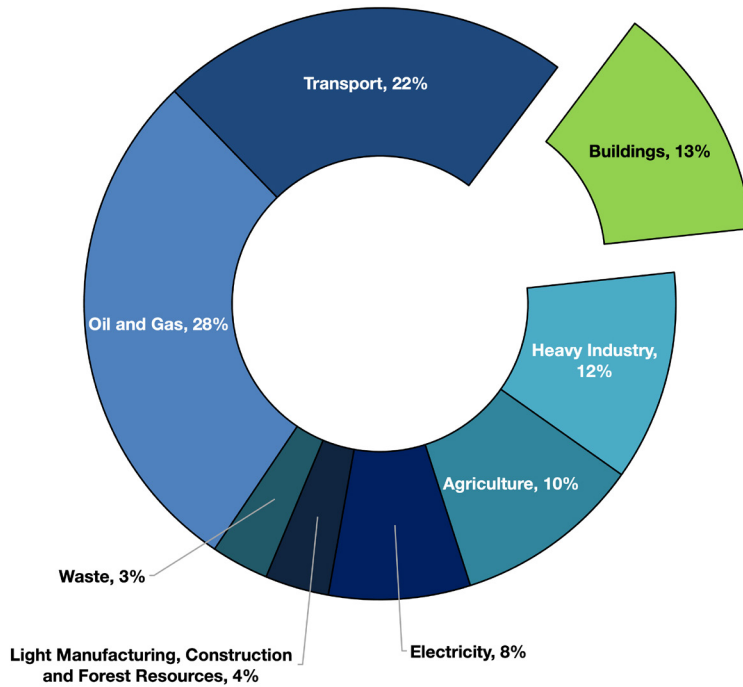


Chart 2

**Among economic sectors across Canada, the buildings sector was the 3rd largest emitter of CO2 equivalent emissions in 2021<sup>21</sup>**

Economic sector emissions as an average of Canada's total 2021 greenhouse gas emissions of 670 megatonnes of CO2 equivalent.

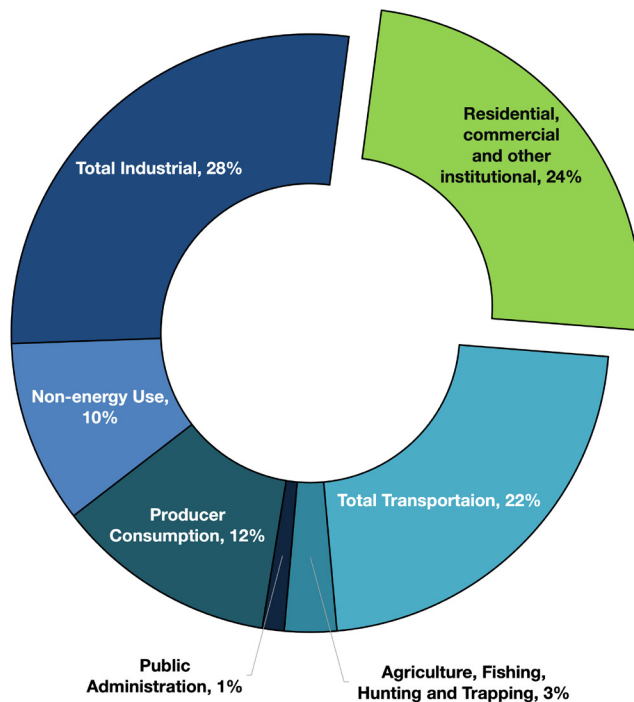


Chart 3

**Among economic sectors across Canada, buildings sector was the 2nd largest consumer of energy in 2021<sup>22</sup>**

Economic sector energy consumption as percentage of Canada's total 2021 primary and secondary energy consumption of 10,452,604 terajoules

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## Inadequate spending and standards

The federal government has made progress in recent years regarding its approach to decarbonizing the country's building infrastructure. However, these programs lack the funding and regulatory stringency needed to achieve net-zero emissions in the sector by 2050.

Over the next 5 years, the government plans to spend \$4 billion to retrofit Canada's housing and building stock. Part of this spending is allocated to the Greener Homes Initiative, which was introduced in 2021 and provides grants for homeowners making energy-efficient investments in their residences. The Canada Infrastructure Bank (CIB) has also allocated \$2 billion for large-scale buildings in both the private and public sector.

