How Federal Policy Can Transform Building Retrofits in Canada

Review of recent federal policy from a mission-oriented perspective

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Efficiency Canada | Carleton University



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About Efficiency Canada

Efficiency Canada is the national voice for energy efficiency. Our mission is to create a sustainable environment and better life for all Canadians by making our country a global leader in energy efficiency policy, technology, and jobs. Efficiency Canada is housed at Carleton University's Sustainable Energy Research Centre, which is located on the traditional unceded territories of the Algonquin nation.

The views expressed, as well as any errors or omissions, are the sole responsibility of the authors.

Table of contents

Summary 1

Introduction 2

Building a new retrofit system 3

- Atomized retrofit system 4
- Energiesprong 5
- Evaluating systemic change 8

Programs in the market 11

- Deep Retrofit Accelerator Initiative 11
- Greener Neighbourhoods Pilot Program 13
- Other retrofit market intermediaries 15

Innovation activities 15

- Mapping buildings' and people's needs 15
- Streamlining and standardizing processes 16
- Building networks and relationships 18
- Creating spillovers 20
- Developing an equitable workforce 21
- Demonstration and diffusion of technology 22
- Directing innovation toward public purpose 23

Analysis 23

Opportunities for system transformation 26

- Aligning funding with market realities 26
- Coupling stable budgets with active project management 27
- Resources to enable scale 29

Conclusions 32

Recommendations 34

Works cited 38

Figures

Figure 1. Illustrated model of the default atomized retrofit system 4

Figure 2. The Market Development Team role 6

Summary

Transforming Canada's building retrofits is urgent for climate resilience, energy efficiency and economic stability. Retrofitting existing buildings is as vital as ramping up housing supply so Canadians do not remain in deteriorating, inefficient structures. Existing stock provides a market to test and scale modern construction methods orders of magnitude larger than new construction, which adds under two per cent to floor area annually.

Canada is constrained by an "atomized" retrofit system, requiring an industrial strategy to transform the market. Owners manage complex technical and financial workflows, causing fragmented decisions and incremental single-measure upgrades. Independent Market Development Teams (MDTs) like Energiesprong can transform retrofits by simultaneously reshaping supply and demand. Under this approach, non-linear system change occurs as small innovations — across business models, technologies, finance and policy — interact to remove structural bottlenecks.

Federal initiatives like the Deep Retrofit Accelerator Initiative (DRAI) and Greener Neighbourhoods Pilot Program (GNPP) are building regional capacity, but structural barriers remain. Market-shaping intermediaries are mapping market needs, streamlining and standardizing processes, building relationships, creating spillovers, developing equity benefits, and driving innovation for public good. However, transformative progress is hindered by narrow program mandates, funding limitations, entrenched demand-supply silos and limited integration with national applied research and capital resources.

Federal policy must adopt a mission-oriented agenda to build a modern retrofit system and scale regional successes nationally. First, urgently recapitalize and amalgamate DRAI and GNPP with long-term funding to retain ecosystem trust and maintain momentum. Second, establish a national industrial strategy led by expert directors to develop a theory of change, coordinate co-creation of investment priorities, and monitor and evaluate progress of MDTs. Finally, enable scale by connecting MDTs with applied science institutions and establishing dedicated low-cost financing to drive uptake and crowd in private capital.

Introduction

In 2022, Canada Mortgage and Housing Corporation released a report calling for a significant increase in housing supply to achieve affordability.[1] This made the development of new housing a major political priority in Canada. Prime Minister Mark Carney's government has sought to build homes at a larger scale, lower cost, and quicker rate through the use of "modern methods of construction," such as prefabrication and other off-site construction methods.

Finding new ways to retrofit Canada's existing building stock is just as important as ramping up housing construction, and it presents an immediate opportunity to develop, test, and learn about modern methods of construction. Existing buildings offer a market scale orders of magnitude larger than new construction, which adds to the total building stock floor area by less than two per cent annually.[2,3] This means existing buildings can provide a longer-term and more stable market for businesses retooling to implement modern methods of construction.

Transforming Canada's construction sector must include a revolutionization of building retrofits. In 2021, an Efficiency Canada publication titled *Canada's Climate Retrofit Mission* argued that standard policy approaches were too incremental.[4] It called upon the federal government to take a mission-oriented approach with a significant role for Market Development Teams (MDTs) — organizations dedicated to analyzing and changing the system responsible for upgrading existing buildings.

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[1] Canada Mortgage and Housing Corporation. *Canada's Housing Supply Shortages: Estimating What Is Needed to Solve Canada's Housing Affordability Crisis by 2030.* , 2022. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/accelerate-supply/housing-shortages-canada-solving-affordability-crisis.

[2] Natural Resources Canada. "Residential Single Detached Secondary Energy Use (Final Demand) by Energy Source and End Use." In the *National Energy Use Database*. Government of Canada. Accessed March 10. 2026. https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/menus/trends/handbook/handbook_res_00.cfm.

[3] Natural Resources Canada. "Commercial/Institutional Secondary Energy Use (Final Demand) by Energy Source, End Use and Activity Type." In the *National Energy Use Database*. Government of Canada. Accessed March 10, 2026. https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/showTable.cfm?-type=HB&sector=com&juris=00&year=2023&rn=1&page=0.

[4] Haley, Brendan, and Ralph Torrie. *Canada's Climate Retrofit Mission: Why the Climate Emergency Demands an Innovation-Oriented Policy for Building Retrofits*. Efficiency Canada, Carleton University, 2021. www.efficiencycanada.org/wp-content/uploads/2021/06/Retrofit-Mission-FINAL-2021-06-16.pdf.

Two years later, Natural Resources Canada (NRCan) launched the Deep Retrofit Accelerator Initiative (DRAI) and the Greener Neighbourhoods Pilot Program (GNPP), which have funded two networks of retrofit accelerators and MDTs. These contribution agreements terminate March 2027.

This report examines these and related programs in the market while reflecting on their contribution to building a modern, productive retrofit system that supports Canada's present-day and long-term policy goals for a stronger net-zero emissions economy.

Building a new retrofit system

In the 2021 retrofit mission report, we undertook a quantitative assessment of how Canada could retrofit its building stock by 2050. We determined that the retrofit rate would have to increase from under one per cent to three to five per cent per year, and retrofits themselves needed to be higher quality.

We concluded that reaching this scale and performance of building retrofits could not be accomplished simply with more financing or more retrofits conducted in the same way as today. We would need to change the retrofit process itself — or create a new retrofit system.

The problem seems relatively simple — we need to retrofit more buildings, the energy savings must be sufficiently deep and the carbon reductions have to be consistent with net-zero emissions. Decades of energy-efficiency policy have been framed around meeting measurable objectives like energy savings and GHG reductions, often at very low cost, to the benefit of utility systems, consumers and the environment. However, we cannot retrofit the building stock to meet net-zero emission objectives by doing things the same way. We need to build a new retrofit system.

History of innovation teaches us that such dramatic change is possible, but it occurs non-linearly. An initial process of learning and experimentation can lead to the development of new businesses, new relationships between actors, new technologies, new financial products, new policies, new political coalitions and understandings of

public purpose. Each particular innovation does not produce a dramatic change in outcome. When these multiple small innovations interact, they create a new system. When a new system is organized, it can produce transformative change.[5]

Atomized retrofit system

One way to describe the existing retrofit system is "atomized," as depicted in Figure 1. In the atomized retrofit system, the customer is at the centre of the project management atom, responsible for complex technical and financial workflows.

