



# BETTER BUILDINGS OTTAWA STRATEGY

City of Ottawa's Strategy for Accelerating Retrofits of  
Existing Industrial, Commercial, Institutional, and  
Multi-Unit Residential Buildings

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Climate Change and Resiliency  
Section, City of Ottawa

**BetterBuildings**  
OTTAWA



**TABLE OF CONTENTS**

CHAPTER 1 ..... 2

    1. Strategy Background ..... 2

    2. Retrofit Targets ..... 2

    3. Market Transformation ..... 3

    4. Emissions Reductions ..... 4

    5. Financial Projections for Existing Building Retrofits ..... 4

    6. Current Resources and Programs ..... 5

    7. Projected CoBenefits ..... 6

    8. Risks and Harms to Avoid ..... 6

    9. Municipal Catalyst Roles ..... 7

    10. Potential Community Collaborators ..... 7

CHAPTER 2 ..... 7

    1. Benchmarking and Disclosure ..... 8

    2. Marketing, Education, and Training ..... 12

    3. Economic Tools and Coordination ..... 15

    4. Regulating Disclosure, Energy Audits, and Emissions Performance ..... 20

    5. Senior Government Engagement ..... 22

Appendix 1: External Stakeholder Feedback – As We Heard It ..... 24

## CHAPTER 1

### 1. Strategy Background

The City of Ottawa set community-wide greenhouse gas (GHG) reduction targets in their Climate Change Master Plan in January 2020. These targets include reaching net zero emissions by 2050, 96% reductions by 2040, 68% by 2030, and 43% by 2025.

The Energy Evolution Strategy, approved by the City of Ottawa Council in October 2020, identified the Commercial Building Retrofit Accelerator Program as one of 20 priority projects to meet Council's GHG reduction targets. Existing buildings are the single biggest source of carbon emissions in Ottawa, with Part 3 buildings contributing 22% of the GHG emissions in 2016. Most of these emissions are from space heating.

This Better Buildings Ottawa Strategy identifies how to encourage and regulate deep GHG reduction retrofits in commercial, institutional, and industrial (ICI) buildings as well as large multi-unit residential buildings (MURBs). This includes all buildings in Part 3 of the Ontario Building Code, excluding those owned or operated by the City of Ottawa since they are dealt with under a separate Municipal Building Retrofit strategy. This Better Buildings Strategy focuses on both reducing heating demand as well as fuel switching to maximize the carbon and financial returns.

### 2. Retrofit Targets

Below are the targets identified in the Energy Evolution Strategy for improvements to the Part 3 building stock.

#### *By 2030:*

- Retrofit 27% of all small commercial buildings; achieve thermal savings of 60%; electrical savings of 30%.
- Retrofit 27% of the existing large institutional, commercial, and industrial building stock with average savings of 50% (combined thermal and electrical)
- Conservation efforts precede fuel switching to devices such as heat pumps or zero emission district energy.
- 44,322 heat pumps installed in apartments (72%/28% air/ground)
- 38% of ICI floor space is served by heat pumps
- 41% of water heating load served by electric water heaters

#### *By 2040:*

- Retrofit 98% of small commercial buildings to achieve thermal savings of 60%; electrical savings of 30%
- Retrofit 95% of the large MURB and ICI building stock with average savings of 50% (combined thermal and electrical)
- 82,728 heat pumps installed in apartments (72%/28% air/ground)

#### *By 2050:*

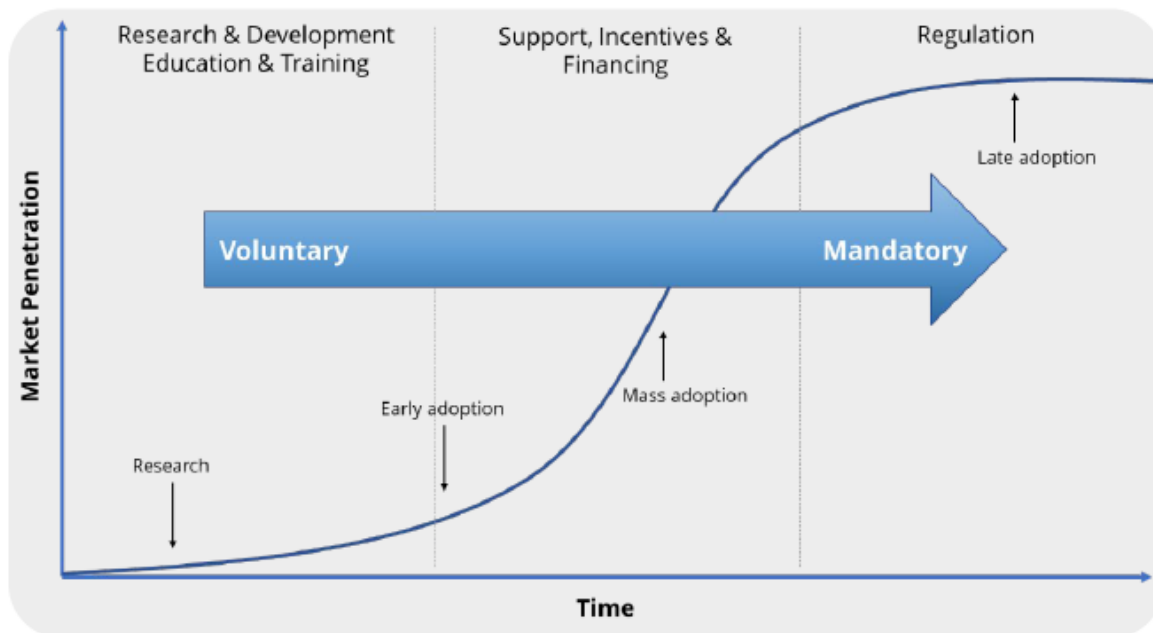
- 73% of ICI building heat load served by heat pumps by 2050
- 63% of water heating load served by electric water heaters by 2050

These targets require a retrofit rate per year of almost 5% of buildings. To date, retrofit rates in Ottawa have been less than 1% per year. Furthermore, some of the retrofit measures required to achieve zero emissions do not have financial returns on investment. Therefore, significant market transformation will be needed to accelerate this shift.

### 3. Market Transformation

This Strategy is based on the theory of market transformation, which involves strategically intervening into a given market to change its overall direction<sup>1</sup>. To encourage the deep retrofit market, market transformation techniques include removing barriers to new technologies, products, practices, and services that reduce emissions to accelerate widespread adoption. As uptake increases, costs per unit decrease, which accelerates adoption.

While market transformations can occur without the direct intervention of governments, the City of Ottawa is faced with the challenge of reducing a significant volume of emissions from the building sector to reach the targets laid out in the Energy Evolution Strategy. This requires a strategic effort to transform the retrofit market at an accelerated pace. The typical “S-curve” associated with the phases of adoption of a new technologies or practices (see Figure 1) has to become much steeper.



**Figure 1 Market Transformation Curve**

Given that it has been well documented that deep retrofits do not become widespread where they are not regulated<sup>1</sup>, and given the short timeframe remaining to achieving the deep carbon reductions from buildings, the market transformation strategy will likely involve introducing regulatory techniques sooner than may normally be done.

