

## Lowering costs and enhancing equity to achieve net-zero emissions through energy efficiency

*Efficiency Canada submission to Budget 2022 consultations*

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Efficiency Canada is a research and advocacy organization housed within Carleton University's Sustainable Energy Research Centre that acts as a national voice for an energy efficient economy. We envision a future where Canada uses energy efficiency to its fullest potential. This means maximizing the benefits of energy efficiency to achieve a sustainable environment, a productive economy, and a just and equitable society. We are located on the traditional unceded territories of the Algonquin nation.

To achieve net-zero emission goals, this budget must strategically dedicate resources to prepare for a significant scale-up in energy efficiency. Canada lags other nations in the efficient use of energy resources. A recent International Energy Agency analysis showed that Canada has the highest energy intensity measured by total final consumption per unit of GDP amongst all member countries.<sup>1</sup> However, this suggests there is significant potential to cut energy costs, improve productivity, and reduce emissions.

Our recommendations for this budget are focused on three primary macro priorities:

- 1) Establishing the policy structures necessary to achieve net-zero emission goals and 2030 reduction targets**
- 2) Alleviating supply chain bottlenecks through a more strategic management of supply and demand**
- 3) Helping Canadians most vulnerable to cost-of-living increases**

With this policy context in mind, we highlight three high-priority recommendations for this year's budget:

- 1) Accelerate adoption of net-zero building codes**
- 2) Launch at-scale building retrofits**
- 3) Expand low-income energy efficiency**

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<sup>1</sup> International Energy Agency, Canada 2022: Energy Policy Review, available at <https://www.iea.org/reports/canada-2022>

## Accelerating Adoption of Net-Zero Building Codes

### *Recommendation*

- *\$200 million over 3 years to support market readiness for net-zero energy-ready codes in provinces and municipalities*
- *Provide adequate resources to National Resources Canada and the National Research Council of Canada to develop net-zero emission buildings codes and national code compliance tools*

This is a critical year to make sure all new buildings achieve net-zero emissions.

The National Research Council is currently finalizing publication of a new national model building code. This model code for new buildings is unique in providing several performance tiers that evolve towards a net-zero energy-ready standard – where a building is so energy efficient it can easily supply its own energy needs with on-site renewables.

The publication of this code has been significantly delayed from its anticipated 2020 release date. At the same time, climate goals call for an acceleration of code adoption. The International Energy Agency recommends adoption of net-zero compatible building codes by 2025.<sup>2</sup> The Liberal Party platform in the last election also called for a 2025 adoption date.<sup>3</sup>

The squeeze caused by code publication delay and increased ambition requires federal government leadership to accelerate adoption by provinces and municipalities. Strategies to promote market readiness can accelerate adoption and work to build the skills and knowledge necessary to build to a net-zero standards without increased construction costs, and significantly reduced operational costs.<sup>4</sup>

Therefore, we are calling for the creation of a **Net-Zero Building Code Acceleration Fund** in this year's budget. This fund will support market readiness for the more rapid adoption of net-zero energy-ready building codes in provinces as well as municipalities. The fund will support resources for building officials and code compliance tools, as well as activities like training and education on building science, studies that illuminate the cost implications of design choices, and stakeholder engagement processes.

To calculate an appropriate investment, we benchmarked against the investments made in British Columbia to support adoption of the BC Energy Step Code which is the template for Canada's *tiered* building codes moving to a net-zero energy-ready standard. The \$200 million over three years recommendation is based on the spending over the past five years in BC, pro-rated by national population, and collapsed into 3 years to meet the accelerated 2025 target.

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<sup>2</sup> International Energy Agency. Net Zero by 2050 <https://www.iea.org/reports/net-zero-by-2050>

<sup>3</sup> See tracking energy efficiency in the 2021 election platforms.

<https://www.energycanada.org/election2021/>

<sup>4</sup> For a discussion see, Rob Bernhardt 2021. "Addressing the Cost of Efficiency" Passive House Canada, available at

<https://energystepcode.ca/app/uploads/sites/257/2021/05/Cost-of-Efficiency-Report-2021-final.pdf>

### *National code development and compliance*

The federal Minister mandate letters also include a priority to publish “a net-zero emissions building code and model retrofit code by the end of 2024 at align with national climate objectives and provide a standard for climate-resilient buildings”.

These two priorities are significant changes to building codes. Codes and standards will be developed for the retrofit of existing buildings, while codes have traditionally primarily considered new buildings. In addition, this mandate adds consideration of emissions to a framework that previously used a narrow definition of energy efficiency.

To achieve net-zero emissions we must develop these new codes and building performance standards as quickly as possible. However, this places significant new demands on the traditional code development process.

This year’s budget must therefore provide **adequate resources to National Resources Canada and the National Research Council of Canada to develop net-zero emission buildings codes.**

Developing a retrofit code will require significant technical research on net-zero compatible building standards. In addition, the zero-emission code require developing easily accessible information on operational emissions, and significant research on emission considerations of different construction materials and design choices.