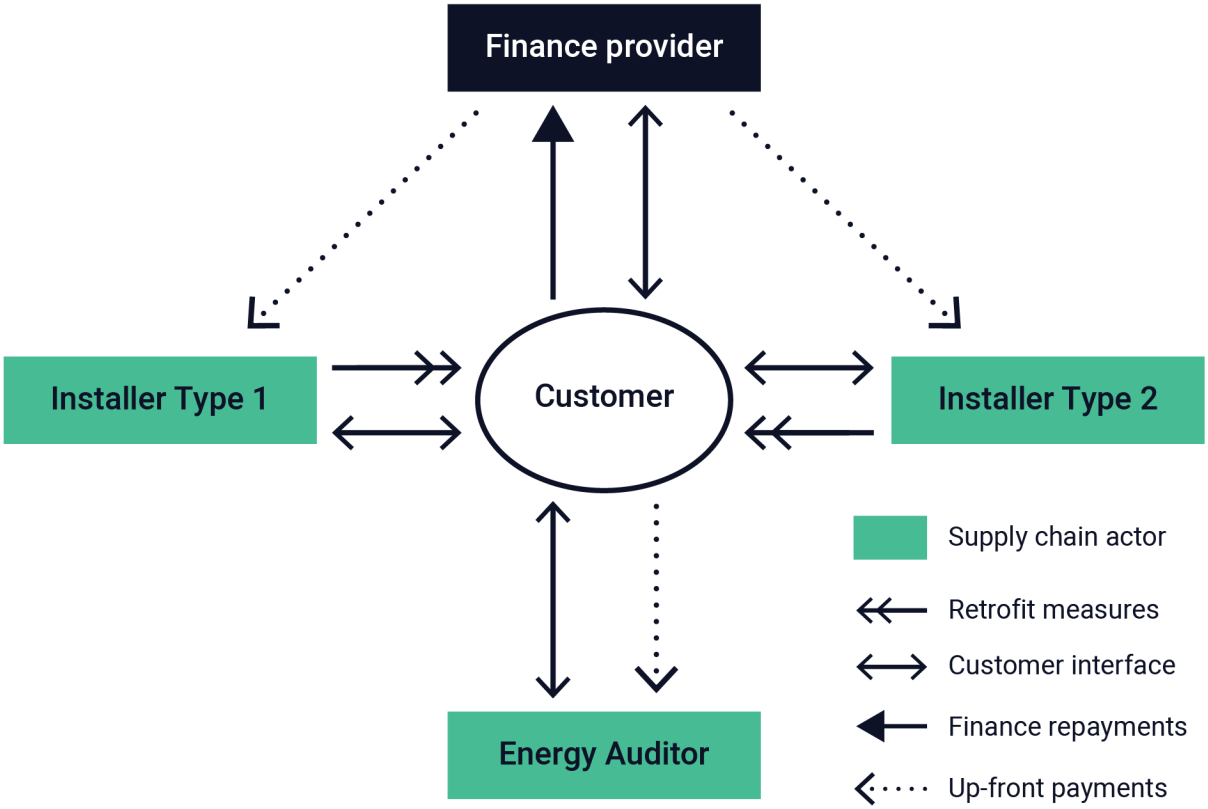


Figure 1. Illustrated model of the default atomized retrofit system

[5] See: Freeman, Chris. and Luc Soete. *The Economics of Industrial Innovation*. 3rd ed. Cambridge, MA: MIT Press, 1997.; Geels, Frank W., 2002. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. Research Policy 31, 1257–1274.

While there are variations — such as hiring a project manager as a proxy for the owner — progress will remain slow and incremental without transformative change in the decision flows. Building owners will fall behind in providing the retrofits needed just for life cycle renewal, let alone upgrading for energy efficiency, health, safety and resilience.

Despite clear public benefits and the availability of low-cost financing, private investment, and public funding, the complexity and fragmentation of this atomized system perpetuates a cycle of single-measure retrofits. This is like trying to map the entire Milky Way galaxy by drawing one constellation at a time: the "retrofit galaxy" has a huge number of nodes and relationships that we are trying to understand through discrete projects.

In an atomized retrofit system — where owners are responsible for understanding the market options, making all the decisions and coordinating all the work — there is a perpetual need for concierge support, which itself is indicative of a broken system. Owners do not know what their options are or how to navigate them, and the supply side is fragmented. Suppliers and solution providers see the system through their specialist lenses. Furthermore, solving challenges building by building will not prepare Canada's buildings for a decarbonized, climate-resilient future — it will only drag out the time Canadians spend in deteriorating homes and buildings.

The question, then, is how do we change the retrofit system?

Energiesprong

The Netherlands created its first MDT in 2010, which became known as Energiesprong (Dutch for "energy leap"). Energiesprong was created to address a confluence of public problems: aging social housing, high energy costs and climate change. This theory of change became a transformative building retrofit approach, shifting from bespoke construction to industrialized manufacturing.

MDTs have been replicated in other countries to attract industry investment with certainty of high project volume by aggregating demand for net-zero energy retrofits. The model has fostered an industrialized retrofit process through:

- off-site manufacturing of wall and roof panels
- LiDAR scanning to develop 3D models of the existing buildings
- all-in-one mechanical equipment modules (HVAC, solar inverters, domestic hot water, controls and monitoring), or "energy pods"
- innovative financing backed by 30-year energy performance guarantees

Energiesprong contractors are penalized financially if the building fails to maintain the net-zero energy balance or indoor climate standards over three decades. Today's MDT mission is to: "Create a self-sustaining, functional, and growing deep energy retrofit market."[6] MDTs play a critical matchmaking role to create value for participants on both the supply and demand sides of the ecosystem, as illustrated in Figure 2.

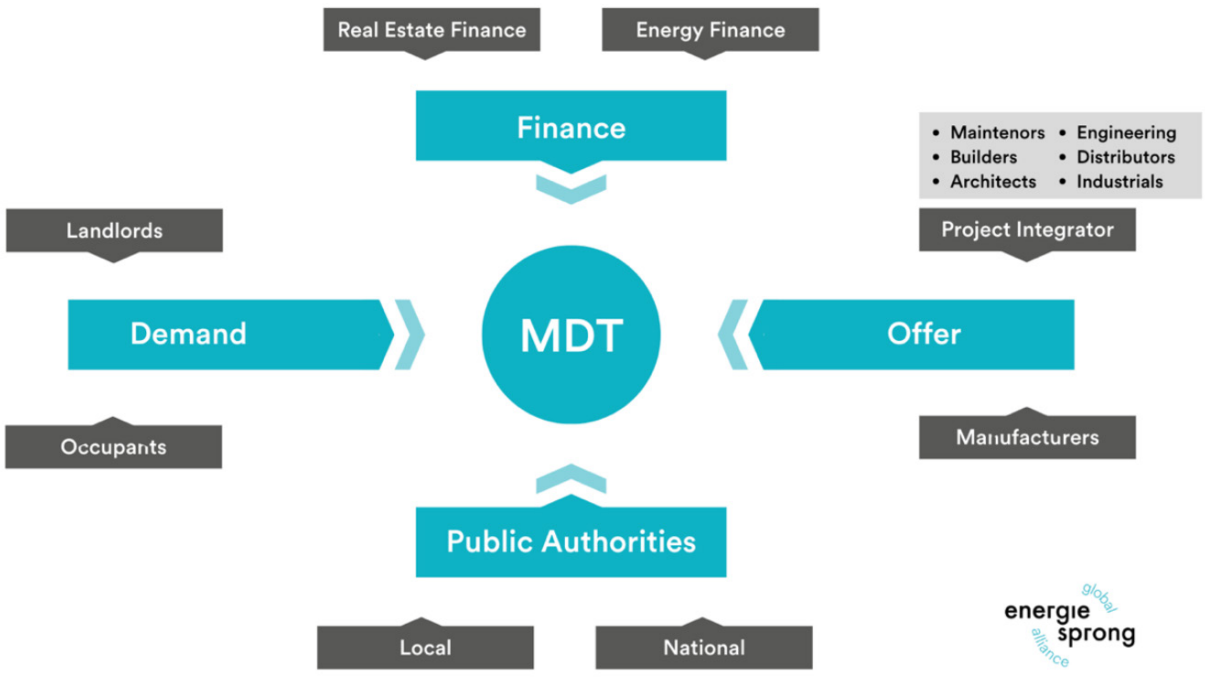


Figure 2. The Market Development Team role. Source: Energiesprong

[6] Global Energiesprong Alliance. *Energiesprong Market Development Teams (MDTs) in Europe: Findings and guidelines for expanding the MDT model.* 2025. https://www.energiesprong.org/set-up-mdt/.

The lesson to take from this model is that a single solution — like prefabricated panels — is not enough to scale up deep retrofits. The MDT facilitated several innovations, activities and interactions within a network, such as:

- aggregation of demand through trust-building with building owners
- solutions to tenant-landlord split-incentives
- creation of new businesses when some did not exist before
- accountability mechanisms for contractors
- new public and private financing mechanisms

The main lesson of the Energiesprong model is the *policy innovation* of an MDT as a new organization, which is what led to the better known technical innovations of prefabricated wall and roof panels and mechanical pods. The MDT acts as an independent intermediary without a profit or business interest in the market, especially in early stages of market transformation. As such, it can be a trusted partner invested in making the retrofit process "work better" to achieve higher retrofit performance replicated at a larger scale. Once system transformation is well underway with policy frameworks in place, market practices standardized, and industry capacity built up, commercial service models would be the desirable end state.