However, the amount of funding provided by the Greener Homes program and the CIB is inadequate—a fact acknowledged by Natural Resources Canada. The government estimates that retrofitting Canada's entire building stock by 2050 would cost between \$20 and \$32 billion per year, far more than the \$4 billion currently allocated.<sup>4</sup>

Additionally, in 2023 the government introduced a sustainable jobs stream under its Union Training and Innovation Program, which provides resources to union-led job training programs for workers in the building sector.

However, this program currently only has tens of millions of dollars allocated to it, which pails in comparison to the funding that would be needed to meet the demand for new jobs in the industry. If Canada's building stock is going to see a successful decarbonization in the coming decades, funding must increase.<sup>5</sup>

On the regulatory front, Canada's national building performance standards are not stringent enough. This means that many new buildings have suboptimal insulation, outdated HVAC systems, and limited energy conservation measures.

In 2022, the National Research Council published its latest edition of National Building Code of Canada for new buildings. This new code features a tiered performance model, with the highest tier of building being one that is “net-zero energy ready,” meaning buildings can supply their own needs with renewable energy. Because codes are set at the provincial and municipal levels, it is up to these jurisdictions, voluntarily, to adopt the federal standard, meaning standards vary widely across Canada.<sup>6</sup>

Moreover, Canada's current approach to building codes is primarily focused on ensuring new building stock will be net-zero. However, focusing on the low hanging fruit leaves out the challenge of our existing buildings, most of which will still be in use in 2050. Without a comprehensive retrofit program, it will not be possible to make Canada's total building stock truly carbon-neutral within the government's climate timeframe.

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## A lack of focus on low-income Canadians

Additionally, there are significant weaknesses in Canada's approach to giving persons on low-income access to its retrofit programs. Under the current federal Canada Greener Homes Initiative, homeowners are required to pay upfront for retrofitting upgrades to their properties before they receive any grants. This model is a barrier to low-income Canadians who do not have enough disposable income to cover these expenditures.<sup>7</sup> Lack of access to energy efficient upgrades for low-income households limits the government's ability to tackle energy poverty

The government has made some strides in recognizing these barriers. In 2022, it announced \$250 million in federal funding over 4 years to help low-income Canadians switch from oil-based home heating systems to energy-efficient heat pumps. However, this pales in comparison to the amount needed to ensure all low-income Canadians have access to these cost saving technologies.<sup>8</sup>

### What is energy poverty?

Efficiency Canada defines energy poverty as “a condition where households face significant challenges meeting their essential home energy needs, paying for their energy costs or accessing other life necessities due to disproportionate spending on energy costs or obtaining energy efficiency upgrades necessary to reduce their energy costs.” It has been estimated that energy poverty affects 3.9 million Canadian households.<sup>23</sup>



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# A Plan for Green Homes and Buildings in Canada

To reach net-zero carbon emissions by 2050, Canada must implement a unified Green Homes and Buildings program, expanding the progress it has already made through its recently implemented initiatives.

To ensure Canada's approach to decarbonizing our housing and commercial infrastructure effective, we will need to spend big. We call for a **\$65.5 billion dollar investment over a 5-year period.**<sup>9</sup>

- **\$10 billion** per year for deep retrofits on Canada's residential building stock (**\$50 billion total**).
- **\$2 billion** per year for a Low-Income Housing Retrofit Grant Program retrofit program that would see the government cover 100% of upfront costs for eligible candidates upgrading housing units (**\$10 billion total**).
- **\$1 billion** for a Non-Profit Sector Retrofit Grant Program to support the retrofitting of buildings and residences within the non-profit sector
- **\$100 million** per year to a federal agency dedicated to improving retrofitting productivity (**\$500 million total**).
- **\$4 billion** to support the development of retrofits for large-scale commercial infrastructure and making our domestic supply chains for energy efficient
- **\$1 billion** for a program that would train the workers needed to provide the large quantity of retrofits needed to get to net-zero.

As appropriate, elements of this investment should also be used to improve Canada's federal building code and to provide incentive mechanisms for provinces and municipalities to adopt these standards.

This program would aim to achieve the following objectives:

- 1. Expanding retrofit funding and improving financing mechanisms**
- 2. Augmenting and universalizing Canada's building codes**
- 3. Enhancing industry-level training**
- 4. Improving industry effectiveness by promoting public sector development**

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## Expanding funding and improving financing mechanisms

One major barrier preventing households and businesses from purchasing retrofit upgrades is the high upfront costs associated with these projects, even when the government provides grants to home and building owners. Under current federal arrangements, retrofit grant programs require applicants to assume the full cost of the retrofit, then apply for grants to be partially reimbursed after the project has been completed. This is especially cumbersome for low-income homeowners, but also creates hesitation on the part of middle class and high-income earners, as well as firms who want certainty that they will not be stuck footing the whole bill.