<sup>1</sup> American Council for an Energy-Efficient Economy (ACEEE). (2017). Market Transformation. <https://www.aceee.org/research-report/u1715>

#### 4. Emissions Reductions

Figure 2 shows the emissions reductions projected from the various sectors of the existing building stock. It includes building envelope retrofits and mechanical equipment upgrades such as heat pumps and hot water tanks. The Figure shows that large office and commercial buildings (which includes industrial and institutional buildings) are where the bulk of emissions reductions will need to be realized in Ottawa.

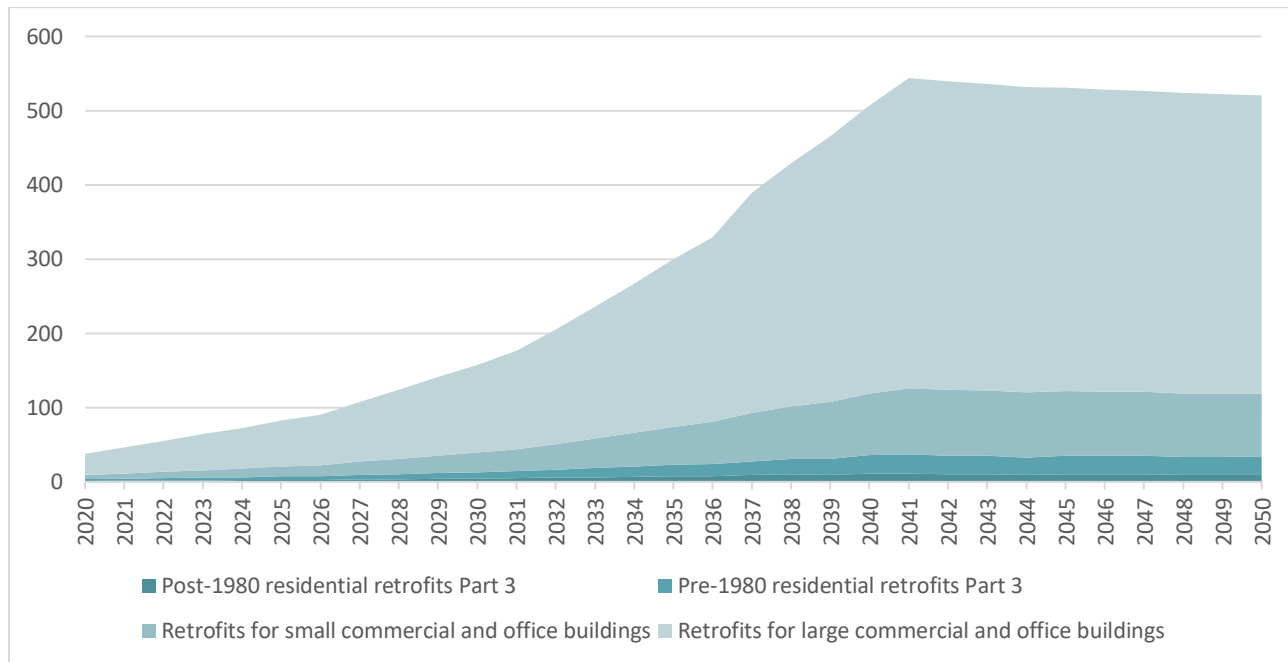
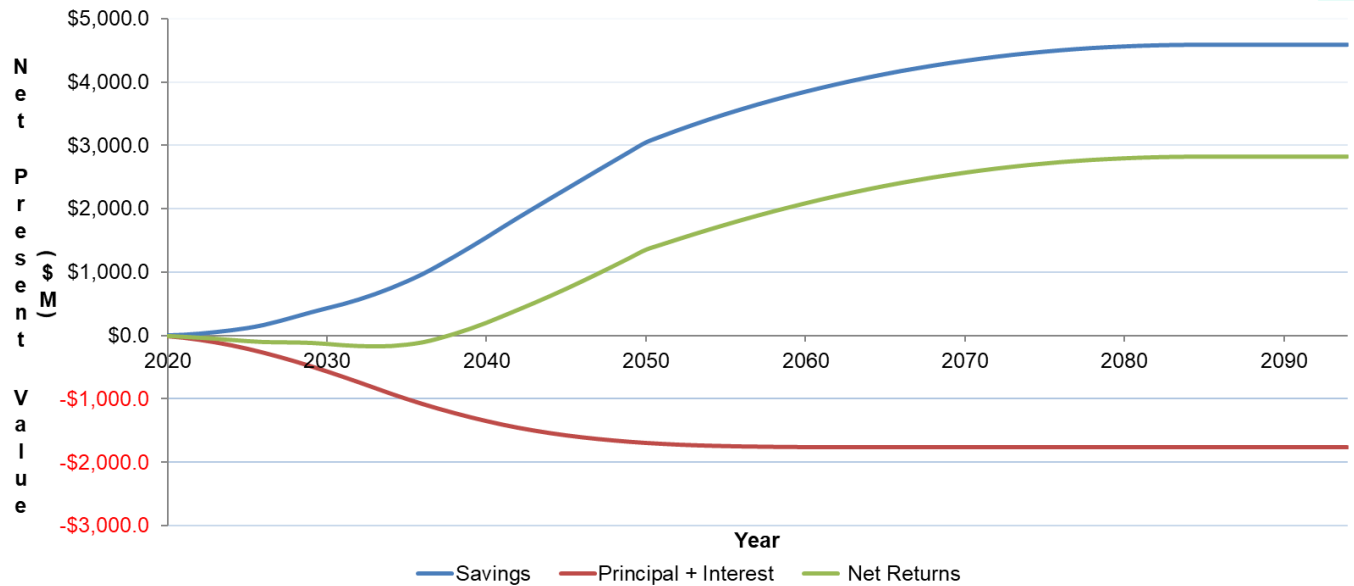


Figure 2 Emissions Reduction Profile from ICI building retrofits

#### 5. Financial Projections for Existing Building Retrofits

To achieve the above emissions reductions, investments beyond the business as planned case are required (see the Energy Evolution Strategy<sup>2</sup>, specifically its appendix D, Technical Report for a description of the Business as Planned Scenario). Incremental investments and savings for deep energy retrofits on all existing, non-municipal ICI buildings, including heat pumps, and water heaters are shown in Figure 3 below. The investment profile assumes a 20-year amortization term, 4% interest rate, and 1.5% premium on capital costs for program implementation. This demonstrates that the investments deliver a relatively quick return on investment. This return increases for buildings where rooftop solar PV is added into the equation.

