

RETROFIT RESET

Prioritize Low-Income Households

To reduce energy costs and climate risks faced by low-income households, the federal government should establish a new free retrofit program aimed at making about 100,000 homes per year more affordable, energy efficient and climate resilient.

Low-income households are more likely to live in older, drafty homes without air conditioning. Less efficient homes make homeowners vulnerable to high energy costs and growing risks from a changing climate. Without support for retrofits that reduce their dependence on fossil fuels and protect them from climate risks such as heat waves and flooding, these households could face financial, health, safety and housing-insecurity risks.

Existing federal retrofit programs miss the mark. They are primarily geared to higher-income homeowners who can more easily navigate complex administrative processes and cover costs while waiting for reimbursement. Households struggling to make ends meet need more support.

Landlords of small, affordable rental buildings are also falling through the cracks, resulting in missed opportunities for cost savings that can be passed on to tenants. The Canada Green Buildings Strategy, a federal initiative primarily aimed at reducing greenhouse-gas emissions, offers an opportunity for a retrofit reset.

The Affordability Action Council recommends the federal government take three key actions to reduce energy costs and climate risks faced by low-income households:

1 Offer free and turnkey retrofits

Establish a new program – in co-operation with local partners – to provide free, turnkey, energy-efficient and climate-resilient retrofit solutions to low-income homeowners, prioritizing older homes, seniors and people with health conditions. Widespread installation of heat pumps, combined with energy-efficient home upgrades, can improve affordability, protect against heat waves and reduce emissions.

2 Generate savings for renters

Allow private landlords with smaller, affordable buildings to access the retrofit program and require them to sign agreements to maintain or improve affordability.

3 Pivot the retrofit strategy to start with low-income homes

The Green Buildings Strategy discussion paper proposes complete deep retrofits in 3 per cent to 5 per cent of buildings annually by 2025. The effort could start with a goal to retrofit around 100,000 low-income homes a year, prioritizing investments that also improve affordability and resilience.

Canadians need more than just a roof over their heads. They need a home that is affordable, safe and healthy for decades to come. It is time to move low-income households to the front of the line for retrofits that will improve affordability and help meet climate goals.

LOW-INCOME HOUSEHOLDS ARE VULNERABLE TO ENERGY COSTS AND CLIMATE IMPACTS

Low-income households spend a higher proportion of their income on energy (Natural Resources Canada, 2022a). A significant proportion of very low-income households live in energy poverty (between 30 per cent and 60 per cent, depending on the definition used; see figure 1). Low-income households are often required to make tough choices to meet their basic needs: cut back on heating to pay for food or cut back on food to pay the utility bill.

Although 62 per cent of low-income families are renters, a substantial number are homeowners (Randle et al., 2022). Moreover, two-thirds of households experiencing energy poverty own their homes (Rezaei, 2017). In 2021, 13 per cent of all homeowners were living in unaffordable housing (Statistics Canada, 2022a).

Low-income homeowners live in rural or urban areas, and in single family homes, co-ops, condos or townhouses. Many homeowners who live in urban areas stretched their budget to buy their first condo or home when housing prices were at their peak, only to see mortgage payments rise alongside interest rates. More than one-third of first-time homebuyers in Ontario, Saskatchewan, Alberta and British Columbia live in housing that is unaffordable, too small for their family or in need of major repairs (Statistics Canada, 2023a).

Higher energy, food and housing prices are squeezing the budgets of low-income households. (Canada Mortgage and Housing Corporation, 2023; Uppal, 2023). Energy prices have grown faster than overall inflation for years, but the gap has widened since 2020 (figure 2).

Older buildings tend to use more energy than newer ones. For example, an older low-rise building constructed before 2005 may use as much as 200 per cent more energy than a similar

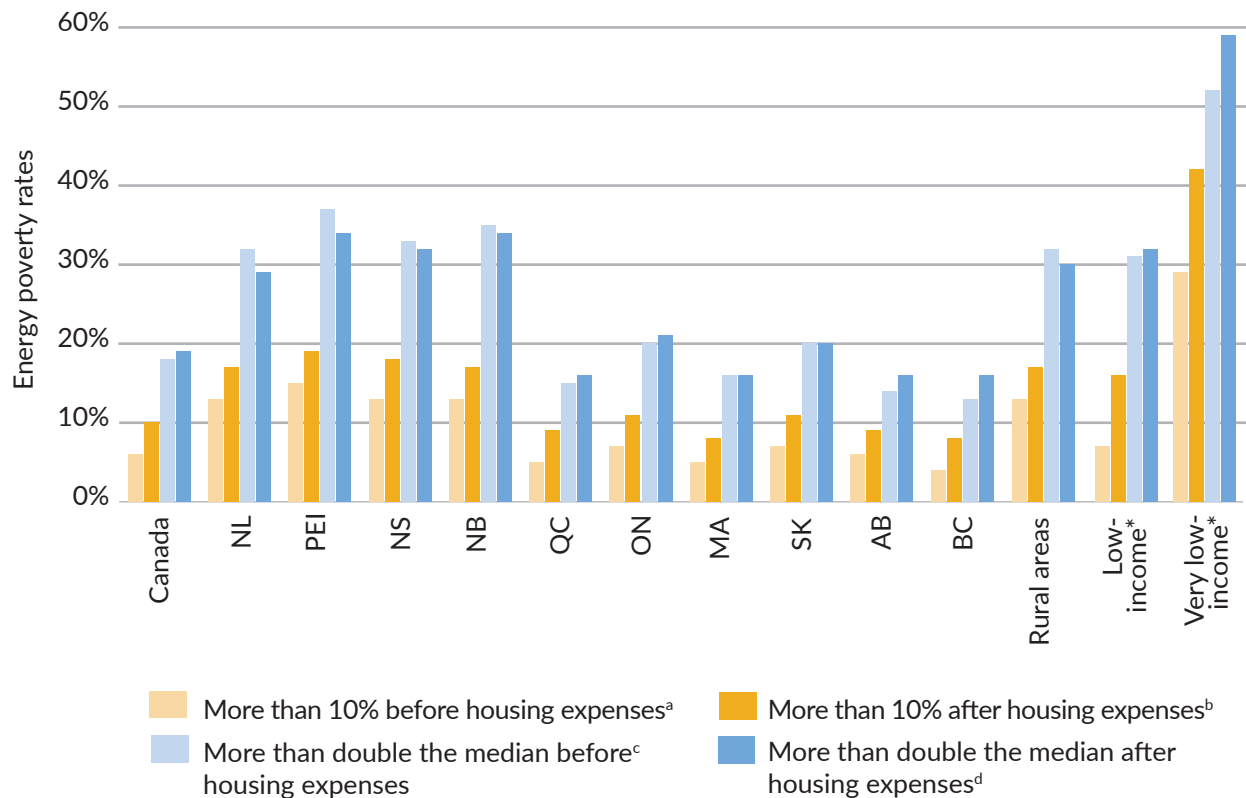
“Families are struggling more than ever, and existing programs are not designed for the households that need them most. We encourage the government to work alongside boots-on-the-ground organizations such as ours to develop programming that addresses the needs and goals of both the government and communities.”