This issue can be obviated if the government assume the costs of retrofits and pre-retrofit energy evaluations at the onset, thus lowering the financial burden on individuals. For low-income earners, this would mean that the government would cover 100% of the cost at no charge to the applicant. For everyone else, the government would also pay 100% of the costs at the onset, but 50% of the total cost would be paid by the applicant over the long-term.

Through a “pay-as-you-save”<sup>10</sup> program, this payback program would create no financial burden for the home/building owner. Energy efficient homes cost less to heat and cool. This means that when a person retrofits their property, the difference between what their monthly energy bill is post-retrofit versus what it was pre-retrofit is high enough that much of it can be used to pay back the government for the cost of the job, while still providing the owner with savings during the payback period.

### An Example of “Pay as You Save”

On-Bill Repayments with Manitoba Hydro’s Home Energy Efficiency Loan provides financing of a minimum of \$500 up to \$7500 for energy efficiency improvements with no down payment required. The on-bill repayment system allows residents to pay instalments on their hydro bill for a maximum loan period of 5 years and starts at just \$15/month.

## Improving building codes

Additionally, speeding up the retrofit rate can be driven by incentives through funding bonuses for provinces that have (1) a plan to adopt the upper performance tiers of the federal building codes, (2) a plan to achieve compliance with these standards, and (3) the introduction of mandatory energy performance labels and reporting for both residential and commercial buildings.<sup>11</sup> Federal building performance standards would also be improved if they took into account “embodied carbon”—that is, the carbon emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials.<sup>12</sup> Once standards around embodied carbon are set at the federal government, funding incentives could be implemented to increase the rate at which those in the building and retrofit industry buy from domestic suppliers, since domestically-purchased building materials typically have lower rates of embodied carbon than their international counterparts.<sup>13</sup>

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## Providing better industry-level training

Making it easier for home and building owners to access retrofitting funding by reducing costs will create demand for thousands of tradespeople associated with the buildings industry. These new jobs will require new forms of training, as retrofitting requires a high degree of knowledge, skills and competencies, given the significant variation in buildings across Canada. As such, funding for training should take the form of significant investments in vocational education and training programs, as well as the expansion of training centres.

The government should also more stringently regulate training standards in a push towards moving training away from a focus on narrow skills and towards one that provides workers with the tools they need to excel in their long-term careers in the industry. Training that focuses on theoretical knowledge and a broad range of on-the-job skillsets has been shown to be more effective in producing a workforce capable of developing infrastructure that is in-line with climate friendly building standards.<sup>14</sup> There should also be a focus on providing workers in the industry with an understanding of how their jobs connect with the fight against climate change.<sup>15</sup>

## Promoting public sector development

While the approach to retrofitting is currently reliant on the private sector to provide retrofitters and appraisers, the scope of upgrades needed to reach net-zero will require more active government intervention. In addition to providing funding for training for workers in this industry, the government should also create an agency dedicated to directly facilitating the providing of Canada's building stock with deep retrofits.<sup>16</sup> This agency would directly employ workers who would connect home and building owners with suppliers and contractors in the building retrofit industry in order to scale-up retrofit projects and make sure the industry runs as effectively as possible.

### The power of public sector leadership: the *EnergieSprong* approach

*EnergieSprong*, which translates to “energy leap,” is a model of building retrofits developed in the Netherlands and is picking up steam globally.<sup>24</sup> Through this program, suppliers and contractors work collaboratively to provide deep retrofits in an integrated, large-scale basis. This collaboration is facilitated by an independent entity, which augments supply chain efficiency through demand aggregation: a large number of similar buildings are pooled into a single project, which increases the scale of demand and provides an incentive for previously atomized service providers and contractors to work together in an integrated fashion, rather than on a project-by-project basis. The program has proved highly successful in the Netherlands, where it is being implemented in the social housing sector to help the country fulfil its goal of making its entire housing stock net-zero by 2050.

## Benefits of greening Canada's homes and buildings

Achieving the target objectives for the Green Homes and Green Buildings Strategy will result in a substantial increase in the energy efficiency of Canadian buildings and ensure that our building stock gets to net-zero by 2050. An investment of this magnitude will result in thousands of jobs being created in the Canadian economy while saving Canadians money on their household utility bills.