<sup>2</sup> City of Ottawa’s Energy Evolution Strategy, October 2020, [https://documents.ottawa.ca/sites/documents/files/energy\\_evolution\\_strategy\\_en.pdf](https://documents.ottawa.ca/sites/documents/files/energy_evolution_strategy_en.pdf)



**Figure 3 Investment and Returns Profile**

A sticker price of \$2 billion for building retrofits over the next 20 years is a significant value. To comprehend the magnitude of these financial projections, it is helpful to compare the projections to other relevant Ottawa statistics as listed below<sup>3</sup>:

- Annual GDP in 2016: \$63 billion
- Annual City budget: \$3.76 billion
- Annual spending on energy: \$3 billion (for all end uses of energy)
- Annual spending on building improvements / renovations: \$2.9 billion
- Annual spending on new motor vehicles: \$5.8 billion
- Annual spending on cell phone plans: \$480 million
- Insurance payouts in 2018 related to natural disasters exacerbated by climate change: \$53 million
- City spending on road resurfacing in 2019: \$51 million

## 6. Current Resources and Programs

To date, energy reporting of all public buildings and private buildings over 100,000ft<sup>2</sup> is required by the Province of Ontario. This requirement is expected to drop to 50,000ft<sup>2</sup> in 2023. The Province also mandates that utilities such as Enbridge and Hydro Ottawa offer energy conservation programs. The Federal government also periodically offers various funding programs for retrofits. In Ottawa especially, the Federal government, as one of the largest employers, landowners, tenants, and energy consumers, has a significant influence on market trends of commercial buildings. Examples of programs available from senior governments,

<sup>3</sup>City of Ottawa’s Energy Evolution Strategy, October 2020, [https://documents.ottawa.ca/sites/documents/files/energy\\_evolution\\_strategy\\_en.pdf](https://documents.ottawa.ca/sites/documents/files/energy_evolution_strategy_en.pdf)

utilities, and community partners are listed below.

*Government resources available:*

- Federation of Canadian Municipalities (FCM) funding for municipally-led community retrofit programs
- Ottawa Climate Action Fund (OCAF) - \$20M endowment fund for unlocking scalable solutions
- Canada Infrastructure Bank retrofit financing

*Community resources available:*

- Ontario's Independent Electricity System Operator (IESO) and Enbridge Conservation Demand Management programs
- Private and community financing

## **7. Projected CoBenefits**

Retrofitting buildings benefits the community in many ways beyond the carbon emissions reductions. These are known as co-benefits and are listed below:

- Reduced spending on energy costs
- More energy dollars retained in local economy
- Improved comfort of indoor spaces through the installation of mechanical systems that provide spaces with cooling in the summer
- Improved health through the provision of increased ventilation and filtration
- Better air quality, quieter spaces, and increased thermal comfort for occupants
- Better resilience to power outages and extreme weather events
- Increasing numbers of local jobs in a green retrofit economy
- Increased asset value of building stock
- Deferred investment in electric grid infrastructure
- Increased grid resilience through on-site generation and storage

## **8. Risks and Harms to Avoid**

When implementing policies and programs, it is also important to be aware of the possible challenges and unintended consequences. Some of the risks and harms to avoid through comprehensive policy and program design are listed below:

Risks:

- Mass uptake by all building owners in the timelines required
- Limited financial capacity
- Limited qualified service providers and trades people
- Missing equipment renewal opportunities
- Low vacancy rates limiting opportunities for deep retrofits
- Public perception that the program will increase costs

Harms:

- Increased energy insecurity for occupants because of higher energy bills
- Increased risk of “renovictions” that price lower-income tenants out of affordable units
- Increasing stress on the electricity grid

## 9. Municipal Catalyst Roles

The success of this Strategy depends on mass retrofit uptake by all building owners, which will require support from many service providers and community partners. Each building sector faces unique barriers requiring tailored solutions. The City of Ottawa can play a catalyst role by enabling, educating, financing, and removing barriers to deep energy retrofits of all private ICI buildings. Roles for the municipality are explained in detail in Chapter 2.

## 10. Potential Community Collaborators

This Strategy cannot be achieved by the municipality acting in isolation; it has to date, and will continue to, involve the input and collaboration of many community collaborators, some of whom are listed below. Additional collaborators are anticipated and welcome. This Strategy does not commit the municipality or any collaborators to any projects, policies, or financial decision.

**ACMO** – Association of Condominium Managers of Ontario

**BOMA** – Building Owners and Managers Association

**CaGBC** – Canada Green Building Council

**CAO** – Condo Authority of Ontario

**CCI** – Canadian Condominium Institute

**CHF** – Co-op Housing Federation

**FRPO** – Federation of Rental Housing Providers of Ontario

**MENDM** – Ministry of Energy, Northern Development and Mines

**MLS** – Multiple Listings Service

**MMAH** – Ministry of Municipal Affairs and Housing

**OCAF** – Ottawa Climate Action Fund

**OREB** – Ottawa Real Estate Board

**OREC/CoEnergy** – Ottawa Renewable Energy Co-op/CoEnergy Co-Op

**ORLA** – Ottawa Region Landlords Association

**ONPHA** – Ontario Non-Profit Housing Association

**NRCan** – Natural Resources Canada

**RECO** - Real Estate Council of Ontario

## CHAPTER 2

The approach for the development of this Strategy is to:

- **Prioritize a transition to zero-carbon fuel sources;**
- **Promote a no-regrets approach by reducing heating and electricity loads first;**



- **Address energy poverty through comprehensive planning; and**
- **Leverage third-party funds for energy retrofits.**

The five elements of the Strategy are:

1. Benchmarking and Disclosure;
2. Marketing and Education and Training;
3. Coordinating and Supporting Accelerated Retrofits;
4. Energy Retrofit Standards and other Regulations; and
5. Senior Government Engagement.

Although these elements will be similar for each building sector, a specific approach may be required for different building typologies. The specifics of each Strategy element are outlined below. Technology opportunities for each sector have been researched and the key findings will be used to inform all five steps of the Strategy. The retrofit roadmap for each archetype of building is underway and will be made public in Q4 of 2021. Feedback from stakeholder consultation is included in Appendix 1.

## 1. Benchmarking and Disclosure

A key step to drive emission reductions and energy savings in the built environment is through energy benchmarking, labelling, and disclosure initiatives. Typically, benchmarking programs mandate owners of buildings over a certain size to measure and publicly report their performance data annually for a variety of key indicators such as energy use, water use, and GHG emissions. The motivation of such programs is to provide insight into energy performance for building owners, operators, tenants, investors, as well as policy makers.

Experience shows that collecting and reporting on building performance is a foundational step that alone can lead to annualized savings of between 2 and 3 percent<sup>4</sup>. Studies have also shown that energy-efficient buildings have 10 percent higher occupancy rates, 10 percent higher premiums on rents, and 25 percent higher sales prices when compared to less efficient buildings<sup>5</sup>.

Benchmarking programs influence the real estate market, enabling energy to be considered in property valuations, which then rewards superior performance. When measures are included in the asset valuation, the financial benefit and risk are reduced, which in turn reduces the need for incentives.

A policy area has emerged across North America and Europe to improve the energy performance of buildings, which focuses on measuring and publicizing energy use of similar buildings compared to the targets set by Energy Evolution. These efforts, referred to as benchmarking and disclosure, show energy reduction opportunities through data-driven decision making. Benchmarking and disclosure of building performance has proven fundamental in jurisdiction

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<sup>4</sup> Estimates based on the reported savings of 6 cities in the United States with benchmarking regulations that tracked energy savings over a period of time.

<sup>5</sup> *IMT Energy Benchmarking and Transparency Benefits* [https://www.imt.org/wp-content/uploads/2018/02/IMTBenefitsofBenchmarking\\_Online\\_June2015.pdf](https://www.imt.org/wp-content/uploads/2018/02/IMTBenefitsofBenchmarking_Online_June2015.pdf)

with mature retrofit economies because it sets baselines, diagnoses performance, improves energy literacy, and provide indicators for measures of success.