— YASMIN ABRAHAM, PRESIDENT, KAMBO ENERGY GROUP

new building (Kukadia et al., 2022). Rural homes are more likely to be older and larger; 54 per cent of rural homes were built before 1980 versus 47 per cent in urban areas (Riva et al., 2021; Statistics Canada, 2023b). Since older homes are typically more affordable, they are more likely to be owned by people with low incomes, who as a result face higher energy costs than higher-income households (Aviles, 2022).

Homeowners in rural or remote areas and those in Atlantic Canada often have no access to natural gas networks and pay more for oil and propane heating. Homes dependent on fuels like oil and propane are more exposed to global price shocks. Moreover, these homeowners usually deal directly with private companies that may not offer the same flexible payment options as

FIGURE 1. VERY LOW-INCOME, LOW-INCOME AND RURAL HOUSEHOLDS ARE MORE LIKELY TO LIVE IN ENERGY POVERTY



Source: IRPP based on estimates by Riva et. al. (2021) using the 2017 Survey of Household Spending.

Notes:

* Denotes IRPP estimation

a. Share of households that spend more than 10 per cent of their after-tax income on energy, before housing expenses (rent, mortgage, property taxes and condominium fees).

b. Share of households that spend more than 10 per cent of their after-tax income on energy, after housing expenses.

c. Share of households that spend more than double the median household, before housing expenses.

d. Share of households that spend more than double the median household, after housing expenses.

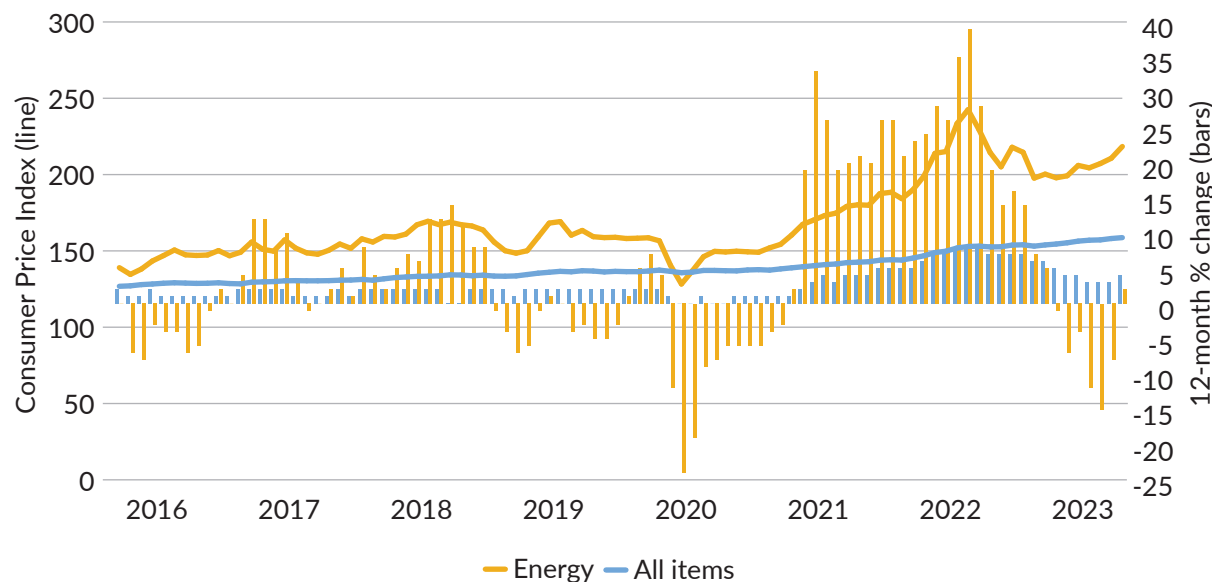
utilities. Canadian energy expert Andrew Leach (2022) has argued that mismatches between the supply and demand of oil could grow as global climate action accelerates. More oil price volatility could expose oil-dependent homeowners to unexpected cost increases.