The role requires simultaneously reshaping the demand and supply side of markets, as well as larger market policy and institutional structures. It could connect a supply-side solution, such as prefabrication, to a particular segment of the building stock with particular user needs and ownership profile.

To meet its retrofit objectives, Canada should replicate Energiesprong's market transformation approach rather than a particular technological solution. MDTs can act as organizations that play a transformative role in several building subsectors by helping create different combinations of technology, financing, planning processes, business partnerships and more. MDTs create the potential to build new retrofit systems that work better.

This theory of change informed the *Canada's Climate Retrofit Mission* report, which called for a mission-oriented approach to building retrofits. This was a departure from a policy framework common for energy efficiency that let cost per tonne of GHGs or cost of saving energy act as a pass-fail. That would simply be putting more resources into an

atomized retrofit paradigm with inherent limitations. A mission-oriented approach would make aligning Canada's building stock with net-zero emissions a societally relevant goal and transform how we do retrofits to meet this goal.

We proposed MDTs as core implementing organizations of a mission-oriented approach. The teams would be enabled and actively project-managed by a federal mission leader organization or program directors that would guide the search for solutions based on an innovation-oriented theory of change, monitor progress and furnish resources to promising projects.

Evaluating systemic change

A mission-based approach to building retrofits would focus on triggering a non-linear, systemic change. Evaluating whether or not that change is progressing is difficult, but not impossible.

It is easiest to count the number of building retrofits, energy and GHG savings, or projects in different stages of development along a pipeline. These are important indicators, but the potential for innovation cannot be easily seen in outcome metrics. The danger is that typical public sector evaluation protocols can easily direct policy and programs back toward incremental instead of transformative change. It could direct program implementers and policymakers back toward the standard approach to achieving these outcomes under the atomistic retrofit paradigm.

Yet there is still a need to assess where to direct resources, which projects to select, if progress is being made and how to cancel projects or initiatives that are not working.

The approach to evaluating innovation involves continuous monitoring and welcoming scrutiny, guided by a vision of what success looks like.[7] This is distinct from a typical government process that awards funds via a request for proposals, selecting projects and assessing reported outcomes after project implementation.

Rather than tallying outcomes that demonstrate simple cause and effect, a mission-oriented policy approach seeks to track learning and the creation of innovation potential.[8] An example of such an approach is the Advanced Research Projects Agency - Energy (ARPA-E) in the United States.[9] This organization's projects are guided by program directors with subject-matter expertise (often hired on secondment). The directors create a vision that defines problems to solve and what success would look like. This initial idea is placed under scrutiny by internal and external experts and revised. After this process, the program director actively searches for suitable partners and launches an open solicitation for proposals that match the vision for creating change. The directors have a contractual right to "substantial involvement" in the projects, allowing them to act as partners with deep technical understanding of the area alongside project implementers. This actively embedded approach enables an ongoing evaluation of learning toward the goal, which provides deeper information than outcome metrics. Active project management enables consistent budgets that are disbursed based on a project's evolution. Recipients are monitored and held accountable throughout, which also means project directors can cut off budgets for initiatives that are not working quickly.

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[7] See: Sabel, Charles F. "Learning by Monitoring: The Institutions of Economic Development." In *The Handbook of Economic Sociology,* edited by Neil J. Smelser and Richard Swedberg. Princeton, N.J.; New York: Princeton University Press, Russell Sage Foundation (1994).; Kuznetsov, Yevgeny, and Charles Sabel. "New Open Economy Industrial Policy: Making Choices without Picking Winners." In *Making Innovation Policy Work: Learning from Experimentation,* edited by Mark. A. Dutz, Yevgeny Kuznetsov, Esperanza Lasagabaster, and Dirk Pilat. Organisation for Economic Co-operation and Development (2014). https://openknowledge.worldbank.org/entities/publication/b6b1bee1-2396-5947-a7c6-8c51668fa58a/full.

[8] Bellinson, Ryan, Michael Berry, and Elisa Cadelli. "Mission Metrics: Policy Evaluation Tools for Cities to Optimise Learning for the Green Transition." *Industrial and Corporate Change* 27, no. 5 (2018): 883–96. https://doi.org/10.1093/icc/dty027.

[9] Haley, Brendan. "Designing the public sector to promote sustainability transitions: Institutional principles and a case study of ARPA-E." *Environmental Innovation and Societal Transitions* 25 (2017), 107-121. https://doi.org/10.1016/j.eist.2017.01.002.

With respect to indicators to monitor, innovation scholars counsel tracking “activities” instead of outcomes. Activities ultimately lead to the structural change desired and capture “what actually happens” in an innovation system.[10] Examples of these activities to track include:

- forming new product markets
- articulating quality requirements from users
- training and competence building
- creating new organizations and firms or “intrapreneurship” within a firm resulting in changes in business strategy
- institutional changes such as tax law and regulatory change
- financing to facilitate commercialization

Whether these activities are producing the potential for change can be assessed through a higher-level analysis of bottlenecks or structural impediments to the desired system change.[11] Thus, failure or success can be determined based on progress in removing one or more structural bottlenecks. The removal of a single bottleneck increases the potential for change, even if many other elements of the system ultimately need to change to trigger the desired outcome.

Applying these insights to a building retrofit mission suggests that a focus on indicators such as the number of retrofits or progress along a typical project pipeline is likely to miss out on learning and innovation activities actually happening or not happening. To achieve a system change, efforts might be best spent on removing bottlenecks or

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[10] Edquist, Charles (2004) “ Reflections on the Systems of Innovation Approach”, Science and Public Policy, Vo. 31, No. 6, 485-490. This insight re-labelled activities as “functions” of an innovation system, leading to a technology innovation systems framework. See: Johnson, A. and S. Jacobsson. "Inducement and Blocking Mechanisms in the Development of a New Industry: The Case of Renewable Energy Technology in Sweden." In Technology and the Market: Demand, Users and Innovation, edited by Rod Coombs. Northampton, MA: Edward Elgar, 2001.; Bergek, A., Jacobsson, S., Carlsson, B., Lindmark, S., Rickne, A., 2008. Analyzing the functional dynamics of technological innovation systems: A scheme of analysis. Research policy 37, 407–429.

[11] Arnold, Erik “Evaluating Research and Innovation Policy: A Systems World Needs Systems Evaluations.” *Research Evaluation* 13, no. 1 (2004), 3–17.

changing the way specific parts of the retrofit system function — such as streamlining the user experience, articulating dimensions of desired performance, experimenting with new technology, changing regulatory rules and transferring knowledge.

Thus, as we review the policy experience since Efficiency Canada's initial call for a mission-based approach to retrofits, we will focus on relevant innovation activities, bottleneck removals and the way the policy was structured to support or not support this approach to monitoring the success of a learning process.

Programs in the market

In 2022, the Government of Canada earmarked funding for DRAI ($185.5 million)[12] and GNPP ($35.5 million).[13] In addition, there are groups working independent of this funding or in partnership with the funded teams. The first iterations of DRAI and GNPP are somewhat complementary but isolated programs, including the building scales they target: DRAI focuses on large buildings, GNPP is for low-rise housing (four storeys or fewer). They are also run out of two different branches of NRCan — DRAI is funded by the Office of Energy Efficiency (OEE), and GNPP by the Office of Energy Research and Development (OERD) — and they take different approaches to market transformation.

Deep Retrofit Accelerator Initiative

Under the initial DRAI funding call, 14 retrofit accelerators[14] were created throughout 2023 and 2024 and funded through to March 2027. Their mandate is to develop programs that bundle demand, coordinate projects, and unlock financing for community, commercial, institutional, and mid-to-large multi-unit residential buildings.

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[12] Natural Resources Canada. *Deep Retrofit Accelerator Initiative*. Government of Canada, last modified February 16, 2026. Accessed May 29, 2026, https://natural-resources.canada.ca/energy-efficiency/building-energy-efficiency/deep-retrofit-accelerator-initiative.

[13] Natural Resources Canada. *Greener Neighbourhoods Pilot Program.* Government of Canada, last modified February 25, 2025. Accessed May 29, 2026, https://natural-resources.canada.ca/funding-partnerships/greener-neighbourhoods-pilot-program.

[14] Natural Resources Canada. *Retrofit Accelerators*. Government of Canada (January 2025). https://natural-resources.canada.ca/energy-efficiency/building-energy-efficiency/retrofit-hub/retrofit-accelerators.

