

CANADA'S RENOVATION WAVE: A PLAN FOR JOBS AND CLIMATE

Meeting Canada's climate targets requires eliminating carbon emissions from Canadian homes and buildings before mid-century.

Achieving this entails phasing out on-site combustion of fossil fuels and connecting to clean energy, mainly electricity from wind, solar, and hydro. This fuel-switching needs to be combined with upgrades to insulation and ventilation systems to conserve energy, improve air quality, and protect occupants and housing infrastructure from extreme weather and earthquakes.

To meet this target, Canada must develop a retrofit industry able to decarbonize 600,000 dwellings and more than 30 million square meters of commercial space each year to 2040. This will **require owners to invest approximately \$20 billion per year on top of normal maintenance costs, generating an additional \$48 billion in GDP each year, creating 200,000 long-lasting well-paid jobs across Canada, and reducing scope 1 and 2 emissions from buildings by nearly 90% by 2050.**



Photo: Manifesting Lucidity

Background

- The Canada Green Homes Grant program, launched in May 2021, allocates \$2.6 billion over seven years to provide up to 700,000 grants of up to \$5,000 to help homeowners make energy-efficient improvements to their homes;
- Budget 2021 makes available \$4.4 billion over five years to help homeowners and landlords do home retrofits with interest-free loans of up to \$40,000. This program includes a dedicated funding stream for low-income homeowners and rental properties serving low-income renters including cooperatives and not-for-profit housing;
- The 2020 budget included \$2 billion to finance commercial retrofits through the Canadian Infrastructure Bank;
- Launched in 2017, The national Housing Strategy included a co-investment fund providing \$4.7 billion over ten years to repair existing rental housing and develop new affordable housing; however these renovations require only a 25% reduction in GHG emissions, setting a bar too low for our climate targets.



Recommended Investment:

The federal government, in partnership with the provinces, should invest **\$10-15 billion per year for ten years** to enable the renovation wave, including:

- **\$10 billion per year** to fund deep retrofits for residential and commercial buildings, with programs covering 50-75% of the incremental cost of the upgrades needed (above normal replacement costs) to decarbonize and climate-proof buildings and homes [CMHC, NRCan, CIB, HC];
- **\$2 billion per year** to fund no-cost deep retrofits for low-income households⁴ and top-up for the renovation of social housing through the National Housing Strategy, including climate adaptation measures⁵ [CMHC, HC];
- **\$540 million per year** for deep retrofits and improved energy efficiency in new construction projects in Indigenous communities⁶ [ISC, CMHC, CIB];
- **\$300 million per year** for skill development, capacity building and recruitment,⁷ with funds earmarked to increase diversity in the retrofit economy and additional support for roll out in Northern and Indigenous communities [NRCan, ISED, HC, ISC];
- **\$100 million per year** to fund market development initiatives to resolve systemic barriers to deep retrofits and facilitate large-scale roll out of new integrated retrofit offerings^{8,9} [NRCan, ISED]; and
- The federal government should also capitalize a loan guarantee program to reduce the risk to private financing of building retrofits.¹⁰ [CMHC, CIB, NRCan]

4 Brendan Haley, “Low-income households should be a priority for federal energy efficiency funding.” *Policy Options* (2021). <https://policyoptions.irpp.org/magazines/february-2021/low-income-households-should-be-a-priority-for-federal-energy-efficiency-funding/>

5 Currently, renovations funded through the NHS must only reach a 25% reduction in carbon reductions, making it difficult for cash-strapped housing societies to justify spending more to achieve deeper emissions reductions and integrate climate adaptation measures.

6 Based on the costs estimate of Indigenous Clean Energy in their Energy Foundations report: <https://icenet.work/attachment?file=qrecQf4HdFgB4OHm6gR5yQ==>

7 This mirrors the recommendations of the Canada Green Building Council and Efficiency Canada: see https://www.cagbc.org/News/EN/2020/20200513_News_Release.aspx and <https://www.efficiencycanada.org/wp-content/uploads/2020/09/EffCan-2020-Advocacy-federal-Pre-budget-submission.pdf>

8 This echoes The Atmospheric Fund’s 2021 Budget recommendations (TAF). TAF, “2021 Federal Budget Recommendations.” <https://taf.ca/wp-content/uploads/2021/02/TAF-fedbudgetsubmission-2021-02-19.pdf>

9 In the Netherlands, the “Energiesprong” (energy leap) is a successful example of such a market development approach (<https://www.pembina.org/blog/gef-energiesprong>), which is now being incorporated in initiatives across Canada (<https://tinyurl.com/DeepRetrofitMap>), including Pembina’s Reframed Initiative. See also the upcoming paper by Efficiency Canada on mission-driven innovation.