In Ontario, buildings with a gross floor area of 100,000 square feet or more are required to report energy and water data on an annual basis through a program called ENERGY STAR® Portfolio Manager®. This requirement will be extended to 50,000 square foot buildings in 2023. Province-wide, the Energy and Water Reporting and Benchmarking (EWRB) regulation applies to 18,000 buildings to date, with 990 in Ottawa. The percentage of regulated buildings that complied with the regulation was 51% Province-wide and 49% in Ottawa in 2018. This was significantly lower than compliance rate in the City of Toronto, which achieved 78%. The higher City of Toronto results are the result of a City-implemented education and outreach campaign. It demonstrates the opportunity for increased success with similar efforts.

The cost for a building to comply with the EWRB requirement is estimated at \$300 annually<sup>6</sup>. Experience from other jurisdictions across North America shows that the average building of 50,000 to 100,000 square feet achieves annual savings of between \$1,000 and \$1,500 per building after only one year of benchmarking, paying the cost back 3 to 5 times. Experience also shows much higher compliance and program success from benchmarking programs that are mandatory rather than voluntary<sup>7</sup>. Toronto is considering a mandatory benchmarking bylaw for buildings<sup>8</sup>.

The downward impact on energy performance resulting from benchmarking and disclosure point to the need to extend the benchmarking and disclosure program to more buildings, while taking into consideration the resources and expertise needed for the building owners to disclose and for utilities to provide the data. To date in Ottawa, the Building Owners and Managers Association (BOMA) and Hydro Ottawa have offered workshops on EWRB and the gas, water, and electric utilities have provided support for building owners seeking their data for disclosure purposes. The Province also has resources to support disclosure through their Benchmarking Help Centre. The Canada Green Buildings Council (CaGBC) offers workshops on data analytics using ENERGY STAR® Portfolio Manager®.

A threshold of 20,000 square feet has been selected by Edmonton and Calgary as the threshold whereby buildings are encouraged to voluntarily benchmark and disclose. A similar size is recommended for Ottawa's program because buildings have sufficient energy savings opportunities to offset the cost of benchmarking at this size. It is recommended that a voluntary program be introduced in 2021 and the converted to mandatory after 3 years, unless the Province amends their Energy and Water Reporting and Benchmarking program to include smaller buildings, to disclose energy performance at the address level, and to require participation.

The implementation of a municipal benchmarking bylaw for ICI buildings, if not implemented by the Province, could help achieve the Energy Evolution targets. Such a bylaw may be within

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<sup>6</sup> Based on the Better for People, Smarter for Business Act backgrounder, which estimates a compliance cost reduction \$2.7M across 9000 buildings.

<sup>7</sup> City of Ottawa: Benchmarking and Transparency Roadmap Report, CaGBC, Feb 2020

<sup>8</sup> City of Toronto Existing Building Emissions Reduction Strategy, 2020.

municipal authorities, as per Section 10(2)(5) of the Municipal Act, but to date, no municipality in Ontario has done this. A voluntary program is recommended as the first step, following which a mandatory program may be pursued. Benchmarking can also be encouraged by the City through alignment with sustainable procurement guidelines by prioritizing purchases from businesses that benchmark and disclose their energy and emissions performance.

CaGBC has built a voluntary, automated mapping of energy benchmarking data through their Disclosure Challenge to provide a visual image of MURBs and ICI buildings and enable comparison between buildings of similar types and uses. Best practice is to make this data public after the second year of benchmarking, giving time for compliance and upgrades. Public sector buildings already are required to publicly disclose their energy consumption.

**Steps to implementation** (\*indicates an action with significant stakeholder support)

## 1. Collaboration

- Encourage the Province of Ontario for a continued roll-out of the EWRB to buildings of 20,000ft<sup>2</sup> or smaller and to make public disclosure and labelling mandatory annually and/or at sale, lease. If this is not completed by the Province, do this at a municipal level (see Section 4 for more details on regulations).
- Work with the Province of Ontario and utilities to simplify data collection and submission processes, including a direct data link for customers to submit it directly from their utility provider to Portfolio Manager using web services.
- Enable data transfer from one owner to the next.
- Explore the ability to gather and disclose energy and emissions performance data at a more granular geographic level (e.g. building address).
- Encourage energy and emissions performance disclosure in real estate listings.

## 2. Disclosure support and incentives

- \*Offer incentivized energy audits to first-time reporting buildings.
- Work with the electricity and gas utilities and Ottawa's water utility to provide support to Ottawa's building owners in complying with provincial EWRB reporting requirements and encourage voluntary labelling.
- Integrate requirements for energy assessment, disclosure and labelling into City programs, incentives, and procurement.
- Work with real estate institutions to increase literacy, promotion and voluntary labelling of energy and emissions performance in sales and leasing.

## 3. Consider mandatory benchmarking and disclosure

- Explore opportunities to require mandatory building performance benchmarking and disclosure at key interfaces with the City including title transfer, sale/lease, landlord registry/licensing, and renovation/permitting.
- Promote a portfolio-scale option for reporting, requiring multi-property holders to show energy results across all their facilities, individually and collectively.
- Increase the buildings captured by the benchmarking requirements through pre-established decreases in eligible building size.
- Consider establishing fines and public disclosure of non-compliant properties to encourage compliance with labelling requirements.

## 4. Analyze data and refine programs

- Use disclosed data to refine and inform future City policies and programs.
- Use reported data to identify and target priority sectors, areas of the city and/or property types in greatest need of performance improvements.
- Re-assess the approach in response to the Province's roll out of the EWRB.

## 5. Expand benchmarking scope

- Explore additional reporting scope beyond current EWRB including occupancy, refrigerant maintenance, and material selection for significant upgrades.
- Roll out these additional requirements by building size according to provincial requirements along with funding and support programs.

## 2. Marketing, Education, and Training

Marketing, education, and training are foundational components of a retrofit accelerator program to be implemented early and throughout the coming decades and should be designed to overcome existing barriers. The following barriers are common across many building sectors:

- Building owners often lack knowledge, time, and motivation to identify and implement energy efficiency projects. With emerging technologies and standards, it is difficult to stay current.
- Myths exist around the efficacy of heat pumps and the risk of moisture movement when adding insulation.
- There can be a lack of motivation to reduce GHG emissions or a mistaken assumption that all cost-effective efficiency projects have been done or that the savings will not pay off before the owner predicts to sell the building.
- Energy savings accrue to a tenant while the capital cost is born by the owner.
- Building owners are often unaware of sources of funding or support for energy/GHG retrofits or design improvements.
- The market penetration of heat pumps, air and ground source, is smaller than that of other heating systems, so consumers are less aware of opportunities and HVAC specialists can be less familiar with proper installation.
- Experience in low carbon building materials and deep energy retrofits within the trades is limited and increasing building insulation can result in moisture movement issues, requiring expertise within service providers.
- Incomplete data on building energy use often makes it impossible for building owners to set energy and GHG reduction targets and track progress.
- Building use after retrofits can reduce the benefit of the retrofits, if conserving behaviours do not accompany the retrofit.
- Renovation contractors have very little knowledge of or experience in implementing deep retrofits.