Resources for NRCan and the NRC are also required to create **national compliance tools** for both net-zero energy-ready codes and the new codes under development. These tools smooth the way for building code adoption and making sure the market produces the emission reductions and energy efficiency improvements modelled. Tools the federal government can provide that will help provinces and municipalities build more energy efficient buildings include a common portal with information on quality assurance, data, liability; anonymized case studies and lesson learning resources; common guidelines and reference tools; and access to national subject matter experts.

**For more information on net-zero building codes, see the following links to Efficiency Canada publications:**

Kevin Lockhart “Want net-zero building codes in Canada?: It’s time to create the Net-Zero Building Acceleration Fund” November 26, 2021, available at <https://www.energycanada.org/net-zero-building-acceleration-fund/>

Andrew Pride “Tiered Energy Code Best Practices for Compliance” 2020, available at <https://www.energycanada.org/report-tiered-energy-codes-best-practices-for-code-compliance/>

Kevin Lockhart “Making a Net-Zero Emissions Building Code by 2024 a reality” January 31, 2022, available at <https://www.energycanada.org/net-zero-emissions-building-code-by-2024/>

## Launch at-scale building retrofits

### *Recommendation*

- *\$100 million per year to create and fund operational costs of market development teams*
- *At least a \$5 billion capitalization for “large scale” innovative retrofit projects*

The federal government has a clear mandate to accelerate GHG reductions and create a net-zero emissions future. To do that, we need to retrofit almost every building in Canada to be highly energy efficient and to use zero-carbon energy sources.

Accomplishing this task in less than three decades requires a dramatic scale-up in the number of buildings undergoing comprehensive energy and GHG saving improvements. The traditional financing, incentive and marketing programs that encourage incremental energy savings are not up to the task.

Finding the right mix of business models, market transformations, and technologies that enable us to accomplish deep retrofits at scale will require a process of discovery. Yet, this does not mean building retrofit policy can be shelved for more study. Indeed, the sooner we launch on-the-ground initiatives, the faster we can trigger new learning about transformative retrofit solutions that are key to informing a national net zero emissions building strategy that works.

In a June 2021 study, Efficiency Canada introduced the concept of a mission-oriented approach to building retrofits. Ideas from this report were present in the Conservative, NDP, and Liberal party platforms in the 2021 election.<sup>5</sup> The Liberal platform included support for a large-scale retrofit initiative modeled on the Dutch “energiesprong” approach, which undertook the mass retrofit of affordable housing to build economies of scale. Following from this priority, the Natural Resource Minister mandate letter includes “launching a community level net-zero emissions homes initiative”.

### *Market development teams*

Energiesprong means “energy leap”. This approach is implemented by market development teams. These are intermediary organizations that work to re-shape retrofit markets. They can do this by organizing and aggregating together actors on the demand side (i.e., building owners and users) and then spurring supply side innovations in areas like manufacturing or contractor business models. In the Netherlands, these teams have shown that retrofits can be achieved at lower cost and faster through economies of scale and coordination, which has led other jurisdictions like France, the UK, and New York State to launch their own at-scale retrofit initiatives.

It will be important to create these teams in Canada as soon as possible because it will likely take at least a year for the teams to undertake adequate planning and community outreach. Developing transformative retrofit projects will require significant up-front efforts for design and community outreach and supply-demand coordination, or else they will end up falling back onto standard ways of doing things.

The Atmospheric Fund, the Pembina Institute, and the ReCover Initiative have been seeking to play a market development team role in Canada. They [estimate that a \\$100 million fund](#) could launch about

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<sup>5</sup> See tracking energy efficiency in the 2021 election platforms.  
<https://www.energycanada.org/election2021/>

10-15 market development teams or “retrofit accelerators” across Canada, and such funding should continue annually to grow a diversity of new teams over time.

Budget 2022 should also send the signal that the federal government is committed to transforming retrofit markets by building economies of scale. The whole idea behind economies of scale is that markets are transformed when they scale. This is what enables lower costs, manufacturing changes, creation of new businesses, new technologies on the market, learning by doing, and the attraction of new workers to the retrofit space.

Government leadership is needed to trigger the economies of scale. A dedicated funding stream for this objective is needed because truly game changing retrofit approaches are unlikely to fit within the parameters of existing government programs which will have restrictive budget cut-offs, an inability to consider multiple benefits, or difficulty shouldering risks associated with new technologies or business models.

A \$5 billion initial capital commitment in the next budget to support transformative and large scale retrofit projects would signal that the federal government is committed to building scale and innovation in this space. This would be less than 1% of the low-end estimate of nominal mass retrofit costs<sup>6</sup> – a bargain if these funds demonstrate the potential for a take-off in deep retrofits which opens opportunities for more private and public sector action.

This initiative is an example of a more strategic approach to re-shaping both the demand and supply side of retrofit markets. Such an approach is particularly timely given inflationary pressures increasing the need to clear bottlenecks, lowering prices, ensuring access to materials and technology, and improving productivity. Market development teams focused on a long-term goal are best able to strategically manage around cost pressures and find leverage points to break through and/or alleviate supply chain bottlenecks.