Low-income households are also more vulnerable to the impacts of a changing climate (Canadian Climate Institute, 2020; Tower Renewal Partnership, 2023). They are more likely to face risks to their health during heat waves and from wildfire smoke because they are unable to afford air conditioning, a heat pump or a high-quality air-filtration system (Beugin et. al., 2023; Ontario Ministry of the Environment, Conservation and Parks, 2023). This is particularly true of seniors and people with underlying health conditions.

Low-income households are more vulnerable to flooding and wildfires because they cannot afford investments to protect their homes and are more likely to live in areas at risk (Canadian Climate Institute, 2020). Low-income households also suffer the most during storm-related power outages because they can least afford to replace spoiled food, eat outside the home or pay for temporary accommodation (Ramesh & Coutinho, 2022). Many low-income households also lack insurance coverage. Around 1.5 million households are vulnerable to flooding but do not have access to flood insurance (Stewart, 2023). Low-income renters often forgo tenant insurance to save money.

Challenges pertaining to housing resiliency and energy efficiency are even more pronounced for Indigenous Peoples, particularly in remote, rural and northern communities. Over 23 per cent of very low-income individuals in Canada are Indigenous, versus 13.8 per cent of non-Indigenous individuals (Uppal, 2023). In 2021, nearly one in six Indigenous people (16.4 per cent) in Canada

FIGURE 2. INCREASES IN ENERGY PRICES HAVE OUTPACED OVERALL INFLATION



Source: Statistics Canada (Table 18-10-0004-01)
 Note: Indexed to 2002. Not seasonally adjusted.

resided in dwellings in need of major repairs, almost three times as high as non-Indigenous populations (5.7 per cent) (Melvin & Anderson, 2022). Indigenous Clean Energy estimates that 65 per cent of First Nations, 46 per cent of Inuit, and 65 per cent of Métis households were in need of major energy-efficiency-related repairs in 2021, totalling 133,195 homes (Indigenous Clean Energy, 2021). Lower-income rural, remote and Indigenous communities are often on the front lines of climate impacts, a situation that was highlighted during the unprecedented wildfire season of 2023 (Webber & Berger, 2023).

GAPS IN EXISTING RETROFIT PROGRAMS

Reducing household dependency on energy and helping households avoid costs associated with growing climate risks is critical to addressing affordability. But the current suite of federal retrofit programs is leaving low-income households — both homeowners and renters — out in the cold.

Some promising federal retrofit programs are emerging, but they have gaps in coverage (see Appendix A). New programs such as Natural Resources Canada’s Deep Retrofit Accelerator and Greener Neighbourhoods Pilot Program have the potential to support retrofits in affordable rental buildings and community housing if they are scaled up and prioritize low-income housing, but they would need more funding.

The main programs aimed at homeowner retrofits involve high upfront costs and complex administrative processes. They also miss the big picture by focusing only on greenhouse-gas reductions, often overlooking opportunities to improve affordability or resilience.

Barrier #1: High upfront costs

While NRCan’s Greener Homes Grant program provides some assistance, it requires homeowners to pay up front, making it inaccessible for those struggling to put food on the table (Box 1). Programs are often designed to provide an incentive to nudge homeowners toward a more efficient version of a product, like choosing an LED light bulb over an incandescent one. They do not provide sufficient funding to drive more transformative investments, such as upgrading windows in a home. The Greener Homes Loan provides up to \$40,000, but loans are often out of reach for a low-income household because of the need for a strong credit history. Many low-income households already have significant debt (Uppal, 2023).

BOX 1. ELIGIBLE RETROFITS UNDER THE GREENER HOMES GRANT (SELECT EXAMPLES)

- Home insulation, up to \$5,000
- ENERGY STAR windows and doors, up to \$5,000
- Smart thermostat, up to \$50
- Heating, up to \$5,000
- Solar panels, up to \$5,000
- Resiliency measures such as foundation waterproofing, up to \$2,625 (and must be combined with another retrofit)

(Natural Resources Canada, 2023b).

The revised Oil to Heat Pump Affordability Program (Prime Minister of Canada, 2023) offers upfront payments that cover part of the cost of a new heat pump, with some provinces and territories offering additional funds that make the average heat pump free for lower-income households. However, most households across Canada rely on natural gas or electric heating and are unable to take advantage of the program (Statistics Canada, 2023c).

Barrier #2: Complex administration and gaps in eligibility

The Greener Homes Grant requires the homeowner to complete several steps and involves detailed criteria to confirm eligibility, long application forms that require personal information, and the challenge of booking pre- and post-retrofit EnerGuide evaluations. Homeowners are also expected to book contractors to do the retrofit and submit receipts to receive payment. If they do not qualify or decide to opt out of upgrades, homeowners bear the pre-assessment cost. The benefits of the program relative to the costs are often unclear, requiring homeowners to undertake their own research to determine potential monthly savings. The complexity of the program is a barrier for many low-income households, single-parent families, recent immigrants and seniors.

The program is also designed for homeowners with a detached home. In 2021, 47 per cent of Canadians resided in a privately owned, single detached home (Statistics Canada, 2022b), which leaves a substantial proportion of Canadians who are not well served by the program. For example, condo owners living in small multi-unit residential buildings (MURBs) are only eligible if the building has three stories or less and a footprint smaller than 600 square metres. For those who are eligible, the entire building needs to have an EnerGuide evaluation, the condo board needs to approve the retrofit and each condo owner must apply individually to receive a grant for shared equipment such as a furnace or an entrance door. The \$5,000 maximum is multiplied by the number of units, but the total is capped at \$20,600 (Natural Resources Canada, 2023a). For many condo owners, it is not worth the hassle.

