

RECOMMENDATIONS

- **Recommendation 1: The federal government should invest at least \$50 billion over five years in climate-focused clean stimulus measures, including at least \$27 billion in climate resilient and energy efficient buildings.**
- **Recommendation 2: Create a funding program of at least \$2 billion over 5 years to support deep retrofits that maximize carbon reduction and community benefits.**
- **Recommendation 3: Create a funding program of at least \$100 million over 5 years for initiatives that help create a well-functioning deep retrofit market, including innovative and scalable approaches to project origination, aggregation, standardization, and cost compression.**
- **Recommendation 4: Create a funding program of at least \$30 million over 5 years for research, development, demonstration, and deployment of low carbon equipment in the building sector, with a focus on the priorities laid out in the Federal/Provincial/Territorial government's joint Market Transformation Roadmap.**



ABOUT THE ATMOSPHERIC FUND (TAF)

TAF is a non-profit corporation that was created in 1991 with a mandate to advance urban solutions to climate change and air pollution for the Greater Toronto and Hamilton Area (GTHA). For 29 years, TAF has innovated, incubated and invested in low-carbon solutions. Please note that the views expressed in this submission do not necessarily represent those of the City of Toronto or other GTHA stakeholders.

OUR RECOMMENDATIONS:

Recommendation 1: The federal government should invest at least \$50 billion over five years in climate-focused clean stimulus measures, including at least \$27 billion in climate resilient and energy efficient buildings.

Rationale:

- According to ECCC¹, there is a **77 megatonne gap between Canada's projected 2030 emissions based on current plans**, and Canada's Paris targets. Closing this gap requires a major increase in public investment.
- TAF supports the **five recommendations** by the Task Force for a Resilient Recovery in their Preliminary Report².
- As outlined in the report, **clean stimulus investments will generate more jobs per dollar than spending in most other areas**, while enhancing long-term competitiveness.
- This level of public investment would put Canada on par with its G7 peers and is also consistent with the level recommended by the International Energy Agency and the International Monetary Fund in their Special Report on Sustainable Recovery³. It is also consistent with the Building Back Better⁴ strategy endorsed by dozens of corporate and community leaders across Canada.
- Federal investments would leverage other sources of capital. **With a 1:2 leveraging ratio, a \$50 billion federal investment would mobilize a total investment of \$150 billion**, creating thousands of jobs and getting Canada on track to meet and exceed the Paris Targets.

¹ [Progress towards Canada's greenhouse gas emissions reduction target](#)

² [Task Force for a Resilient Recovery: Preliminary Report](#)

³ [Special Report on Sustainable Recovery](#)

⁴ [Building Back Better](#)

Specifics:



Source: *Task Force for a Resilient Recovery*

Recommendation 2: Create a funding program of \$2 billion over 5 years to support deep retrofits. The program must maximize carbon reduction and multiple community benefits and leverage other sources of capital.

Rationale:

- Buildings are Canada's **third largest** source of carbon emissions⁵.
- Energy efficiency is among the most cost-effective climate mitigation measures⁶.
- Energy retrofit funding is widely acknowledged as one of best ways to create jobs, creating an estimated **11 construction and manufacturing job-years per \$1 million invested**⁷. This estimate excludes jobs induced by re-spending wages earned and energy cost savings achieved. A Canadian study including induced jobs estimated a net increase of 22-27 job-years per \$1 million of investment in energy efficiency⁸.
- Based on the above sources, **the proposed program would generate an estimated 8,800 construction and manufacturing job-years annually**, and 44,000 job-years over the term of the program. Including induced jobs, this rises to 88,000 job-years created over five years⁹.
- Energy efficiency activity today is focused on shallow retrofits. However, getting on track for Canada's targets, particularly the net-zero goal, requires rapidly transitioning the energy efficiency industry to focus on deep retrofits (>40% carbon reduction). Due to the long lifetime of major building systems, shallow retrofits undertaken after 2025 will actually impede progress towards the net-zero target by locking-in fossil fuel based heating systems.
 - **Therefore, developing the capability of the energy efficiency sector to deliver deep retrofits at scale is critical to reaching Canada's climate targets.**
- Another advantage to focusing on *deep* retrofits is that it maximizes incremental impact by virtually eliminating free ridership. Deep retrofits simply do not occur today without significant public funding.
- Deep retrofits also generate multiple community benefits including improved comfort, health, and productivity for building occupants¹⁰.