Round 1 DRAI recipients

- Alberta Ecotrust Retrofit Accelerator (Alberta)
- BC Retrofit Accelerator (British Columbia)
- BOMA Canada (all provinces and territories)
- Centre for Indigenous Environmental Resources (CIER) (all provinces and territories)
- Fédération québécoise des municipalités (Quebec)
- Four Winds & Associates (Indigenous communities in Alberta)
- Graham (all provinces)
- Hydro Ottawa (Greater Ottawa Area)
- Purpose (all provinces)
- The ReCover Initiative (Atlantic Canada)
- SaskPower (Saskatchewan)
- SOFIAC (all provinces)
- The Atmospheric Fund (TAF) Retrofit Accelerator (Greater Toronto Hamilton Area)

This first DRAI funding call outlined objectives primarily focused on the customer journey for specific retrofit projects. Eligible activities included providing concierge services for specific retrofit projects — such as aggregating demand, guiding building owners, and identifying project funding and financing — as well as a range of capacity-building activities, such as developing novel, standardized, or replicable approaches to deep retrofits.

A second, smaller ($8 million) funding call was announced in 2025, inviting applications for projects that support the financial sector, industry, and owners with tools, resources, and capacity-building not specific to individual projects. The nine announced

recipients[15] lean into the supply side of the system and complement the work of the retrofit accelerators.

Round 2 DRAI recipients

- Affine Climate Solutions Society: Innovative financing
- British Columbia Institute of Technology: Micro-credentials for owners and industry
- Canada Green Building Council: Retrofit business case development training
- City of Saskatoon: Virtual business case development tool
- EcoSpex: Virtual design compliance platform
- LandlordBC: Retrofit business case tool and training
- SISA Energy: Virtual data sharing platform
- Sustainable Building Manitoba: Retrofit financing
- Sustainable Waterloo Region: AI platform compiling resources for financing, industry capacity building and business case development

Greener Neighbourhoods Pilot Program

The OERD created GNPP to fund MDTs and demonstration projects. This initiative built upon a previous decade of research and development, which included initiatives within CanmetENERGY and its Local Energy Efficiency Partnerships (LEEP) program related to project aggregation, process innovation, and technology innovation. GNPP Round 1 called for projects to develop technical approaches and tools, knowledge and technology transfer, partnership and matchmaking, or capacity building and training.[16]

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[15] Natural Resources Canada. *Funded Capacity Building Projects Deep Retrofit Accelerator Initiative*. Government of Canada (last modified February 16, 2026). Accessed May 29, 2026, https://natural-resources.canada.ca/energy-efficiency/building-energy-efficiency/deep-retrofit-accelerator-initiative-0.

[16] Natural Resources Canada. *Greener Neighbourhoods Pilot Program – Market Development.* Government of Canada (last modified February 25, 2025). Accessed May 29, 2026, https://natural-resources.canada.ca/funding-partnerships/greener-neighbourhoods-pilot-program-market-development-teams.

Round 1 GNPP recipients

- Conseil régional de l'environnement et du développement durable de l'Outaouais: Outaouais Green Building Community (Outaouais region of Quebec)
- Earthrise Building Services: Earthrise Retrofit Accelerator (Yukon)
- EnviroCentre: Future Homes Accelerator (eastern Ontario)
- First Nations Power Authority of Saskatchewan: FNPA's Market Development Initiative for Community-Scale Energy Efficiency Retrofits in Indigenous Communities (Indigenous communities in Saskatchewan)
- The ReCover Initiative: Atlantic Canadian Retrofit Roadmap (Atlantic Canada)
- Sustainable Buildings Canada: Enabling Energiesprong Market Transformation by Supporting Ontario's Social Housing Market (Ontario)
- Retrofit Canada Society: National Retrofit Repository and Engagement to Advance Canadian Deep Energy Retrofits (national, based in Alberta)

The second round supports demonstration of projects with at least 100 units in social or community housing, which can be a catalyst market given it is typically more tolerant to long payback periods, prioritizes non-energy benefits and generally includes simpler building forms that enable replication.[17] Like the DRAI retrofit accelerator call, the second GNPP funding call addresses the other half of the demand-supply relationship. The objectives were to validate feasibility of Energiesprong-style (prefabricated) retrofits, explore and build the business case for innovative aggregated deep energy retrofit approaches, and, again, build capacity. Two demonstration projects have been publicly announced, with additional projects pending.

[17] Natural Resources Canada. *Greener Neighbourhoods Pilot Program Demonstration Projects Call for Proposals Applicants' Guide*. Government of Canada (February 2025). https://natural-resources.canada.ca/funding-partnerships/greener-neighbourhoods-pilot-program-demonstration-projects-call-proposals-applicant-guide#eligibility.

Round 2 GNPP recipients

- City of St John's: St. John's Non-Profit Housing Deep Retrofits
- CityHousing Hamilton Corporation: Demonstrating Effective Deep Energy Retrofits of Townhouse Buildings in Canada

The nine recipients were identified throughout 2024 and into 2025 and are funded through to March 2027.

Other retrofit market intermediaries

Outside of programs funded through DRAI and GNPP, there are organizations aggregating demand and supporting supply-side transformation. In some cases, they use retrofit demand aggregation to shape supply-side market behaviour toward effecting retrofit system change. The groups we discuss in the following sections include:

- Efficiency Capital
- The Community Energy Association (CEA)
- Kambo Energy Group

Innovation activities

As stated above, we are interested in initiatives that remove structural bottlenecks and support innovation activities to transform the existing retrofit system, and not simply accomplish more retrofits within the existing paradigm. Below, we report on a review of the activities undertaken by DRAI and GNPP recipients, as well as related organizations that show promise to build a new retrofit system.

Mapping buildings' and people's needs

DRAI and GNPP recipients and other intermediary organizations working on the ground are embedded in communities and can map the nuanced needs of buildings and the people who own and use buildings. They have a refined understanding of the challenge, scale and scope of retrofitting buildings at a local level. Scoping programs

with a regional focus can help tune projects to local conditions and avoid pitfalls of overgeneralizing market needs and solutions, direct resources to priority projects, and develop appropriate pathways to retrofitting at scale. As third-party organizations without a revenue motive, intermediaries work with owners, decision-makers and financial institutions to build trust in retrofit solutions and in the industry experts who deliver them. They also provide education and build awareness to help drive demand for retrofits and facilitate matchmaking with market solutions.

- Kambo hires and trains local stakeholders to build trust and relationships in communities. This in turn builds owner awareness and trust in retrofit solutions and benefits. Kambo takes a portfolio-level approach to supporting owners, working with local government, utilities, companies, and anyone with direct impact on project success to streamline the process and get ahead of potential issues.
- Alberta Ecotrust meets owners where they are, attending events in rural municipalities where energy efficiency programs are rare and awareness is low.
- ReCover has created an evergreen building stock database that informs decision-making and retrofit prioritization. The database can also be overlaid with external datasets to broaden assessments — for example, integrating CLIMAtlantic's climate risk data to recommend adaptation measures as part of the retrofit scope.
- ReCover also guides building owners 1:1 through its project activation-focused Building Transformation Program and conducts quarterly roundtables with building owners to create awareness and identify barriers to deep retrofits.
- Retrofit Canada Society hosts webinars and a public library of case studies to share technical information for practitioners and lived experiences for owners.
- TAF has advocated on behalf of owners to ensure quality work and reasonable costs.

Streamlining and standardizing processes

Standardizing project planning and design can help ensure quality, establish consistency across activities and throughout the retrofit process, and help build industry capacity. Standardization of preconstruction assessments and processes can speed up projects and reduce soft costs by streamlining interactions between clients, contractors, and

trades. Equipping owners and communities with standard tools and templates can empower them to carry out informed planning, which can include embedding objectives that create community value. Removing decision and process bottlenecks can help create a steady pipeline of projects that gives industry confidence to invest in growth and development, thereby scaling up implementation.