By the government's own admission, its current approach to greening Canada's home and building stock falls short. To get Canada's homes and buildings to net-zero by 2050, spending upwards of between \$580 billion to \$972 billion will be required.<sup>17</sup> This means that, GEN's 5-year plan for Green Homes and Green Buildings will require renewal after its initial period of implementation. Nonetheless, the benefits of avoiding climate catastrophe will outweigh the costs of this spending programme in the long run.

Additionally, saving Canadians money on their energy bills will relieve the financial burden for millions at a time when cost-of-living has drastically increased on an economy-wide scale. Some estimates put the rate of energy poverty in Canada as high as between 18% to 19%.<sup>18</sup> Meanwhile, Canadians are experiencing all-time high prices when it comes to purchasing their other necessities. Reducing the cost of heating and cooling homes would counter-balance these trends and allow Canadians to spend more and spend on what matters most.

Table 1

### Economic impacts of proposed Green Homes and Buildings Plan<sup>25</sup>

Proposed spending						
	Year 1	Year 2	Year 3	Year 4	Year 5	Annual average
\$ (billions)	8	10.6	13.3	16	18.6	13.3

Projected Employment impacts (jobs created)						
	Year 1	Year 2	Year 3	Year 4	Year 5	Annual average
High estimate	62,040	80,878	97,090	122,080	141,918	100,801
Low estimate	78,080	103,456	129,808	156,160	181,536	129,808

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Spending on building retrofits and construction creates between 7.63 and 9.76 jobs per \$1 million. This means that a \$65.5 billion investment in greening Canada's home & building stock could create between 499,765 and 639,280 jobs over a 5-year period (see Table 1). By attaching incentive mechanisms that ensure jobs in this sector are well-paying and unionized—as the government has done with investment tax credits for the clean energy industry<sup>19</sup>—the federal government can ensure that these green jobs are also good jobs.

## Conclusion

A bold program to green Canada's homes and buildings will save Canadian's money and create good jobs, all while ensuring that we lower carbon emission to net-zero by 2050. This spending should coincide with an expanded National Housing Strategy which is focusing on expanding the scope of non-profit housing in Canada to mitigate the current affordability crisis.

In order achieve its net-zero goals, the government will need to dedicate far more money than is currently on the table to finance the retrofiting of Canada's building stock at all levels, whether it be residential, non-profit, or commercial. Financial barriers for individuals and organizations interested in decarbonizing their properties must also be minimized through a system that sees the government assume the upfront cost of energy audits and retrofits. To meet the demand for the skilled workforce this funding will create, there must also be a significant expansion of funding for training in the building sector, focused on providing the tools needed for lifelong careers in the sector.

Lastly, the government should also consider the benefits of taking a more active role in facilitating the retrofiting process beyond implementing guidelines and incentives for market actors. The formation of a federal agency that directly provides energy audits and connects property owners with retrofit providers would fill in the gaps that the market is currently unable to fill.

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## Endnotes

- 1 Not taking electricity-related emissions into account, the figure is 13%. Environment and Climate Change Canada, *[A Healthy Environment and a Healthy Economy: Canada's strengthened climate plan to create jobs and support people, communities and the planet](#)*, Government of Canada, 2020.
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- 14 Linda Clarke, et. al., "[Transforming vocational education and training for nearly zero-energy building](#)," *Buildings & Cities* 1(1), 2020.
- 15 For an example of such a program, see Corrinne Tallon and John Calvert, *Promoting Climate Literacy in British Columbia's Apprenticeship System: Evaluating One Union's Efforts to Overcome Attitudinal Barriers to Low Carbon Construction, Adapting Canadian Work and Workplaces to Respond to Climate Change*, 2017.

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  - 17 Haley and Torrie, *Canada’s Retrofit Mission*, p. 6.
  - 18 Mylene Riva, et. al., “[Energy poverty in Canada: Prevalence, social and spatial distribution, and implications for research and policy.](#)” *Energy Research & Social Science*, 81 (2021).
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  - 21 Ibid.
  - 22 Statistics Canada, Table: 25-10-0029-01 (formerly CANSIM 128-0016), [Supply and demand of primary and secondary energy in terajoules annual](#), 2022.
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  - 24 See, [Energiesprong.org](#).
  - 25 Author’s calculations based on Marc Lee, Caroline Brouillette, and Hadrian Mertins-Kirkwood, [Spending What it Takes: Transformational climate investments for long-term prosperity in Canada](#), Canadian Centre for Policy Alternatives, 9 February 2023; and Silas Xuereb and Inez Hillel, [Job creation through transformational climate investments: Assessing the impact of proposed climate investments in Canada](#), Vivic Research, 21 March 2023.