To overcome these barriers, there are some initiatives in Ottawa. Expanding on these initiatives is a key approach of this project. Existing educational programs include:

- Utility conservation campaigns
- CHBA, BOMA, CaGBC, AEEE, and EnviroCentre workshops
- NRCan education opportunities
- Better Buildings Breakfasts
- Retailer workshops and info materials

Certification opportunities currently available include:

- NRCan's certifications for building operators, energy auditors, and energy managers
- Canadian Home Builders Association certifications for contractors
- Industry trainings (architects, engineers, electricians, solar installers, insulators, etc)
- Real estate agent trainings
- Algonquin College certification programs for architects, technicians, and trades people

Building owners are more likely to implement deep energy retrofits when they are already planning other renovations or as part of asset renewal plans. Linking retrofits to renovations, asset renewal, or equipment replacement cycles is expected to increase the uptake of deep retrofits as it is proven that building owners are less likely to make major changes to walls, windows and major systems outside of these cycles without substantial incentive programs. Most existing buildings will undergo a major renovation over the next 30 years which provides a ready-made pathway for gradual upgrade of all buildings without major inconvenience. Annually, \$2.9 billion is spent in Ottawa on building renovations currently<sup>9</sup>.

Providing information and incentives when a renovation is being planned or major equipment is being replaced is more likely to result in uptake. Contractors, architects, engineers, equipment retailers, building condition assessors, and the building permit office are all important communications channels to implementing this strategy. Different marketing and education approaches are required for each building sector as described below, although some approaches will be common across all sectors.

For multi-unit buildings, effective timing and channels for marketing campaigns are different as they tend to have property managers and undergo regular building condition assessment reports to plan for asset renewal. Also, many units in these buildings are rented, so the “split incentive problem” must be considered. In Ottawa, 34% of residential units are rented.

Of the commercial office buildings, almost 50% are owned by the federal government and another significant number are leased by them. Given that the federal government has committed to a carbon reduction goal for their buildings of 40% by 2030<sup>10</sup>, this will have a significant impact on the ICI sector in Ottawa. Programs should be designed to leverage the federal transition to ripple through the rest of the commercial building sector.

Where tenants of MURBs or ICI buildings pay their own energy bills, the building owners have less incentive to retrofit the buildings. These buildings will require an approach for marketing and education including a focus on tenant programs and building upgrade programs that benefit both landlord and tenant. Examples that have been demonstrated to be successful include tenant sustainability pledges signed at the time of the lease and green leases<sup>11</sup>.

Energy Evolution has identified areas where district energy networks are projected to be necessary to provide low carbon thermal energy. Early marketing and education in these areas is especially important, given that it is difficult to convince building owners to connect to a district energy system once investments in building mechanical systems have been made.

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<sup>9</sup> <https://www.chba.ca/CHBADocs/CHBA/HousingCanada/Information-Statistics/Impacts/2%20Ottawa%20Residential%20Renovation%202018.pdf>

<sup>10</sup> <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html>

<sup>11</sup> Green leasing, is the practice of realigning the financial incentives of sustainability or energy measures in lease documents. For many commercial landlords and tenants, cost structures laid out in the lease discourage landlords and tenants from investing in a more-efficient building. A green lease aims to overcome this challenge through realignment of the incentives.

**Steps to Implementation** (\*indicates an action with significant stakeholder support)

1. Education and Outreach:
  - \*Build a retrofit portal that includes energy scores compared to similar buildings (based on audits, uploaded data, or available data). Include:
    - Information on pathways to meeting energy performance thresholds
    - Connections to contractors and equipment
    - Links to incentives
    - Project management tracking tools.
  - Collaborate with trades associations to define a certification and verification process for accessing City programs that tightens over time and excludes poor performers.
  - Support the launch of new training materials and/or micro-certification programs on:
    - Fuel switching, heat pumps installation, auxiliary heating, and energy/heat recovery ventilation for HVAC contractors.
    - On-site renewable energy and battery systems for HVAC trades and electricians.
    - High performance envelope upgrades, including minimizing thermal bridging
    - Co-benefits of retrofits to resilience, health and safety.
  - Develop a registry of experienced renovation contractors (possibly those that employ architects and technicians trained in energy management).
  - Disseminate packages of information for different building types, focus on poor performing buildings and those looking to renovate, through:
    - Hydro Ottawa key accounts
    - BOMA
    - BIAS
    - Retail outlets and contractors
    - Sector-specific events
    - Adding deep retrofit information to all City processes that address changes to buildings (e.g. application for building permit, sale/listing/lease, title transfer, participation in City programs and incentives)
    - Targeted marketing and direct mail campaigns.
  - Work with utilities, develop sector-specific support groups and friendly competitions to encourage carbon reductions.
  - Work with landlords and tenant associations on the opportunities for green leases and sustainability pledges at the time of leasing.
  - Fast track building permits with significant energy efficiency improvements.
  - Provide retrofit information/training during building permit process for renovations.
  - Launch a retrofit support service (subsidized for low income clients) to:
    - Field questions on programs, requirements, rebates, and performance issues
    - Connect building owners to appropriate service providers
    - Verify quality service provision

## Steps to Implementation (continued):

### 2. Training and Capacity Building

- \*Workshops for property owners and property managers (accompanied with a recognition and ranking program as explained in the Climate Ambassador's Program).
- Inform building condition assessors and tenant associations on the opportunities for energy and carbon reductions as part of asset renewal planning.
- Train and certify contractors through GOHBA, trades unions, energy auditors, and other contractor associations. Prioritize these contractors in City procurement policies (more in the Climate Ambassador's Program on aligning procurement policies with other large employers).
- Support roaming energy advisors and managers for increasing expertise and capacity.

### 3. Economic Tools and Coordination

#### *Accelerating through Economic Tools*

While the emissions reduction targets can be met technologically, there are also economic challenges such as:

- **Cost of Capital:** Energy efficiency improvements often have high capital costs. Many building owners only have access to capital at a high interest rate, making these retrofits not financially viable.
- **Access to Capital:** A building owner may be capital constrained or unable to leverage debt to be able to afford the up-front costs, even for cost-effective measures.
- **Limited non-debt/OPEX solutions:** Many building owners have limitations on how much debt they can leverage on their balance sheet. Off-balance sheet solutions have been used to circumvent this challenge. Also, where tenants pay the energy bills, landlords are not motivated to invest in efficiency. Solutions that are simply operational cost solutions can help overcome this challenge in some cases.
- **Financing at Point of Sale:** It is more expensive (and inconvenient) for building owners to undertake major energy retrofits once the building is fully occupied. The best time financially is immediately after the purchase of a building; however, typically the purchaser is fully leveraged and has no more borrowing capability at that time.
- **Access to Long Term Financing:** Most conventional financing offers terms shorter than the payback periods for most deep energy retrofits, resulting in cherry picking of measures which often results in lock-in.
- **Transferability of Financing:** Building owners are not sure if they will stay in the building long enough to benefit from the energy savings.
- **Split Incentive Problem:** In cases where the tenants pay the energy bills, the landlord has limited motivation to invest in efficiency.