- TAF has developed enhanced building assessment and capital reserve fund study templates that embed energy and emissions reductions into facility management and capital planning. To ensure these tools are implemented properly, TAF also created and maintains a roster of pre-qualified nine companies to carry them out.
- BC RA has created "Opportunity Assessments" that give owners a preliminary overview of likely retrofit priorities and help them plan for the needed investments, before committing to costly finance-ready audits.
- BC RA worked with the Condominium Home Owners Association to develop a guide to help condo boards create electrical planning reports that are more consistent and compliant with BC's *Strata Property Act* requirements. The guide advises on requesting appropriate utility data and estimating present and future electrical demands.[18]
- Landlord BC's member experience informed research on the *Understanding and Advancing Tax Incentives For Low-Carbon Building Retrofits* report, which also informs tax incentive program designers of barriers contributing to undersubscription.[19]
- ReCover is piloting the use of OPEN Technologies' virtual audit platform in order to perform applied research to identify best use cases for virtual audits compared to costly audits, with the goal of reducing the cost of project readiness.
- Four Winds has produced toolkits to empower Indigenous communities to create data-informed capital budgets, funding strategies and facility management plans, including low-cost recommissioning that immediately saves utility costs.

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[18] "Guidance for the Preparation of Electrical Planning Reports for Strata Corporations in British Columbia". Condominium Home Owners Association, April 2026. https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/operating-a-strata/the-environment/electrical-planning-report.

[19] LandlordBC, "Understanding and Advancing Tax Incentives," accessed June 11, 2026, https://landlord-bc.ca/new-resource-for-building-owners-and-managers-understanding-and-advancing-tax-incentives/.

Building networks and relationships

A key role of innovation intermediary organizations is "getting the relationships right."[20] Networks are needed for innovation because a single organization or business does not have enough knowledge and expertise at the right time. A key function of intermediary organizations, like MDTs, is understanding different players and building relationships between them.

We thus looked for examples of DRAI and GNPP program recipients and other retrofit MDTs making new connections between people and organizations to build new solutions and exchange knowledge, resources, and/or expertise. A critical aspect of this work is also building trust and confidence that new partnerships are worthwhile and valuable to the players involved. Network partnerships can form to produce new solutions or increase replication of existing solutions to new markets or end users.

- ReCover partnered with research institutions to develop a decision-support toolkit on geospatial intelligence, analysis and decision tools, and industrialized construction techniques, creating an integrated process from assessment through to implementation.
- EnviroCentre and Alberta Ecotrust connect participants in the energy conservation programs they help deliver for utilities and government with their deep retrofit services to deepen the outcomes of their respective programs.
- TAF is connecting its roster of contractors that are pre-qualified to implement prefabricated panel retrofits with GNPP recipients operating retrofit projects slated to implement prefabricated panels.
- Kambo ensures the wider needs of stakeholders are considered as part of the work. For example, incorporating housing, asset management, and construction needs as part of energy retrofits when working alongside First Nations communities; advocating for beneficial payment terms for contractors to offer cash flow certainty and revenue forecasting, which in turn offers opportunity for lower costs; and hiring members of traditionally underrepresented groups to build diversity of perspective into their approach and support the overall workforce.

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[20] Brandt, P., Schrank, A., Whitford, J., 2018. Brokerage and Boots on the Ground: Complements or Substitutes in the Manufacturing Extension Partnerships? Economic Development Quarterly 32, 288–299. https://doi.org/10.1177/0891242418787888.

Thus far, we observe that the development of financing solutions for retrofits has focused on building new relationships. This is a process of helping building owners make informed decisions on the value of a retrofit and helping financial sector actors gain confidence that retrofit solutions will deliver promised performance outcomes and understand the risks of doing nothing.

- ReCover built a relationship with SEEFAR and eventually acquired its Total Cost of Building Ownership methodology with plans to convert it into a modern digital platform. The resulting tool will help building owners evaluate retrofit options over the full life of a building, assess long-term financial performance and strengthen the business case for deep retrofit investment.
- AFFINE Climate Solutions works with Canada's major banks on the Banking on Buildings campaign.[21] AFFINE repositions building performance as additive to

  overall returns, cash flow, valuation, and loan performance, and it helps lenders integrate green building risk reduction into underwriting and valuation.
- TAF, Alberta Ecotrust, and ReCover are working with retrofit aggregators SOFIAC and Efficiency Capital to unlock financing barriers and deliver turnkey retrofits, including through Canada Infrastructure Bank's (CIB) Building Retrofits Initiative.
- The BC RA sustainable finance working group and the ReCover-HCi3 partnership are exploring novel financing models like Commercial Property-Assessed Clean Energy, on-bill financing, and a mortgage-like low-interest product held by co-operatives to help crowd-in "slow capital" investors.

Both DRAI and GNPP support networks to connect funding recipients to varying degrees. The DRAI Retrofit Accelerator Network (RAN) is self-directed, and OEE hosts RAN meetings for teams to provide updates. GNPP has a secretariat supported by OERD's LEEP program, which also helps teams with engagement, collaboration and resource development.

[21] Affine Climate Solutions. *Banking on Buildings: Financing Solutions to Accelerate Low Carbon, Resilient Real Estate.* Accessed June 11, 2026, https://affine-new.squarespace.com/projects/banking-on-buildings-financing-solutions-to-accelerate-low-carbon-resilient-real-estate.

Creating spillovers

A system is functioning better when it starts producing spillovers or positive externalities. This is an activity that leads to the further diffusion of technology or practices, replication of solutions that work, or qualitative changes in firms or organizations that correspond with the structural changes desired. MDTs acting as independent intermediaries can have a "test and learn" mandate or be the first mover on novel retrofit approaches, which facilitates other actors in the system changing their strategies over time. A stable and long-term presence enables the continuous production of these spillovers.

- As a result of Retrofit Canada Society creating a contractor roadmap and hosting peer-to-peer technical webinars, it reports contractors are choosing lower-carbon materials, causing the spillover effect of local suppliers being more aware and informed about low-carbon materials like insulating foams, which have low global warming potential.
- Alberta Ecotrust Retrofit Accelerator has data showing that the number of assessment and auditing service providers has grown beyond a small number of big engineering companies since it entered the market.
- TAF introduced Integrated Project Delivery (IPD)[22] to Toronto Community Housing first by managing projects on behalf of TCH, then shifting into an advisory role as TCH took on the project management approach (one project complete and another underway). The city of St. John's, N.L., and CityHousing Hamilton are also implementing IPD with their GNPP support.
- CEA supported LEEP10, an Integrated Design Process (IDP)[23] applied to a bundle of 10 single-family dwellings in B.C.'s East Kootenays. The lead contractor, thinkBright Homes, and subcontractors plan to repeat and scale up the collaborative design approach for 20 homes.

[22] IPD binds the owner, designer and contractor under a single contract to collectively share project risks and rewards. The parties co-create the project and align individual financial incentives around optimizing project outcomes rather than just on individual profit margins. Public procurement does not naturally accommodate IPD since the team is selected before a price or detailed project scope are determined.

[23] IDP is a collaborative approach to optimized project planning and design (not to be confused with IPD, which is a contractual framework).

- Four Winds is equipping Indigenous communities with tools to develop data-driven facility plans, capital budgets and funding strategies built around sustainable capital plans without external support.
- One of Four Winds' delivery partners has evolved its business approach to provide continuous support services and planning rather than transactional technical advice.
- TAF partnered with a local job placement group, Building Up, to increase workforce diversity in its projects, and one contractor plans to include Building Up in other projects.
- EnviroCentre's work on installing heat pumps with load-management technology prompted Ontario's Electrical Safety Authority to change its regulations to allow energy load management systems for applications other than EV chargers.
- TAF's prefabricated panel retrofit pre-qualification list prompted a prefabricated panel manufacturing company, Quantum Passive House, to enter the retrofit market.
- The Eastpoint Engineering firm, which is on ReCover's pre-qualified list of preferred vendors for feasibility studies, started a dedicated deep retrofit division following the DRAI announcement.

Developing an equitable workforce

Building new competencies and skills is an innovation activity. It can involve attracting new people to building retrofits and creating a shared vision for building better among the new and existing people within the building retrofit-related sector. New technologies (called "modern methods of construction" in recent federal strategies) can make construction-related jobs more accessible, such as by reducing physical requirements and enabling more flexible work hours. Workforce development can also involve ensuring benefits and opportunities flow to local communities and populations that are traditionally excluded.

- Four Winds is providing on-the-job training for Indigenous and Metis graduates. It has helped launch the careers of 20 Indigenous people, providing them with valuable skills and credentials that stay in their communities.
- ReCover partnered with Halifax's Building to Zero Exchange to develop Part 3 navigator training and has launched a job shadowing program that places youth

from equity-deserving communities in engineering firms during the development of feasibility studies for buildings in its Building Transformation Program.