Specifics:

- **We support the Task Force for Resilient Recovery's recommendation 1.4 calling for a \$2 billion demonstration program over 5 years**¹¹.
 - We recommend allocating \$400 million per year over five years to create a significant, sustained market signal.
- Federal funds should be leveraged 1:1 to mobilize other sources of capital, thereby spurring \$800 million in annual investment. While higher leveraging ratios can be accomplished in other areas, deep retrofits require more substantial public investment.
- **The deep retrofit program should be designed to create equitable employment opportunities for all Canadians by incorporating social procurement requirements.**

⁵ [National Inventory Report – 2020 Edition](#), Part 1, page 7.

⁶ [IEA, Sustainable Recovery](#), p. 42.

⁷ [IEA, Sustainable Recovery](#), p. 40, adjusted to Canadian dollars.

⁸ Acadia Centre (2014), [Energy Efficiency: Engine of Economic Growth in Canada](#)

⁹ Including both federal investment and other sources of capital, assuming a 1:1 match.

¹⁰ IEA (2015), [Capturing the Multiple Benefits of Energy Efficiency](#), IEA, Paris

¹¹ [Recovery Task Force Preliminary Report](#)

- The construction sector is among the largest employers in Canada, but women, youth, indigenous peoples, new Canadians, and visible minorities are deeply underrepresented in many regions.¹²
 - Public funding should create dedicated employment opportunities for underrepresented groups and people facing barriers, who have also been disproportionately impacted by the pandemic.
 - TAF has successfully incorporated social procurement on our last eight building retrofits.
- **The deep retrofit program should be designed to enhance climate and pandemic resiliency and improve health outcomes by incorporating indoor environmental quality requirements.**
 - With Canadians spending an average of 90% of their time indoors, the quality of indoor environments has a profound effect on health and wellbeing.
 - Increasingly frequent heat waves cause an estimated 120 deaths every year in Toronto alone, with primary exposure to heat occurring indoors, where temperatures are often several degrees warmer than outdoors¹³. Deep energy retrofits can dramatically reduce exposure to extreme heat¹⁴.
 - There is emerging evidence that HVAC improvements, typically undertaken as part of deep retrofits, can reduce transmission of COVID-19 and other communicable illnesses¹⁵.
- **The deep retrofit program should be designed to build market confidence, be straightforward to access, and get shovels in the ground as soon as possible.**
 - Funding should be available to all eligible projects that meet requirements for carbon reduction, social procurement, and indoor environmental quality.
 - This should *not* be structured as a competition. Competition-type funding erodes market confidence, imposes high transaction costs, and requires a long lead-time for program design, solicitation, and proposal evaluation.
 - Funding amounts should be simple and standardized (e.g. 50% of eligible costs to a maximum of \$300/m²), so that it can easily be incorporated into business case analysis.

¹² Canadian Construction Association (2019), [The Value of Diversity and Inclusion in the Canadian Construction Industry](#)

¹³ Pengelly et al., [Anatomy of heat waves and mortality in Toronto](#), Canadian Journal of Public Health Vol. 98, No. 5.

¹⁴ TAF, [Improving Indoor Environmental Quality in Multi-Residential Buildings](#).

¹⁵ ASHRAE (2020), [ASHRAE Position on Infectious Aerosols](#)

Recommendation 3: Create a funding program of at least \$100 million over 5 years for initiatives that help create a well-functioning deep retrofit market, including innovative and scalable approaches to project origination, aggregation, standardization, and cost compression.