Small rental buildings are also falling through the cracks of existing retrofit programs. This is a significant issue for affordability because 62 per cent of low-income Canadians rent, and 72 per cent of renters live in housing built before 1990, when energy efficiency was not included in Canada's building codes (Kantamneni & Haley, 2023; Randle et al., 2022).

Most retrofit programs for rental buildings are aimed at community housing and large buildings. CMHC's National Housing Co-Investment Fund (NHCF) for renovation projects, for example, limits funding to rentals with five or more units, and projects must meet extensive requirements for partnerships and accessibility (CMHC, n.d.).

Other programs such as the Canada Infrastructure Bank's Building Retrofit Initiative may be available to privately owned MURBs but come with investment minimums that preclude small landlords with modest financial means (CIB, n.d.). Small landlords are also less likely to have the capacity to navigate complex program applications.

Grants and loans provided under the Greener Homes program are available to smaller landlords who live in their buildings, but the maximum amount of the grant is \$5,000 if all other units are occupied by tenants. These programs also do not include tenant protection policies to maintain affordability. The U.S. Weatherization Assistance Program includes agreements (or covenants) with landlords to ensure that rents are maintained at affordable levels and energy cost savings are passed on to tenants (Department of Energy, n.d.).

“To achieve net-zero emissions, every Canadian needs access to energy efficiency so they can improve affordability and help the climate. Yet the federal government leaves out the lowest income Canadians with the greatest need.”

— BRENDAN HALEY, DIRECTOR OF POLICY RESEARCH, EFFICIENCY CANADA

Barrier #3: Missing the scope and scale of required retrofits

The narrow focus of retrofit programs on household greenhouse-gas emission reductions is missing the potential to achieve gains in affordability, adaptation and net-zero goals.

Done well, housing retrofits can help lower energy costs and improve indoor air quality while protecting people against heat waves, floods, wildfires and power outages (C40 Cities Climate Leadership Group, 2020; Canadian Climate Institute, 2023; Kantamneni & Haley, 2022). Low-income households may have few chances to undertake a significant retrofit. It is therefore vital not only to improve homes for current conditions, but to future-proof them for tomorrow’s power grid, climate and economy.

Heat pumps, for example, can reduce energy consumption, shrink monthly energy bills, and cool and filter air during extreme climate events (Canadian Climate Institute, 2023). But if they are installed without upgrades to old windows and doors, the installation could increase bills in the short term.

Energy storage solutions such as thermal storage in hot-water tanks can help utilities manage power demand while providing savings to households. This is already underway in Summerside, P.E.I., where smart grid technologies are connected to home-heating and hot-water systems (City of Summerside, n.d.). Newer technologies have the potential for even greater benefits.

Housing also has the potential to become part of the electricity system, with grid-integrated residential buildings acting as a distributed power plant that draws on household battery backup generators, thermal energy storage, smart thermostats, heat pumps and two-way vehicle charging to efficiently manage demand and generate additional power during heat waves or cold snaps. Avoiding the need to build additional electricity generation to cover demand peaks could help reduce everyone’s utility bill (Monie et al., 2021). District energy systems also offer an opportunity to reduce costs and improve resilience (Quest Canada, n.d.).

However, the scope and scale of retrofits needed to bring about these large benefits are costly and complex. They can be highly technical projects that involve multiple contractors, varied construction timelines and interactions with several financial incentive programs. Most households will not be able to manage the retrofits on their own. And the scope and scale of the current suite of programs are insufficient to undertake retrofits that address affordability, adaptation and net-zero goals simultaneously. According to Haley and Torrie (2021), it would take 142 years to retrofit all low-rise residential buildings at the current rate of progress (less than 1 per cent of homes per year).

“Heat pumps are a solution to both the causes and consequences of the climate emergency. Due to their superior efficiency and ability to operate on clean electricity, these systems reduce emissions while lowering household bills. They also add life-saving cooling in extreme heat for those without air conditioning. With current incentives, heat pumps already provide lower lifetime costs than gas furnaces with air conditioning across much of Canada.”

— KATE HARLAND, RESEARCH LEAD, MITIGATION, CANADIAN CLIMATE INSTITUTE

Indigenous organizations such as the National Indigenous Housing Collaborative have called for dedicated funding, a revised National Housing Strategy, greater Indigenous representation and sustained federal investments in Indigenous housing (Indigenous Housing Caucus Working Group, 2018). While Indigenous communities can access existing retrofit programs, the programs are not sufficient to meet the full scale of the need.

OPPORTUNITY FOR A RETROFIT RESET

The federal government released in 2022 a discussion paper proposing elements of a Green Buildings Strategy (Natural Resources Canada, 2022b). Two of the eight principles proposed focus on affordability and equity, diversity and inclusion. However, the proposed actions fall short, and few proposals address affordability or resilience to climate risks.

The federal government could go further by taking action in three areas:

Recommendation 1: Offer free, turnkey retrofits

The federal government should establish a new program — in co-operation with community organizations, utilities and other levels of government — to provide free, turnkey, energy-efficient and climate-resilient retrofit solutions to low-income homeowners. Such a program would address affordability and administrative barriers while generating multiple societal benefits. For example, widespread installation of heat pumps, combined with energy-efficient home upgrades, can improve affordability, protect against heat waves and reduce emissions.