It should be noted that energy efficiency programs in Canada have been, for over four decades, attempting to overcome these barriers. Achieving accelerated results will take both learning from, and building on, prior experiences and research. It is anticipated that regulatory requirements and enforcement tools will also be required.

Some possible economic tools to overcome these economic barriers are listed below and summarized in Table 1 and Table 2. These tables do not, however, deal with the Split incentive problem. A few potential solutions are listed below.

- **Reduced Cost of Capital:** Providing low-cost loans through public funding sources enables more retrofit projects to be financially viable. Examples available include CMHC's pending \$40,000 zero interest loans for residential buildings, FCMs financing for municipalities, etc. Performance insurance or performance guarantees can also reduce interest rates from private lenders.
- **Access to Long-Term Capital:** By pooling predictable and proven energy retrofit measures into investment bundles, it should be possible to attract lower cost take-out capital from patient investors such as the Canada Infrastructure Bank, pension funds, and insurance companies. These investors typically have long-term expectations of reasonable returns and are not motivated by quick payback periods.
- **Financing at Point of Sale:** When a building changes hands is the time that renovations are most likely. At this point, access to financing for retrofits is important but may be difficult because of a leveraged balance sheet and limited track record. Lenders could offer a transitional financing vehicle for the retrofit portion or use lease-to-own options for recoverable assets.
- **Non-debt/OPEX Solutions:** Some building owners are limited in their ability to leverage, so off-balance sheet contract arrangements have been developed including the Measured Energy Efficiency Transaction Structure (MEETS) or Energy Service Agreements (ESA).
- **Transferable Financing:** On-bill financing/repayment, either utility bills or property tax bills, allows the repayment obligation to stay with the property at the point of sale and reduces the repayment risk, thus reducing financing rates. Use of Local Improvement Charges (LICs) to finance retrofits also alleviate the split incentive problem in cases where the tenant pays property the taxes. These tools can be an administrative mechanism for repayment or they can be accompanied by financing. If low-cost financing can be provided, the impact of the tool is more significant.
- **Split Incentive Solutions:** MEETS, green leases, and pledges signed between tenants and landlords, which can be initiated by either, can align interests of both parties.

### *Accelerating through Coordination*

For certain measures, especially heat pumps, significant cost reductions will be required to make them financially attractive to stimulate mass uptake. Heat pumps are particularly attractive when an existing air conditioner or furnace needs replacement. Marketing and incentive programs will aim to take advantage of such times of asset renewal. Staff are exploring the use of the Community Improvement Plan mechanism and associated incentives for all retrofit measures including heat pumps.

For MURBs, mass retrofits have been demonstrated in Europe through the EnergieSprong model. This model involves 3D imagery and premanufactured exterior panels to insulate and add solar energy apartments in a quick, cost effective way<sup>12</sup>. In Ottawa, a pilot of this model has been initiated by National Research Council in collaboration with Ottawa Community Housing. Through the Retrofit Roadmap, the potential for replication of this pilot will be assessed. Next steps will be to galvanize support from the necessary community and City players and develop a program for scaling up the solution.

On the commercial building side, coordination is often organized through industry-led programs such as EnviroCentre's Carbon613, BOMA's Race2Reduce, Climate Challenge Network's Greening Health Care, Restaurant Canada's FoodService Energy Challenge, and others. These programs enable shared learning. Sharing of standards, policies, and procurement documents can also result from corporate collaboration. Structures such as MEETS may enable more of these amalgamators to earn market share. The City can support the scale up by demonstrating leadership and building a Better Buildings Ottawa Network of practitioners. In zones where district energy is projected as the most effective way to provide low carbon heating, financial support for interconnection to the district grid may be necessary.

To date, bulk procurement of heat pumps and EV chargers has been demonstrated by Envari and Hydro Ottawa respectively, with some success in achieving cost reductions. These types of bulk procurement mechanisms are being explored for scale up opportunities.

Another mechanism being considered is on-bill financing through utilities. Hot water tanks and furnaces have been sold this way on natural gas bills. There may be opportunities to offer zero-carbon equipment such as heat pumps to building owners with limited up front cost to the building owner through the on-bill financing mechanism with utilities. On-bill financing for other significant up-front costs such as service entry upgrades may also be explored by utilities.

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<sup>12</sup> EnergieSprong Foundation, 2021. <https://energiesprong.org/breakthrough-for-serial-renovation-of-residential-buildings/>

**Table 1 Financial Tools to Encourage Retrofits, by Barrier<sup>13</sup>**

**Legend:** Y – benefit provided  
 (Y) – benefit possible, read footnote for explanation  
 [blank cell] – benefit not applicable

FINANCING TOOLS		KEY BENEFITS					
		Reducing cost of capital	Increasing access to capital	Potential for non-debt/OPEX accounting treatment	Allowing financing at point of sale	Increasing access to longer-term financing	Transferability
REPAYMENT TOOLS	Local Improvement Charges (LICs)	Y	(Y) <sup>1</sup>	Y	(Y) <sup>2</sup>	Y	Y
	On-bill programs	(Y) <sup>3</sup>	Y	Y	Y	(Y) <sup>4</sup>	Y
	Energy Service Agreements (ESAs)		Y	Y			
	Leases			(Y) <sup>5</sup>		Y	Y
	Soft loans	Y	Y			Y	
CREDIT ENHANCEMENTS	Loan Loss Reserves (LLR)	Y	Y				
	Loan guarantees	Y	Y				
	Interest rate buy-downs (IRBs)	Y					

<sup>1</sup> This is one of the tool’s primary intentions. However, challenges have arisen in realizing this benefit due to mortgage lender issues.  
<sup>2</sup> Depends on the model chosen. LIC or PACE financing may be offered in conjunction with other services (utility efficiency programs, energy audits, etc.)  
<sup>3</sup> OBF does not explicitly lower interest rates, but lends itself to lowering default rates for two reasons: 1) it is integrated into an existing bill payment that the customer is making regularly; and 2) it can be tied to service cut off. Together, these lower the risk, and as a result may lower the cost of financing.  
<sup>4</sup> OBF, with capital provided by utilities, typically offers short-term financing—utilities are not banks, and are not in a position to underwrite long-term loans. On-bill repayment (OBR), whereby the utility billing system is only used as a repayment mechanism while the capital is provided by a third party, can offer a variety of financing products, including long-term financing.  
<sup>5</sup> Operating leases will continue to fall under the “non-debt” category until 2018. Capital leases are considered debt under current accounting principles.