Rationale:

- Project funding alone will not suffice to create and sustain a deep retrofit industry that can deliver projects at the pace and scale required to reach Canada's targets.
- There is a critical need to improve the cost effectiveness of deep retrofits. This will enable continued market growth, even as the share of costs funded by government declines over time.
 - Experience of global leaders in deep retrofit implementation shows that the costs can be reduced by 50% within a decade, *but only with appropriate investment in market development*¹⁶.
- There is a need to engage private capital markets to develop and deploy sustainable financing approaches for deep retrofits.
- There is a need to engage manufacturers and suppliers to develop made-in-Canada solutions, and make solutions from other markets available in Canada.
- There is a need to engage and assist building owners, to ensure that deep retrofits can be delivered in a way that suits their business needs and capabilities.
- All of the above requires long-term coordination and cross-sectoral collaboration.

Specifics:

- The proposed program would fund market development and innovation initiatives, complementing the proposed deep retrofit demonstration program.
- Funding would support a Canada-wide network of partners serving different market segments and regions.
- Funding should support a range of activities, including but not limited to:
 - **Project origination and demand aggregation:** Customer acquisition can account for 25% of the cost structure for deep retrofits. Demand fragmentation also discourages industry investment. Organizing demand and presenting it in a consistent manner is a proven strategy for reducing costs and mobilizing industry investment in innovation¹⁷.
 - **Standardization and productization:** Currently, every deep retrofit project is unique. Home and building owners interested in a deep retrofit cannot easily identify, let alone procure the services, products and professionals needed. Achieving scale will require a much simpler process. Deep retrofits need to be 'productized': made into a standard, marketable product that can easily be procured and financed.
 - **'Concierge' type services:** Many home and building owners will require independent and unbiased support to help them successfully navigate the deep retrofit process.

¹⁶ Energie Sprong (2019), Cost Compression Dynamics for Net Zero Energy Retrofits in the Netherlands,

¹⁷ Rocky Mountain Institute (2020), [Pre-fabricated Zero Energy Retrofit Technologies: A Market Assessment.](#)

- TAF is developing a deep retrofit delivery centre focused-on multi-family buildings in the GTHA, which encompasses all three of the above-noted activities. We are building on our track record, having already delivered retrofits to over 2000 such homes, and are ready to expand our program by an order of magnitude over the next three years.
- TAF is already engaged with a network of similar emerging initiatives across Canada, demonstrating a broad interest in potential funding.

Recommendation 4: Create a funding program of at least \$30 million over 5 years for Research, Development, Demonstration, and Deployment (RDD&D) of low carbon equipment in the building sector, with a focus on the priorities laid out in the Federal/Provincial/Territorial government’s joint Market Transformation Roadmap.

Rationale:

- Equipment performance standards are one of the simplest and most cost-effective tools for achieving carbon reductions¹⁸.
- In 2017 the federal, provincial and territorial governments adopted equipment performance goals for the building sector¹⁹.
- A multi-year stakeholder engagement process created a consensus-based roadmap for market transformation which was endorsed by the federal, provincial and territorial governments in 2018²⁰.
- The Roadmap lays out a compelling vision for how targeted investment in RDD&D can work in synergy with equipment standards to transform the market.
- The Roadmap has been vetted and endorsed by stakeholders across Canada – all that is missing is the necessary funding.

Specifics:

- **Funding would be allocated through NRCAN’s Office of Energy Efficiency**, for disbursement across Canada based on roadmap priorities, with ongoing guidance from stakeholders.

¹⁸ IPCC (2014), [Summary for Policymakers](#).

¹⁹ [Market transformation strategies for energy-using equipment in the building sector](#)

²⁰ [Paving the Road to 2030 and Beyond: Market transformation road map for energy efficient equipment in the building sector - Supporting the transition to a low-carbon economy](#)