**For more information on at-scale building retrofits, see the following links to Efficiency Canada and related publications:**

Brendan Haley “How to launch a retrofit mission in the next federal budget” January 21, 2022, available at <https://www.energycanada.org/how-to-launch-a-retrofit-mission-in-the-next-federal-budget>

Brendan Haley and Ralph Torrie “Canada’s Climate Retrofit Mission: Why the climate emergency demands an innovation-oriented policy for building retrofits” June 2021, available at <https://www.energycanada.org/retrofit-mission/>

Open letter to Prime Minister Trudeau re: Retrofit Acceleration <https://taf.ca/retrofit-acceleration-mission/>

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<sup>6</sup> Based on retrofit scenarios in <https://www.energycanada.org/retrofit-mission/>

## Expand low-income energy efficiency

### *Recommendation*

- *\$2 billion to support low-income energy efficiency to reduce energy poverty and prepare low-income households for net-zero emissions, tailored to provincial and territorial contexts*

Natural gas home heating prices are rising during this period of inflation<sup>7</sup>, and carbon pricing policies will make fossil fuel heating more expensive.

The federal government has not introduced an energy efficiency program accessible to low-income Canadians. The Greener Homes program is not accessible to those with low-income because it requires a homeowner to pay up-front costs to receive a rebate. In addition, the expected low or zero interest loans from CMHC would require a low-income household to take on debt, which is unlikely to foster participation and could create negative consequences for an individual's credit rating.

Long-standing low-income energy efficiency programs at provincial levels and internationally, such as the US Weatherization Assistance Program, provide no-cost, turn-key upgrades to income qualified households.

There is an urgent need for Canada to support low-income energy efficiency, using strategies that reduce specific low-income barriers, to ensure the transition to a net-zero emissions economy is a just and equitable one. Such a program is also the only way to bring a large segment of the country's buildings up to net-zero emission standard.

In early February, Efficiency Canada joined with over 130 signatories on an open letter to Minister Freeland calling for low-income energy efficiency in budget 2022. This letter outlined the principles developed by experts in energy poverty and energy efficiency. The principles are:

- 1) Prioritize lower-income and least efficient homes for federal funding delivered in the form of no-cost and turnkey energy retrofits.
- 2) Funding sufficient to allow for deep energy retrofits (regardless of fuel source), and allow for the switching to efficient, and low- to zero-carbon heating systems, including distributed and community-owned systems.
- 3) A strategy to leverage and complement – not disrupt – existing provincial and local programs to deliver deeper savings for low-income Canadians.
- 4) A national strategy on eliminating energy poverty with a range of measures targeted towards specific populations and the barriers they experience.

A \$2 billion investment in this budget would be equal in size to funding already committed for commercial retrofits and residential retrofits for higher-income Canadians. This funding level would demonstrate a commitment to equity and “leaving no one behind”.

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<sup>7</sup> See <https://globalnews.ca/news/8245318/natural-gas-prices-canada-inflation/>

In addition, we suggest integrating the retrofit of low-income homes with training and capacity building. Low-income programs present unique opportunities to increase training and attract new workers to the trades, for two reasons.

First, individuals involved in these programs are responsible for the full project management of a retrofit and programs can more easily introduce processes for quality control. Integrating this quality control as part of the retrofit project builds skills in areas like insulation and air sealing.

Secondly, programs should actively seek to employ women, Indigenous peoples, and people of colour traditionally under-represented in the skills trades because these workers can facilitate trust within low-income communities by acting as energy efficiency ambassadors.

Thus, it is possible for a low-income program to not only help those most vulnerable to cost-of-living increases, but to also integrate supply and demand sides of retrofit markets more strategically.

**For more information on low-income energy efficiency, see the following links to Efficiency Canada and related publications:**

Open letter to Ministers Freeland, Wilkinson, and Guilbeault from 132 signatories re: creating an energy efficiency program for all Canadians in Budget 2022, available at <https://www.energycanada.org/low-income-energy-efficiency-2022#supporter>

Brendan Haley “Low-income households should be a priority for federal energy efficiency funding” February 2021, available at <https://policyoptions.irpp.org/magazines/february-2021/low-income-households-should-be-a-priority-for-federal-energy-efficiency-funding/>

Abhi Kantamneni & Brendan Haley “A national energy poverty strategy for Canada? What can we learn from national initiatives in other jurisdictions” <https://www.energycanada.org/national-energy-poverty-strategy/>

## Conclusion

Thank-you for the opportunity to present our recommendations in this budget.

Each of these recommendations lay the groundwork for a major scale-up in emission reductions through energy efficiency, and aid in the management of inflation and supply chain bottlenecks. Each are necessary components of the National Net-Zero Emissions Building Strategy to be developed. We emphasize the need to commence these initiatives before that strategy is finalized to not allow net-zero emissions goals to go off track and to better inform that strategy through on-the-ground experience.