10 Équiterre and the Pembina Institute, “Federal Policies for Low-Carbon Buildings: A blueprint to implement the PanCanadian Framework buildings strategy.” <https://www.pembina.org/pub/federal-buildings-blueprint>



Photo: Ayman Hallak

These are fiscally sound investments: energy retrofit programs more than pay for themselves through revenues generated by taxation, **returning \$2 to \$5 to public coffers per program dollar spent.**^{11,12} They can also generate savings in health care costs due to improvement in indoor air quality and thermal comfort.^{13,14} To this end, Health Canada should be involved in designing these programs to ensure integration of relevant health standards and considerations, such as climate adaptation, radon remediation, asbestos removal, air filtration, fire safety, and seismic upgrades.

11 Modelling by Dunsky and the Center for Spatial Economics in 2018 estimates the spending cost for the PCF+ scenario at \$154.7 billion over 13 years, and the resulting net additional provincial and federal tax revenue to be \$348.7 billion over that period: 2.3 times the program spending. See Table 15, Table 27, Table 28 of Dunsky Energy Consulting, “The economic impact of improved energy efficiency in Canada.” https://cleanenergycanada.org/wp-content/uploads/2018/04/TechnicalReport_EnergyEfficiency_20180403_FINAL.pdf

12 A 2011 study compared the costs of the program to the public revenues generated by Germany’s KfW development bank’s “energy efficiency renovation” program through taxes concluded that the program returned nearly four times more to the public coffers than it costs; more than five times if reduction in unemployment benefits were included. <https://www.pembina.org/reports/passive-house-report-2016.pdf> (page 124) based on KfW Bankengruppe, “Impact on Public Budgets of KfW Promotional Programmes in the Field of ‘Energy-Efficient Building and Rehabilitation.’” <https://www.buildup.eu/en/practices/publications/impact-public-budgets-kfw-promotional-programmes-field-energy-efficient>

13 A 2015 study found that retrofitting residential buildings in Toronto to comply with minimum building code regulations can save US\$2.3 billion/year in health care. M.S. Zuraimi, and Z. Tan, “Impact of residential building regulations on reducing indoor exposures to outdoor PM2.5 in Toronto.” *Building and Environment*, (2015). <https://doi.org/10.1016/j.buildenv.2015.03.010>

14 Federation of Canadian Municipalities and the Insurance Bureau of Canada, “Investing In Canada’s Future.” <https://fcm.ca/en/resources/investing-in-canadas-future>

Funds for retrofits should be disbursed through a small number of large programs, to minimize market confusion and ensure efficacy of public investments. This could include channeling funds through established programs (municipal, provincial, utility). Program implementation should be supported by a comprehensive building data strategy combining open-data policies, data quality standards, and data exchange protocols, so that homeowners and companies have access to user-centred digital tools to inform their investment decisions.

To deliver the renovation wave, these investments must be accompanied by strong policy measures.

The federal government should partner with provinces to accelerate regulatory commitments towards a zero-carbon building sector, including: Carbon intensity limits for new and existing buildings;¹⁵ energy performance standards requiring all heating equipment to have a coefficient of performance greater than 100% by 2025 (i.e., well ahead of the ‘aspirational’ target set for 2035);¹⁶ and, benchmarking, labelling, and public disclosure policies to inform real estate market assessment of performance, comfort, climate risks, and carbon risks. Given the crucial role that provincial policies will play in meeting targets in the building sector, the federal government should make some of the funds contingent on provinces committing and implementing regulatory roadmaps for a zero-carbon building sector.

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15 Steven Nadel and Adam Hinge, “Mandatory Building Performance Standards: A Key Policy for Achieving Climate Goals.” https://www.aceee.org/sites/default/files/pdfs/buildings_standards_6.22.2020_0.pdf

16 Energy and Mines Ministers’ Conference, “Market Transformation Strategies for Energy-Using Equipment in the Building Sector.” http://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/emmc/pdf/Market-Transformation-Strategies_en.pdf