The program should focus on very low- and low-income homeowners (around two million households) and prioritize those who are most financially vulnerable and at risk of energy poverty, as well as those living in older homes, seniors, people with health conditions and Indigenous communities.

The new program can provide one-stop-shop service delivery that makes it easier for all types of low-income homeowners, including condo boards and co-ops, to apply for retrofit funding (Canadian Climate Institute, 2023). Allowing program administrators to combine funding and support from different federal, provincial and utility funding sources with unique objectives would leverage more funding while removing administrative barriers for participants. Program administrators with building science expertise should also be given the flexibility to address structural housing needs such as mould or asbestos removal, which can act as barriers to energy upgrades (Kantamneni & Haley, 2022).

Recommendation 2: Generate savings for renters

The proposed turnkey homeowner retrofit program should also include private landlords with smaller, affordable retrofit buildings who do not qualify or are not well served by other programs. Rental building retrofits should require landlords to pass along savings and maintain low rents following retrofits (Haley & Kantamneni, 2023). Older rental buildings with significant potential for energy savings, and high vulnerability to climate change, should be prioritized.

Recommendation 3: Start with low-income homes

The Green Buildings Strategy discussion paper includes a proposal to complete deep retrofits in 3 per cent to 5 per cent of buildings annually by 2025. With about 15 million residential buildings and 480,000 commercial buildings in Canada, the commitment equates to between 460,000 to 770,000 buildings per year (Government of Canada, 2021). This is a bold goal, and an ambitious timeline.

The goal should start with low-income households. Instead of generic retrofits, the effort could target investments that address affordability, improve resilience and help meet net-zero climate goals. Such a shift will bring low-income households to the front of the line for retrofits, better aligning the Green Buildings Strategy with the principles of affordability and equity, diversity and inclusion. If 20 per cent of the targeted deep retrofits focused on low-income households, Canada could retrofit around 100,000 homes per year (between 92,000 and 154,000).

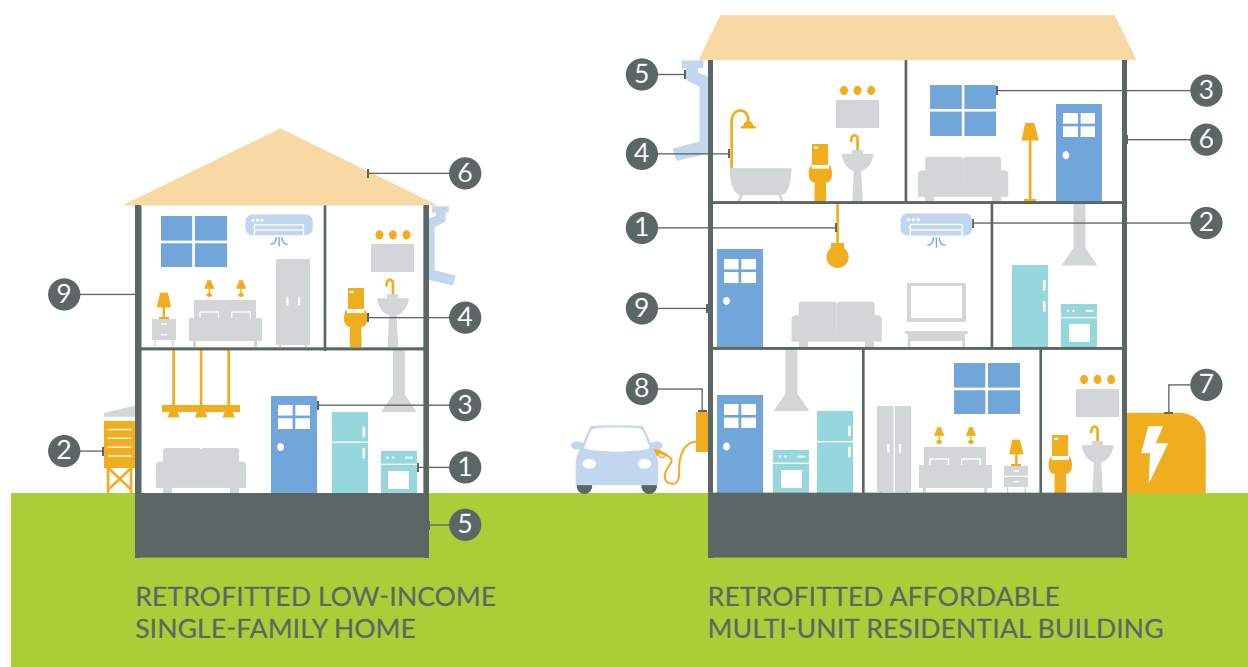
Low-income programs that are managed from start to finish for participants are also able to scale quickly through bulk purchase contracting, strategic timing of retrofits, and training and employment of people from low-income communities.

To support the recommendations, the federal government should work with local community organizations, utilities and other levels of government to establish standards for energy-efficient, climate-resilient retrofits for low-income households, with adjustments for renters, rural and remote homes as well as for different geographies and climates.

An ambitious retrofit strategy is also an opportunity to develop a diverse local workforce that can offer high-quality, energy-efficient, climate-resilient retrofit solutions cost-effectively. The plan can create good jobs for equity-deserving groups through integrated on-the-job training, community-benefit agreements and inclusive workforce development approaches.

The federal government should also continue to work with provinces, territories, Indigenous governments and the insurance industry to ensure that low-income households are able to afford and access insurance to protect against growing climate risks. The National Flood Insurance Program announced in Budget 2023 is a good first step.