<sup>13</sup> The Atmospheric Fund. (2017). Energy Efficiency Financing Tools for the Canadian Context. [https://taf.ca/wp-content/uploads/2017/01/TAF\\_Guide\\_Energy\\_Efficiency\\_Financing\\_Tools\\_2017-03-15.pdf](https://taf.ca/wp-content/uploads/2017/01/TAF_Guide_Energy_Efficiency_Financing_Tools_2017-03-15.pdf)

Table 2 Financial Tools to Encourage Retrofits, by Building Type<sup>13</sup>

Acronyms used in the table: Loan Loss Reserve Fund (LLR); Interest Rate Buydown (IRB)

**Legend:**

- theoretically possible
- ◐ theoretically possible with a few examples and/or pilots
- theoretically possible with many examples of active/established programs

FINANCING TOOLS	NOTES	APPLICABILITY IN EACH MARKET SEGMENT							
		HOUSING Residential	BUILDINGS Residential			BUILDINGS Non-residential		OTHER	
		Single family	Multi-Family (condo)	Multi-Family (rental)	Multi-Family (social housing)	Commercial	Public & Institutional Buildings	Energy Service Providers <sup>6</sup>	
REPAYMENT TOOLS	<b>Local Improvement Charges (LICs)</b>	Public financing tool at the municipal level. However, for greater success, collaboration between levels of gov't is recommended (see Table 3).	●	○ <sup>7</sup>	◐	◐	●	◐	○
	<b>On-bill programs</b>	Financing can be from gov't or from a third-party. Key gov't role for success is its authority over regulated utilities.	●	◐	◐	○	●	○	◐
	<b>Energy Service Agreements (ESAs)<sup>8</sup></b>	ESAs are a third-party financing offering. Gov't involvement would be to support through broadening the base of eligible markets.	○	◐	◐	●	●	●	●
	<b>Leases</b>	Leases are a third-party financing offering. Government can encourage uptake with credit enhancements.	●	●	●	●	●	●	◐
	<b>Soft loans</b>	Government can seed capital (e.g. GMF) or offer loans themselves, with underwriting capability.	◐	○	○	●	○	●	◐
CREDIT EN.	<b>LLRs, loan guarantees, IRBs</b>	The suitability of credit enhancements can be best assessed by the nature of the financing objective, which can vary significantly within segments. LLRs and loan guarantees are well suited to promoting third party investment and broadening accessibility/affordability. IRBs are best suited towards encouraging participation, but do not broaden accessibility (best suited to shorter-term loans).	●	◐	◐	◐	●	●	◐

<sup>6</sup> Refers to those who could use financing but are not property owners, per se (e.g. district energy, developers).

<sup>7</sup> Theoretically possible in existing condominiums but may require every owner to opt-in. Townhome condos and new construction condominiums would find it easier to use.

<sup>8</sup> The cost of the retrofit projects usually must meet a minimum amount (\$1M). This is possible but not always the case.

Based on the analysis shown in Tables 1 and 2 and best practices demonstrated in leading jurisdictions, the following steps to implementation are recommended.

### Steps to Implementation (\*indicates an action with significant stakeholder support)

#### 1. Accessible Financing:

- \*Enable accessible financial administration options for deep energy retrofits that stay with the property through on-bill financing and/or a local improvement charge mechanism for Part 3 buildings.
- Offer more attractive terms or interest rate forgiveness for actual emissions reductions and the achievement of co-benefits (e.g. embodied carbon, improved resilience, occupant health, grid stewardship).
- \*With local partners, other municipalities, and senior levels of government, consider the creation of a Green Bank to blend public and private funds to scale up retrofits.

#### 2. Consider Other Financial Mechanisms

- Look at loan guarantees, loan loss reserve funds, or interest rate buydowns as required to reduce retrofit financing costs.

#### 3. Reducing Capital Costs and Providing Incentives:

- Coordinate bulk retrofits to reduce costs. Implement retrofits through long term, transferable arrangements such as leases, with utility partners.
- Investigate any potential fees that could be waived or reduced for deep retrofit projects that achieve voluntary performance upgrades ahead of requirements.
- \*Launch Community Improvement Plan with grants and incentives tied to carbon emission reductions to encourage retrofits of buildings. Focus on areas where residents live in energy poverty as well as regions where intensification is desirable.
- Reinststate the Vacancy Tax Credit for buildings that prove they have significantly improved their energy performance.

#### 4. Split Incentive Solutions:

- Align stakeholders towards deep retrofitting through piloting a MEETS structure in a sampling of commercial buildings.

#### 5. Reducing Barriers

- Explore the subsidization of relocation costs for tenants during major retrofit activities.
- Support local supply chain for ease of access to necessary materials and equipment.

### 4. Regulating Disclosure, Energy Audits, and Emissions Performance

All of the opportunities above require voluntary uptake by property owners. Given that uptake of voluntary programs is expected to be insufficient to meet council's approved GHG reduction, mandatory energy performance will likely be required. The City will explore options, work within legislative authorities, and follow the effectiveness of what other jurisdictions implement.

*Regulating Benchmarking and Disclosure*

If the Province does not expand the EWRB program to buildings 20,000ft<sup>2</sup> or smaller and to make public disclosure and labelling mandatory annually, the City will explore regulating this locally.

*Regulating Energy Audits*

Toronto is considering a requirement for buildings to receive energy audits and recommissioning every 5 years. It will be applicable to all buildings that are captured under the mandated by the EWRB legislation. Buildings to be exempt include: those performing in the top 70% of their respective class; those implementing measures from a previous audit/recommissioning; or those in the process of certification by an approved body<sup>14</sup>.

City of Ottawa staff will explore requiring energy audits and recommissioning every 5 years to ensure building owners are aware of the opportunities. These audits should include energy and emissions reduction opportunities as well as embodied carbon, resiliency and health implications.

*Regulating Emissions Performance Standards*

Beyond audit requirements are performance standards. Performance standards are often introduced on a voluntary basis, with an eventual transition to mandatory compliance. Several jurisdictions now require buildings to meet emissions performance targets, including New York City, St Louis, Washington DC, and Washington State<sup>15</sup>. Vancouver, the only City in Canada with the authority to do so, implemented a retrofit standard in 2019<sup>16</sup> requiring energy assessments and improvements be made during renovations above certain dollar thresholds. A national energy code for Alterations to Existing Buildings<sup>17</sup>, expected as part of the National Building Code in 2022<sup>18</sup>, may prove the most effective tool for implementation in other cities such as Ottawa. This code will require improvements in energy performance at the time of major renovations.

Depending on what is included in the National Building Code update in 2022, City of Ottawa staff may explore creating a performance standard. There are a few key considerations the City must address when creating a performance standard. First, buildings must be provided with sufficient advanced notice of incoming performance requirements. Second, performance requirements should allow some flexibility in compliance to enable the alignment of upgrades with equipment replacement at end of life. Outlining specific penalties for non-compliance while providing alternative compliance pathways helps to ensure goals are met while not unduly burdening property owners and occupants. Third, performance standards should be introduced in

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<sup>14</sup> City of Toronto Existing Buildings Emissions Reduction Strategy, 2020.

<sup>15</sup> [American Council for an Energy-Efficient Economy \(ACEEE\). \(2020\). Mandatory Building Performance Standards: A Key Policy for Achieving Climate Goals.](#)

<sup>16</sup>

<http://free.bcpublishations.ca/civix/content/public/vbbl2019/624368142/1819258941/?xsl=/templates/browse.xsl>

<sup>17</sup> [https://cdn.ymaws.com/cafc.ca/resource/resmgr/latest\\_news/alterations\\_to\\_existing\\_buil.pdf](https://cdn.ymaws.com/cafc.ca/resource/resmgr/latest_news/alterations_to_existing_buil.pdf)

<sup>18</sup> <https://www.pembina.org/pub/decarbonizing-existing-buildings>

alignment with the metrics of the High Performance Development Standards to ensure that expectations are aligned.