- EnviroCentre is building capacity among contractors and trades through group training and on-the-job mentorship programs centred around building science, through which mentees shadow the trades.
- Retrofit Canada, TAF and EnviroCentre are all working to grow prefabricated panel retrofits. EnviroCentre prioritizes prefabrication in part to improve workforce equity. Modern methods of construction can improve working conditions and open opportunities, such as high-tech product and process design, that are delivered through mechanization and automation and do not require heavy labour.
- Alberta Ecotrust and Retrofit Canada Society are collaborating with the Southern Alberta Institute of Technology to create training and education events and conduct research. Each organization focuses on different building archetypes, and combined training events help to foster cross-pollination between market segments and network actors that otherwise work in silos.
- TAF has a hiring requirement that sets a minimum threshold for employing workers from a project's community for it to be eligible for funding, ensuring value is returned locally.

Demonstration and diffusion of technology

Intermediaries are supporting the demonstration of technology in building retrofits, and then sharing learnings to support diffusion and replication. This activity also involves preparing other aspects of the system, such as preparing the market for scaled-up demand by creating standards, identifying opportunities to compress costs and construction timelines, and working with industry on adaptations for particular market conditions.

- TAF is testing prefabricated panel retrofits and using the learnings to create standardized technical requirements and pre-qualified supplier and product lists.
- LandlordBC is testing plug-in window-mounted heat pumps (WMHPs) in older, hard-to-electrify buildings. They are sharing insights such as how to coordinate WMHPs with window replacements as they work with vertical sash windows (open by sliding up) and are ideally installed at the same time.

- EnviroCentre partnered with 1Click to demonstrate how energy load management systems can accommodate heat pumps at a fraction of the cost of household electrical panel upgrades.
- Retrofit Canada is partnering with the Avonmore Community League in Edmonton to test directional drilling for geothermal heating systems. If successful, it improves the viability of adding geothermal to an existing building where space for heat exchange boreholes is constrained.

Directing innovation toward public purpose

An important innovation activity for retrofits involves not simply supporting innovation, but directing it toward public purpose objectives for social and environmental benefit. This facilitates momentum for system change by increasing political legitimacy and expanding the multiple benefits of energy efficiency to larger populations.

- EnviroCentre centres retrofit projects around energy poverty reduction, pooling projects together in an Energiesprong-like volume deal. Contractors are learning to put energy poverty reduction at the centre of project management and passing along bulk purchasing savings to clients. One company has since adopted energy poverty reduction as part of its business model.
- TAF incorporates economic development and job creation goals into procurement documents and rewards contractors that increase the community value of the project with funding. After working with Building Up, one contractor plans to involve Building Up in bids not tied to TAF funding. TAF is sharing these updated templates to make it easy for the broader industry to adopt and replicate.

Analysis

Our review of activities initiated by DRAI and GNPP finds that they have been mostly focused on smoothing out the client journey for building owners, with some exceptions. This is consistent with the concierge-type objectives of creating a project pipeline, guiding owners through the retrofit process, and securing funding and financing. In their first iteration, these programs have played an important role in standing up capacity, understanding building stock and user experience, and stimulating regional project pipelines.

The 32 DRAI and GNPP projects have been in the market for less than four years — and less than two in most cases. For comparison, the Dutch Energiesprong MDT was fully operational after seven years, and the Global Energiesprong Alliance estimates that copycat programs average approximately four years to secure a volume deal (bulk deal delivering multiple net-zero retrofits on multiple buildings).

Energiesprong MDTs coordinate and guide both supply and demand sides and encourage connections with national science and technology insights. The role requires simultaneously shaping different elements of markets, as well as larger policy and institutional structures. For instance, it could connect a supply-side solution, such as prefabrication, to a particular segment of the building stock with particular user needs and ownership profile.

GNPP most closely mimics the Energiesprong model, but its mandate to support research on innovation can bring focus to the project, prioritizing outcomes above analyzing and changing the structure of retrofit markets. OERD's LEEP team does this to some degree, which we discuss in the "Resources to enable scale" section.

Without a clear system transformation mission for MDTs, funding structures and narrow objectives risk maintaining demand- and supply-side silos that prevent change in retrofit markets.

However, the review above shows several potentially system-changing activities taking place within narrow policy mandates. We also found examples of crossover between the boundaries of the two programs.

Aggregating several buildings into a project takes time and trust, and of the limited examples of aggregation, many were successfully identified because of established client pipelines. Teams that achieved the most success had pre-existing access to pools of owner portfolios and projects, such as through their role in delivering energy conservation programs or as industry associations or through for-profit service models, such as providing energy as a service.

We also reviewed several projects that were not funded through DRAI and GNPP. One of the most novel examples of aggregation was supported through NRCan's LEEP innovation and technology accelerator program for small (Part 9) buildings. CEA's LEEP10 retrofit pilot solicited participants and bundled 10 homes for retrofit under one IDP. The success of the project is evident in its contractors and trades agreeing

to expand to LEEP20 (if program management support is identified). Program management was funded through NRCan's LEEP innovation and technology accelerator program, but replicating and scaling up the model depends on CEA finding a new tranche of funding.

Our research showed DRAI and GNPP have generated a spectrum of service models. Most system changes were primarily realized through reshaping demand, which is consistent with their program objectives. However, some intermediaries made supply-side changes or wider policy changes informed by their experience on the demand side.

ReCover's partnership with a private company and eventual acquisition of that firm's intellectual property is a good example. Experience with building owners demonstrated the need to move clients away from simple payback thinking toward a fuller picture of building ownership and the cash flows that come with it. ReCover thus secured a company that could provide this analysis for building owners, and it intends to widely diffuse this service.

Intermediaries helping to increase demand for green building products are also increasing regional product availability and supplier awareness, according to Retrofit Canada's experience. Another example is that TAF's pre-qualification of prefabricated panel retrofit contractors prompted Quantum Passive House's decision to enter the retrofit market. Others are also advocating for better policies and regulations: EnviroCentre's demonstration of load-management facilitating electrification led to changes by the Ontario Electrical Safety Authority to allow use of load management systems for equipment other than electric vehicle charging.

The projects started by the initial period of the DRAI and GNPP programs demonstrated useful activities with potential to change how we accomplish building retrofits in Canada. Yet the activities also demonstrate the relatively short-term, "pilot project" nature of the programs, with relatively narrow objectives that confined innovative activities to categories like capacity building, establishing service and supply networks, and setting up project pipelines. The majority of the work focused on identifying user needs and helping remove bottlenecks from the building owner's user experience. As initial activities, this focus has the benefit of ensuring technological and organizational solutions have practical application and provide a good understanding of demand-side characteristics.

More transformative approaches to building retrofits can be discovered and accelerated if the next stage for these programs is guided by clear and strategic system change objectives that program recipients are encouraged to execute. The projects should evolve from initial pilot projects and building owner service providers toward mission-based organizations.

Opportunities for system transformation

NRCan has seeded 32 interesting projects that have set important innovation activities in motion. To increase momentum, we suggest these programs should lean into the MDT model, in which teams have the mandate to guide and shape both the supply and demand sides of retrofit markets while also connecting and coordinating with a larger ecosystem that includes science and technology research, financing, policy, and regulatory systems. This would mean a shift away from the traditional model of governments funding one-off projects — like innovation testing or demonstration projects — and toward funding MDTs to identify projects that lead to system change. Before achieving this transformative mandate, a series of observed gaps and challenges within the existing program frameworks need to be resolved.

Aligning funding with market realities

In these early stages of market transformation, trusted third-party MDTs without a profit motive are needed until market forces take over. DRAI and GNPP recipients have begun to fill this role, but they are awarded through requests for proposals and contribution agreements based on short-term funding cycles and “spend it or lose it” rules. Actors in the market are understandably uncertain if these organizations will last or if fund availability will align with project milestones.

This could create a reluctance to develop long-term relationships and, as a result, weaken the role of trusted intermediaries. MDTs themselves might be reluctant to engage in projects to create transformational changes over several years due to funding uncertainty. Indeed, recipients of both DRAI and GNPP are concerned about funding running out, and some DRAI recipients are already preparing to ramp down project intake.

Some retrofit accelerators are already considering a fee-for-service business model to ensure they can continue operating. However, a transition from being a neutral party to a corporation with a profit motive could change the nature of their relationships with other market actors, including precipitating a transition from a market enabler to a market competitor with private consultants or other retrofit solution providers. Seeking a revenue stream could limit the role of MDTs in helping market actors build partnerships with each other and the potential for fostering market actions based on a clear mission to make retrofit markets work better.