FIGURE 3. DEEP RETROFITS CAN IMPROVE AFFORDABILITY, ENERGY EFFICIENCY AND RESILIENCE TO CLIMATE RISKS



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| ① Energy-efficient and smart lighting and appliances | ④ Water-efficient plumbing and fixtures | ⑦ Resilient battery backup generator (ready to connect to grid) |
| ② Energy-efficient and smart heating and cooling | ⑤ Flood-resilient foundations, windows and eavestrough | ⑧ Vehicle charging (ready to connect to grid) |
| ③ Energy-efficient windows, doors and insulation | ⑥ Fire-resilient roof and exterior | ⑨ Cost-efficient and low-carbon materials and construction |

Source: IRPP based on information from Efficiency Canada, the Intact Centre on Climate Adaptation and the Canadian Climate Institute.

CONNECTIONS TO OTHER AFFORDABILITY PRIORITIES

The Affordability Action Council has prioritized housing, transportation and food as key areas where the federal government can take action to help low-income households meet their basic needs in ways that also support emission reduction and resilience to a changing climate. All areas of affordability are interconnected – actions in one area will benefit others.

Housing retrofits can help to preserve and protect affordable housing in Canada and limit the need for new housing. Existing housing is likely to provide better access to public transit, schools, medical care and other amenities, reducing transportation costs. Reducing housing and energy costs can also improve food security by freeing up money for groceries.

It's time to bring low-income households to the front of the line for housing retrofits.

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APPENDIX A. EXISTING FEDERAL RETROFIT PROGRAMS FOR LOW-INCOME HOUSEHOLDS

	Program	Incentive	Who's eligible	Gaps
PROGRAMS THAT TARGET INDIVIDUALS	Greener Homes Grant (NRCan)	Grant funding (retroactive); provides \$600 for pre- and post-retrofit EnerGuide evaluations, and up to \$5,000 for eligible upgrades	Homeowners and owner-occupied multi-unit residential buildings (MURBs)	There is administrative complexity and confusion with Greener Homes and other programs. Only three provinces co-deliver with the federal government. Retroactive funding means households must cover upfront costs. Grant only covers a portion of the cost. Households co-ordinate their own projects and must navigate energy audits and complex application forms.
	Greener Homes Loan (CMHC)	Interest-free loans (\$5,000-\$40,000) to undertake eligible retrofits	Homeowners must apply for the loan	Low-income households may be unable to carry debt, and those with low credit scores don't qualify. Only 15% of the loan can be delivered in advance, with the rest delivered once the retrofit is completed.
	Oil to Heat Pump Affordability Program (NRCan)	Upfront grant (up to \$15,000) for fuel switching	Households below median income levels by province	Oil represents a small portion (<10%) of low-income home heating across the country, though it is still prominent in Atlantic Canada and rural areas. Significant health and affordability benefits from building upgrades prioritized for upper-income Canadians in Greener Homes are neglected and inaccessible.
PROGRAMS THAT TARGET ORGANIZATIONS, GROUPS AND GOVERNMENTS	MLI Select (CMHC)	Mortgage loan insurance with reduced premiums and longer amortization periods	Projects for existing properties (minimum of 5 units)	Projects may earn qualifying points for meeting any of the three criteria (energy efficiency, accessibility, affordability) and may earn all points in a single category.
	Deep Retrofit Accelerator Initiative (NRCan)	Funding for organizations that drive market transformation and develop deep retrofits in commercial, institutional, or mid- to high-rise MURBs	Any legal entity incorporated in Canada, local governments, Indigenous governments and organizations	These programs have the potential to reach individual homeowners, renters and community housing through the aggregation of projects, but this will depend on the organizations that receive funding. Both programs are in the early stages.
	Neighbourhoods Pilot Program (NRCan)	Funding for market development teams and demonstration projects in low-rise community housing	Any legal entity incorporated in Canada, local governments, and Indigenous governments and organizations	

APPENDIX A. EXISTING FEDERAL RETROFIT PROGRAMS FOR LOW-INCOME HOUSEHOLDS (CONTINUED)

	Program	Incentive	Who's eligible	Gaps
PROGRAMS THAT TARGET ORGANIZATIONS, GROUPS AND GOVERNMENTS	Canada Greener Affordable Housing Program (CMHC)	Forgivable and low-interest loans for deep retrofit projects	Local and Indigenous governments and organizations, and community housing (non-profits, co-ops, public housing)	While these three programs target designated affordable housing, they do not provide financing options for individual projects and small landlords in the private rental housing market. Only a small portion of low-income households live in subsidized affordable housing.
	National Housing Co-Investment Fund (CMHC)	Low-interest loans and contributions for renovation projects that meet program requirements	Community housing providers (non-profits, co-ops), local and Indigenous governments and organizations, private sector	
	Sustainable Affordable Housing (FCM)	Grant and loan financing to cover up to 80% of total eligible project costs (up to \$10 million)	Municipal governments, public housing and affordable housing providers	
	Buildings Retrofit Initiative (CIB)	Financing for large-scale retrofits through direct investment, aggregated financing or participation agreements	Public and private entities with a minimum investment of \$25 million (can be aggregated)	Level of investment and administrative processes preclude small landlords and homeowners, though it may technically be possible for smaller projects to be aggregated through special purpose vehicles. A focus on financing without a specific program for low-income tenants (with affordability covenants) has resulted in rent increases from CIB upgrades (ACORN Canada, 2023).
PROGRAMS THAT SUPPORT THE RETROFIT INDUSTRY	Codes Accelerator Fund (NRCan)	Financial assistance to accelerate advanced code adoption, compliance and enforcement	Governing bodies and other organizations that contribute to code adoption (non-profits, utilities, private sector, schools)	These programs support the development and expansion of the residential retrofit industry. However, none has a direct impact on low-income households (impact is indirect).
	Energy Innovation Program (NRCan)	Funding for R&D, demonstration projects and other activities to advance clean-energy tech	Open to wide range of applicants including public, private, non-profit, etc.	
	Low Carbon Economy Challenge (ECCC)	Funding for cost-effective projects that deploy proven, low-carbon technologies	Public, private, academic and Indigenous organizations	
	Community Efficiency Financing (FCM)	Funding for the development, implementation and scaling of energy financing programs for low-rise residential properties	Municipalities and other organizations acting in partnership with local governments	
	Toward Net-Zero Homes and Communities (NRCan)	Funding for projects that address barriers for clean-tech deployment, build capacity for net-zero codes and facilitate energy labelling	Open to wide range of applicants including public, private, non-profit, etc.	