Coupling stable budgets with active project management

Both DRAI and GNPP programs issued requests for proposals to develop innovative solutions. OEE and OERD have been overseeing progress, supporting and convening teams, and tweaking the programs based on learnings, but guidance is primarily rooted in conventional funder-fundee relationships.

Above, we discussed the project management approach of ARPA-E as an example of how appropriately evaluating innovation activities often requires defining success and the active involvement of program directors to learn alongside project implementers. This more active approach can provide long-term resources for projects or activities under an accountability structure: projects that are not working will be cut off to redirect resources to trying something new. Active involvement of expert project directors guided by a theory of change means they can provide the longevity required to build trust and guide transformation over time (i.e. overcome the short-term funding cycles problem noted above), while continually evaluating opportunities to select new projects and cancelling ones that are not working.

Working in the demand and supply side of retrofit markets

A core strength of Energiesprong is that it leverages demand-side aggregation to generate major changes on the supply side of the retrofit ecosystem, such as through matchmaking and negotiating volume deals. An example of this is described in the LEEP10 case above. This is a strategy to use a structural change on the demand side to trigger additional complementary changes on the supply side of retrofit markets. However, neither the DRAI nor GNPP programs furnished teams with resources or

objectives to meaningfully aggregate building retrofits beyond single-portfolio owners. The initiatives were primarily focused on helping building owners without direct ties to supply-side innovation and diffusion.

Supply-focused projects make up only a fraction of the government's investments through DRAI and GNPP, such as TAF's contractor certification and pre-qualification rosters and contractor training provided through Retrofit Canada Society, EnviroCentre and Four Winds.

Furthermore, the demand-oriented projects are otherwise isolated from the supply-oriented projects by virtue of the funding designs. Thus, the programs remain in supply-side or demand-side silos rather than being given the combined mandate to mutually shape both sides of retrofit markets.

Co-creating a theory of change

These programs were created in the absence of a national theory of change or industrial strategy, which has resulted in a poorly defined problem-solution landscape. Consequently, there are no clear objectives, established mechanisms for setting priorities, or standard definitions of success, which are necessary to enable effective evaluation and maintain accountability. A message of this report is that these programs should be evaluated based on innovation activities rather than standard metrics of number of retrofits or incremental energy savings.

Creation of a system-building agenda could take the shape of the roadmapping that the U.S. Department of Energy (DOE) has been carrying out. Its Oak Ridge National Laboratory is taking a strategic approach to determining what problems or solutions to focus on by adapting learnings from the ENERGY STAR® Certified Homes program to existing buildings. Analysis of the success of this program showed the primary barriers preventing market diffusion at scale were cost, friction and uncertainty. The DOE roadmap focuses on scaling up market solutions that "shrink the change", mitigate scaling barriers, and "build on what is working." This enables a shift from failing to penetrate the market to putting millions of homes on the path to deep energy retrofits.

In the first phase, a pool of experts identified a list of cost-effective research and market activity investments based on highest impact and lowest risk of failing to scale. From a list of over 40 potential projects, they prioritized 24 by mapping their risk-to-impact

potential. These low-risk, high-impact investments can overcome problems related to cost, friction and uncertainty. Examples include a project focused on investing in cost-effective, advanced air sealing systems; another enabling access to preferred financing and insurance; and one that secures bulk procurement to build up supply chains.

In the next phase of the DRAI and GNPP, program directors could work with MDTs to identify key problems and the high-impact projects to solve them — leading toward more systemic interventions aimed at producing a change.

Resources to enable scale

MDTs could also benefit from strengthened connections to government and institutional resources that scale the value of regional activities to a national level.

Financing

Until retrofit costs come down, the business case will remain the primary barrier to scaling up retrofits. MDTs need a capital budget to strategically deploy funds to retrofit innovations and project approaches with transformative potential that are not necessarily cost effective yet. The financial systems also require strategic, transformative intervention to serve the specific needs of existing buildings. While teams were not given the mandate to work on transforming the Canadian financing landscape in favour of scaling up retrofits, DRAI teams had a mandate to unlock financing for retrofit projects, which led to a variety of strategies.

Some teams focused on buildings that provide a public good and could access public funds (e.g., social housing, Indigenous housing and community buildings). Social housing is an important catalyst market for mass retrofit technologies, and thus, the public funding for building upkeep could be coupled with MDT-enabled retrofit solutions. Other teams focused on buildings with a retrofit business case that could be nudged to take on greater ambition (e.g., augmenting what is done under utility DSM funding), and some bundled such buildings into projects eligible for CIB financing.

The CIB Building Retrofits Initiative has a mission to use public investments to crowd in private capital, which works well for large buildings. However, small projects, even when bundled, are not as attractive to investors as large projects that require fewer relationships, contracts, negotiations, structures and more. Even large buildings are

small compared with the large infrastructure projects the CIB is primarily set up to finance. So, while DRAI and GNPP teams are well placed to aggregate demand and funnel projects toward the CIB, its financing only covers a segment of the retrofit market. In contrast, banks are set up to deal with and already have relationships with building and homeowners, but changes are needed in how they perceive high-performing buildings. The Banking on Buildings Campaign is articulating the value as avoiding risks and generating and holding value, and most of Canada's major banks have signed on.

MDTs should have a mandate both to reshape how potential capital providers view retrofit projects and to ensure building owners see a financial benefit. They could play a role in facilitating innovative financial deployment approaches in low-rise buildings with a different approach. A federal strategy inspired by "green bank" models such as Australia's Household Energy Upgrades Fund could provide low-cost capital to a variety of platforms. This would enable blending public capital with private capital and start to shift the systems and expectations of private capital providers. Perhaps most importantly, MDTs could coordinate with financial partners to develop networks of contractors, bulk purchase deals and other aggregation strategies. They could match the demand side of retrofit markets with business models that incorporate innovative finance, such as energy-as-a-service agreements where contractors are responsible for performance and consumers pay a fixed fee, subscription plans for solar and HVAC equipment, and long-term lines of credit for staged, deep retrofits.

Applied science and technology research

Part of the connections made by MDTs should include moving technological solutions from the lab to buildings and identifying problems that could be solved through applied science and technology. Integration with Canada's science and technology centres — such as the National Research Council of Canada, OERD, and post-secondary institutions — should be strengthened.

To illustrate this gap, we look to Retrofit Canada's testing of directional drilling for use in geothermal heating systems. The potential for this technology could reduce the land area needed for boreholes, which could make geothermal heating a promising adaptation for retrofit applications, especially in cold-climate, urban environments. The funding for this research did not come from OERD — even though Retrofit Canada has

funding through GNPP for other work. That is not necessarily a problem, but it is an indication that the DRAI and GNPP programs could evolve to better equip MDTs with an ability to more closely engage federal research.

OERD's LEEP team currently leads the GNPP, but both GNPP and DRAI could benefit from deeper integration with the program. LEEP runs capacity-building workshops and design challenges, researches topical issues such as the cost impacts of building code changes, and is creating tools and supports for power-efficient design. It has also expanded from its original focus on acceleration of code for Part 9 construction to include Part 3. MDTs could bring user-driven design challenges to LEEP to engage industry in developing solutions, such as what was carried out by LEEP's Prefabricated Exterior Energy Retrofit (PEER) project. PEER conducted prefabricated panel research, implemented the design in partnership with Ottawa Community Housing, and carried out performance analysis, which has been foundational for advancing prefabricated retrofit solutions in Canada.

Unfortunately, LEEP is also time-limited and subject to funding cycles, unlike Switzerland's National Centres of Competence in Research (NCCR), which provides an evergreen link between applied science and practical implementation. This organization includes lab and site tests that create a direct throughline from academia to real-world applications. NCCR issues calls for research institutions to lead multidisciplinary research teams representing academia, the public sector, and industry that work on strategic topics addressing technical and social challenges. For example, the NCCR Digital Fabrication is researching digital design, production and fabrication to make construction efficient and improve durability.[24] This includes innovations such as digital modelling, robots building wood structures, and 3-D concrete printing of intricate, decorative structural elements.

[24] Swiss National Science Foundation. *NCCR Digital Fabrication.* Accessed May 30, 2026, https://www.snf.ch/en/d5PGgOqHf9xyvkuL/page/nccr/digital-fabrication.

Conclusions

This report identifies the current atomized retrofit system as a structural problem. Under this system, the owner is at the centre of complex decision-making and project management. This perpetuates single intervention-retrofits and will fail to reach the necessary scale and pace.