REFERENCES

- ACORN Canada. (2023). *Alberta ACORN's Open Letter to the Canadian Infrastructure Bank*. ACORN Canada. <https://acorncanada.org/news/alberta-acorns-open-letter-to-the-canadian-infrastructure-bank/>
- Aviles, S. (2022). *How the age of housing impacts affordability*. <https://storymaps.arcgis.com/stories/ae7f226a5ffd4466acbe0c7a14deab0e>
- Beugin, D., Clark, D., Miller, S., Ness, R., Pelai, R., & Wale, J. (2023.) *The case for adapting to extreme heat: Costs of the 2021 B.C. heat wave*. Canadian Climate Institute. <https://climateinstitute.ca/reports/extreme-heat-in-canada/>
- C40 Cities Climate Leadership Group. (2020). *The multiple benefits of deep retrofits: A toolkit for cities*. C40 Knowledge Hub.
- Canada Infrastructure Bank (CIB). (n.d.). *Green infrastructure*. <https://cib-bic.ca/en/sectors/green-infrastructure/>
- Canada Mortgage and Housing Corporation (CMHC). (2023). *Residential mortgage industry report*. <https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/housing-finance/residential-mortgage-industry-report>
- Canada Mortgage and Housing Corporation (CMHC). (n.d.). *National housing co-Investment fund: Renovation*. <https://www.cmhc-schl.gc.ca/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/co-investment-fund/co-investment-renovation>
- Canadian Climate Institute. (2020). *11 ways to measure clean growth, inclusive resilience*. <https://climateinstitute.ca/reports/clean-growth/9-inclusive-resilience>
- Canadian Climate Institute. (2023). *Heat pumps pay off: Unlocking lower-cost heating and cooling in Canada*. <https://climateinstitute.ca/reports/heat-pumps-canada>
- City of Summerside. (n.d.). *Heat for less now*.
- Department of Energy (DOE). (n.d.). *Weatherization of rental units: Frequently asked questions*. Office of State and Community Energy Programs, U.S. Department of Energy. <https://www.energy.gov/sites/prod/files/2016/05/f31/WPN%20Rental%20Units%20FAQs%205%205%2016.pdf>
- Government of Canada (2021). *A healthy environment and a healthy economy: Homes and buildings*. <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/healthy-environment-healthy-economy/annex-homes-buildings.html>
- Haley, B., & Kantamneni, A. (2023). *Energy efficiency in rental housing: Policy mixes for efficient, affordable and secure housing*. Efficiency Canada, Carleton University. <https://www.energycanada.org/tenant-report/>
- Haley, B., & Torrie, R. (2021). *Canada's climate retrofit mission*. Efficiency Canada, Carleton University. <https://www.energycanada.org/retrofit-mission>.
- Indigenous Clean Energy (ICE). (2021). *Energy foundations: The value proposition for financing energy efficient homes in Indigenous communities Canada-wide*. <https://indigenouscleanenergy.com/wp-content/uploads/2022/06/Energy-Foundations-Report-FINAL.pdf>
- Indigenous Housing Caucus Working Group. (2018). *A for Indigenous by Indigenous national housing strategy*. Canadian Housing and Renewal Association. https://chra-achru.ca/wp-content/uploads/2015/09/2018-06-05_for-indigenous-by-indigenous-national-housing-strategy.pdf
- Kantamneni, A., & Haley, B. (2022). *Efficiency for all: A review of provincial/territorial low-income energy efficiency programs with lessons for federal policy*. Efficiency Canada, Carleton University. <https://www.energycanada.org/low-income-report>
- Kantamneni, A., & Haley, B. (2023). *Policy brief: Energy efficiency for low-income tenants*. Efficiency Canada, Carleton University. <https://www.energycanada.org/wp-content/uploads/2023/05/Energy-Efficiency-For-Low-Income-Tenants-Federal-Policy-Brief.pdf>
- Kukadia, D., Behan, K., & Szczepanowski, R. (2022). *Advancing energy labeling in the residential sector: A guide for Canadian municipalities*. Clear Air Partnership. <https://www.cleanairpartnership.org/wp-content/uploads/2023/01/HERD-Report-Advancing-Energy-Labeling-in-the-Residential-Sector.pdf>
- Leach, A. (2022). *Canada's oil sands in a carbon-constrained world*. *Canadian Foreign Policy Journal*, 28(3), pp. 285-304. <https://doi.org/10.1080/11926422.2022.2120508>
- Melvin, A., & Anderson, T. (2022). *Housing conditions among First Nations people, Métis and Inuit in Canada from the 2021 Census*. Statistic Canada, Government of Canada. <https://www12.statcan.gc.ca/census-recensement/2021/as-sa/98-200-X/2021007/98-200-X2021007-eng.cfm>

- Monie, S., Nilsson, A. M., Widén, J., & Åberg, M. (2021). A residential community-level virtual power plant to balance variable renewable power generation in Sweden. *Energy Conversion and Management*, 228, Article 113597 <https://doi.org/10.1016/j.enconman.2020.113597>
- Natural Resources Canada. (2022a). *Energy fact book 2022-2023*. Government of Canada. https://natural-resources.canada.ca/sites/nrcan/files/energy/energy_fact/2022-2023/PDF/Energy-factbook-2022-2023_EN.pdf
- Natural Resources Canada. (2022b). *The Canada Green Buildings Strategy*. Government of Canada. <https://natural-resources.canada.ca/sites/nrcan/files/public-consultation/cgbs-discussion-paper-2023-08-03-eng.pdf>
- Natural Resources Canada. (2023a). *All about the Canada Greener Homes Initiative, multi-unit residential buildings (MURBs)*. Government of Canada. <https://natural-resources.canada.ca/energy-efficiency/homes/canada-greener-homes-initiative/canada-greener-homes-grant/canada-greener-homes-grant/how-the-grant-process-works/multi-unit-residential-buildings-murbs/multi-unit-residential>
- Natural Resources Canada. (2023b). Eligible retrofits and grant amounts. Government of Canada. <https://natural-resources.canada.ca/energy-efficiency/homes/canada-greener-homes-grant/start-your-energy-efficient-retrofits/plan-document-and-complete-your-home-retrofits/eligible-grants-for-my-home-retrofit/23504>
- Ontario Ministry of the Environment, Conservation and Parks. (2023). *Ontario provincial climate change impact assessment technical report*. Government of Ontario. <https://www.ontario.ca/files/2023-08/mecp-ontario-provincial-climate-change-impact-assessment-en-2023-08-17.pdf>
- Prime Minister of Canada. (2023, October 26). Delivering support for Canadians on energy bills. [News release]. <https://www.pm.gc.ca/en/news/news-releases/2023/10/26/delivering-support-for-canadians-on-energy-bills>
- Quest Canada. (n.d.). *District energy: Building resilience and community at the YMCA of Greater Toronto*. YMCA of Greater Toronto. <https://districtenergy.questcanada.org>
- Ramesh, H., & Coutinho, A. (2022). *Lights out: Impacts of power outages are gendered and intersectional*. Smart Prosperity Institute. <https://institute.smartprosperity.ca/PowerOutages>
- Randle, J., Thurston, Z., & Kubwimana, T. (2022). *Housing experiences in Canada: People in poverty*. Statistics Canada. <https://www150.statcan.gc.ca/n1/pub/46-28-0001/2021001/article/00017-eng.htm>
- Rezaei, M. (2017). *Power to the people: thinking (and rethinking) energy poverty in British Columbia, Canada*. [Doctoral dissertation, University of British Columbia].
- Riva, M., Makasi, S. K., Dufresne, P., O'Sullivan, K., & Toth, M. (2021). Energy poverty in Canada: Prevalence, social and spatial distribution, and implications for research and policy. *Energy Research & Social Science*, 81, Article 102237. <https://doi.org/10.1016/j.erss.2021.102237>
- Statistics Canada. (2022a). *Housing indicators, 2021 census: Affordability*. <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/dv-vd/housing-logement/index-en>
- Statistics Canada. (2022b). *Structural type of dwelling by tenure: Canada, provinces and territories, census divisions and census subdivisions*. <https://doi.org/10.25318/9810024001-eng>
- Statistics Canada. (2023a). Persons living in acceptable housing, by tenure including first-time homebuyer and social and affordable housing status, by province. Table 46-10-0071-01. <https://doi.org/10.25318/4610007101-eng>
- Statistics Canada. (2023b). Rural Canada housing profiles, occupied private dwelling characteristics. Table 46-10-0078-01. <https://doi.org/10.25318/4610007801-eng>
- Statistics Canada. (2023c). *The heat is on: How Canadians heat their home during the winter*. StatsCan Plus. <https://www.statcan.gc.ca/o1/en/plus/2717-heat-how-canadians-heat-their-home-during-winter>
- Tower Renewal Partnership. (2023). *Legacy housing retrofit advisory: Summary report and call to action*. <http://towerrenewal.com/research-reports/legacy-housing-retrofit-advisory-summary-report-and-call-to-action>
- Stewart, C. (2023). *Why Canada must accelerate work to establish a national flood insurance program*. Insurance Bureau of Canada. <https://www.IBC.ca/news-insights/in-focus/why-canada-must-accelerate-work-to-establish-a-national-flood-insurance-program>
- Uppal, S. (2023). *Rising prices and the impact on the most financially vulnerable: A profile of those in the bottom family income quintile*. Statistics Canada. <https://www150.statcan.gc.ca/n1/pub/75-006-x/2023001/article/00002-eng.htm>
- Webber, T., & Berger, N. (2023). *Canadian wildfires hit Indigenous communities hard, threatening their land and culture*. The Associated Press. <https://apnews.com/article/canada-wildfire-indigenous-land-first-nations-impact-3faabbfad-fe434d0bd9ecaf8770afce>