We call for a mission-oriented policy agenda with the goal of creating a new system. Achieving systemic change is not a process where inputs create predictable outcomes. It requires a process of learning, creating new connections and the progressive removal of bottlenecks to eventually achieve a non-linear structural change.

We highlight MDTs as core intermediary organizations to implement a mission-oriented policy approach. NRCan funded 32 retrofit accelerators, MDTs, and demonstration projects through DRAI and GNPP. The first iteration of DRAI and GNPP program objectives were heavily focused on helping building owners navigate the existing atomized retrofit system with capacity building, hand-holding, and understanding regional building stocks and markets. The next iteration needs to be about strategically changing the retrofit system.

This report reviewed the programs through the mission lens. Our research showed that in only a few years, DRAI and GNPP recipients, as well as other independent groups, have built trust with supply and demand actors. We tracked how these organizations carried out innovation-related activities, which included:

- mapping building and owner/occupant needs to direct solution development
- streamlining and standardizing processes to smooth out market friction
- building relationships and networks toward impactful knowledge exchange
- creating spillover opportunities that generate new types of businesses and better connect government objectives with high-performance retrofits
- developing an equity-informed workforce while improving productivity
- demonstrating technology and helping diffusion of innovations
- directing innovation toward public purpose, such as to address energy poverty

These activities have started to show promising results, such as businesses entering the retrofit market and others integrating new services into their operating models, suppliers improving knowledge and availability of high-performance products, and changes to policies and regulations informed by industry and owner needs. We also identified several examples of activities with transformative potential to scale up nationally:

- Institutionalize Retrofit Canada's national database of case studies and expanding it to include all building archetypes, not just Part 9 homes.
- Incorporate TAF's enhanced building assessments and enhanced capital reserve fund studies into regulations such as provincial strata acts or incentive program requirements.
- Work with Indigenous Services Canada to disseminate Four Winds' toolkits to help Indigenous communities produce data-informed Extended Asset Condition Reporting System reports and improve funding applications and outcomes
- Coordinate with provincial electricity regulatory authorities to adopt load-management technologies for heat pumps based on EnviroCentre's success in demonstrating their feasibility to the Ontario Electrical Safety Authority.
- Work with other retrofit accelerators on identifying ways to replicate ReCover's building stock resilience roadmapping in the rest of the country and consolidating information into a user-friendly, publicly available interactive tool.
- Help TAF, Retrofit Canada and EnviroCentre coordinate their efforts on prefabricated panels as part of a strategic national building retrofit industrialization strategy.
- Rapidly expand market segment and geographic coverage by folding in independent retrofit system-builders already operating alongside DRAI and GNPP recipients, such as Efficiency Capital, CEA, and Kambo.
- Work with aggregators participating in the CIB's building retrofit program and identifying ways to include bundles of small buildings, such as by underwriting building performance risks.

This examination of activities and showcase of early results and solutions with promise for national replication demonstrate the potential for a mission-oriented goal to transform the retrofit system. However, this momentum threatens to be stalled by a policy design that is stuck in a pilot project phase without the ability to prioritize

transformation of the entire retrofit system. These programs could evolve into retrofit system-building programs with policy design improvements, such as:

- long-term funding cycles to ensure stability for hard-won relationships and the neutrality of trusted system-building intermediaries
- a national industrial strategy for retrofits to bring activities and projects out of their silos and into a system-building agenda that can evaluate success and ensure accountability
- access to long-term, affordable capital dedicated to improving building performance
- consistent integration with applied science and technology infrastructure that draws from experience with industry and building users to inform research agendas that produce practical solutions, and vice versa

Below, we present recommendations to reorient policy toward a mission-oriented agenda and build from the momentum created.

Recommendations

Recommendation 1: Urgently recapitalize DRAI and GNPP

The DRAI and GNPP programs have created momentum and primarily focused on removing demand-side bottlenecks and understanding the needs of building owners and occupants. These capabilities and early innovation activities are now ready to be combined with supply-side transformation and a strategy to change the larger retrofit system instead of primarily the demand-side component.

MDTs are convincing and supporting owners, businesses and workers to do something different. They can only play their role as independent intermediaries if they have a consistent presence in markets. Market actors are unlikely to commit to change if the intermediary responsible for shepherding the change cannot be relied upon. More time is needed to capitalize on investments made, sustain trust with ecosystem actors, maintain momentum, and allow these programs to evolve and produce system change.

Most projects have less than a year of funding remaining. Failure to recapitalize would jeopardize teams' start-up investments, destabilize a network of highly trained delivery

specialists, and undermine established branding and trusted market presence. Some DRAI recipients have reported that they are already reorganizing their work and scaling back services, or at worst, losing staff due to the uncertainty. Our recommendations are to:

- Urgently renew funding for DRAI and GNPP to help established groups maintain momentum.
- Amalgamate the DRAI and GNPP programs to break down program silos and facilitate cross-pollination.
- Improve coverage throughout Canada by folding in more groups that are already active in the market.
- Secure long-term funding to institutionalize retrofit market transformation as a core component of Canada's energy efficiency policy to get out of a start-stop cycle of short-term programs.
- Enable a funding structure that allows teams to align investments to project milestones rather than the standard "spend it or lose it" constraints that fail to recognize the realities of retrofit timelines.

Recommendation 2: Develop a national industrial strategy

Momentum is growing, but system transformation requires a national mission and theory of change guided by leadership that can provide active program management. To direct these programs toward achieving a retrofit mission, our recommendations are to:

- Establish mission leadership with expertise in building retrofits that can work actively and consistently with MDTs, co-create program agendas and priorities, and help liaise with higher-level system actors like policymakers, the CIB, banks, research institutions, and utilities.
    - Under the current leadership model, OEE and OERD should focus on strengthening cross-collaboration between teams and improving alignment with other federal programs and priorities, including facilitating access to capital for demonstration.

    - Longer term, OEE and OERD should coordinate and work with MDTs and industry experts on developing a national vision, theory of change and program priorities to inform a long-term industrial strategy that modernizes how the construction sector upgrades existing buildings.

- Update program objectives to give teams a clear transformative system-building mandate. Three objectives could include:
    - Improve retrofit productivity as a component of the government's construction sector productivity improvement goal.
    - Drive innovation in modern methods of construction in existing buildings.
    - Support growth and development of Canadian businesses and technologies.
- Empower MDTs to take incremental risks that other actors cannot afford to take and learn from what works and does not work.
- Evaluate progress based on activities as a continuous process rather than the current cycle of requests for proposal and simple contribution agreements with cause-and-effect evaluation.
- In return for stable budgets, establish accountability as an ongoing process. Give program directors the ability to cancel activities or initiatives that are not working and rescind agreements with non-performing MDTs.

Recommendation 3: Enable scale and institutional alignment

To scale up retrofits, MDTs need access to institutional and government resources — including timely, affordable capital and applied science and technology research — to match needs with cutting-edge innovation. Without project-enabling capital and research, innovation and project pipelines that DRAI and GNPP MDTs are generating will stall at the value potential stage. Our recommendation is to:

- Enable the retrofit mission leader to:
    - Strategically deploy funds to promising retrofit projects and solutions through readily available funds, as well as government resources such as the CIB.

        - Coordinate and amplify efforts to modernize how financial institutions value high performance retrofits, such as through the Banking on Buildings Campaign.

- Create a new low-cost financing entity modelled on a green bank or under a revised CIB mandate that supports smaller-scale projects.
    - Work with delivery platforms and agents selected based on the markets they need to serve, such as energy-as-a-service companies, business development banks, credit unions or banks.
    - Crowd in private capital in a blended financing model that builds private investor trust in the investment value of retrofit solutions.
- Work with MDTs that can facilitate adoption through demand aggregation and matchmaking with supply-side actors.
- Create robust connections with universities, colleges, the National Research Council, and OERD to apply new technologies to user-identified building retrofit problems.
    - Create a research and technology agenda in collaboration with MDTs.
    - Set up ongoing information and learning exchanges that dynamically inform research agendas with user-informed experience and needs.
    - Provide MDTs with timely access to research and testing facilities and funding so they can rapidly pilot new innovations for diffusion in the projects they aggregate.

These recommendations are meant to harness the momentum created in the initial “pilot” stage of federal programs and by other initiatives working to create a new and better retrofit system. Continuing existing programs under an evolved policy framework can meet the challenge of preparing our buildings for a clean and resilient future.

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