A regulatory option that the City could pursue, if allowed, involves a bylaw that requires energy performance standards be met at certain milestones such as every five years, at the point of sale, or lease. For larger buildings, such a bylaw has been enacted on an annual basis. New York City is the first North American jurisdiction to implement such a bylaw, initially focused on buildings over 25,000 square feet. Confirming whether such a bylaw is within the authority of Ontario municipalities is a prerequisite to implementation and conversations to date suggest that Municipalities have authority under Section 10(2)(5) of the Municipal Act. The following steps to implementation are in line with those being considered by the City of Toronto<sup>19</sup>.

#### Steps to Implementation (\*indicates an action with significant stakeholder support)

1. 2021:
  - Assess municipal authorities to regulate disclosure, energy audits, and emissions performance standards
  - Explore requirements for disclosure and/or energy audit for buildings accessing City or utility programs
  - Draft phasing plan for energy performance targets for buildings >50,000ft<sup>2</sup> and future targets for other buildings
2. 2022:
  - Consult with building owners
3. Early-mid 2020s:
  - Require energy audits at change of use/ownership, before major renovations
  - \*First performance standard comes into effect for buildings >50,000ft<sup>2</sup>
4. Mid 2020s:
  - Allow portfolio/multi-building owners to comply with performance target in a portfolio-wide manner but require the inclusion of all facilities
5. At set intervals, gradually require more stringent targets and provide multiple compliance pathways.

## 5. Senior Government Engagement

While the City of Ottawa has many opportunities to directly support and require the decarbonization of existing buildings, there are a number of market signals and responsibilities that lie outside its control which could significantly affect the success of the Strategy. The City can leverage its position as the capital of Canada and through collaboration with other municipalities to engage with senior levels of government and accelerate our collective level of ambition.

<sup>19</sup> City of Toronto Existing Building Emissions Reduction Strategy, 2020.

**Steps to Implementation** (\*indicates an action with significant stakeholder support)

1. Work with other municipalities to request of the Province of Ontario:
  - \*Adjustments to property taxes and/or land transfer taxes to reflect carbon emissions of buildings. Consider a rebate if improvements are made.
  - \*The addition of a retrofit standard for existing buildings to the Ontario Building Code based on the National Energy Code for Alterations to Existing Buildings.
  - Continued roll-out of the EWRB to buildings >20,000 ft<sup>2</sup>, energy labeling of buildings, and expanded reporting and labelling requirements to all building types.
  - Amendments to building permit fee structure to reflect carbon emission reductions.
  - The creation and/or support of a Green Bank or other financing structure.
  - Municipal authority to directly regulate existing building energy and emissions, and/or the expedited creation of a retrofit code that includes carbon targets.
  - Continued and reliable increases in the provincial carbon tax.
  - Leadership with deep retrofits in provincially owned or leased buildings.
  - Restrictions to the expansion of natural gas infrastructure.
  - Including carbon and energy performance training in licensing of property managers, building condition assessors, and real estate agents.
2. Work with allies to request of the Ontario Energy Board and relevant utilities:
  - \*Utility mechanisms to support/invest in deep emissions retrofits.
  - \*Rate structure changes that favour electrification and fuel switching away from natural gas (e.g. more aggressive time of use pricing, heat pump rates).
  - Strengthening the electrical grid to accommodate fuel switching from natural gas.
3. Request of the federal government and associated agencies:
  - \*Develop an ambitious retrofit code, require labeling, and incentivizing retrofits.
  - \*Stimulate retrofit economy through post-COVID stimulus measures, especially for long payback measures such as high insulation building cladding and heat pumps to prevent lock-in of less efficient or high carbon options.
  - Continually and reliably increase the federal carbon tax.
  - Launch the Clean Fuel Standard and include end-use fuel switching in buildings as an eligible compliance option to help fund fuel switching programs.
  - Create a Green Bank, including substantive financial contributions.
  - Include emissions/carbon more explicitly into the EnerGuide rating system.
  - Reinstate the home retrofit tax credit, or similar, tied to low carbon deep retrofit.
  - Align procurement policies to drive certification and training of service providers.
4. Engage industry, associations and community partners to implement the Building Retrofit Strategy:
  - The Atmospheric Fund and Ottawa Climate Action Fund.
  - Federation of Canadian Municipalities.
  - BOMA.
  - Canada Green Building Council.



## Appendix 1: External Stakeholder Feedback – As We Heard It

Stakeholders were provided opportunities to comment on this Strategy in three formats: on the whole document, through two surveys, and through meetings on the Strategy.

Surveys were conducted between December 2021 and February 2021 and August 2021 to September 2021. Survey responses are below.

The Energy Evolution Buildings Technical Working Group was given a presentation and invited to provide feedback in January 2021.

The Building Owners and Managers Association was given a presentation and invited to provide feedback in February 2021.

A Commercial Building Retrofit Working Group was established in July 2021 to provide input on the Strategy and implementation plan. The Working Group includes the following members:

- Brandon Malleck, Bentall Kennedy
- Andrew Penner, BGIS
- Dean Karakasis, BOMA Ottawa
- Glenn Mooney, Envari
- Levi Higgs, Canada Green Building Council
- Trevor Freeman, Hydro Ottawa
- James McNeil, JJ McNeil
- Joan Haysom, JL Richards
- Geoff Carran, Osgoode Properties
- Steve Winkleman, Ottawa Climate Action Fund
- Dan Dicaire, Ottawa Community Housing
- Chris Pulfer, Posterity Group

### Survey #1 Responses

The highlighted responses were the most popular to the survey questions. Discussion added more details to the answers from each stakeholders' perspective.

1. Which benchmarking strategy would most support the realization of deep energy retrofits of ICI buildings?
  - a) Offer subsidized audits to incentivize voluntary benchmarking of buildings outside of EWRB.
  - b) Integrate energy and emissions benchmarking into MLS listings.
  - c) Integrate requirements for benchmarking into City procurement standards.

Discussion:

- Electricity audits have been subsidized by Hydro Ottawa so most are done but envelope audits have not.
  - No benefit to MLS listing or city procurement standards
  - Tenants are not asking for energy scores but they would need to understand the ratings
2. Which education strategy is most important to support the realization of deep energy retrofits in ICI buildings?
- a) Launch an online tool that compares energy performance of buildings, info on compliance pathways, links to incentives.
  - b) Offer a hot line to field questions on retrofits and programs.
  - c) Disseminating information to building owners on GHG thresholds and compliance pathways.
  - d) Support more workshops on deep retrofits for property owners, property managers, building condition assessors, and tenant associations.
  - e) Develop a registry of experienced renovation contractors.

## Discussion:

- Workshops for tenant associations could create a mob mentality so are best avoided
  - Tenants do not tend to ask about Green Leases unless they are engineering firms or federal gov
  - Have not seen LIC payments for energy improvements but like the idea
  - Some landlords have energy dashboards but tenants do not ask for details on energy consumption. It can be a selling point when looking for new tenants, however.
  - 440Mft<sup>2</sup> market for offices (>20,00ft<sup>2</sup>) of which half are in downtown
    - o Feds are biggest tenant and they use semi-gross leases
    - o Private sector landlords want a better arrangement with the feds
3. Which economic tool is most important to encourage deep energy retrofits of ICI buildings?
- a) Launch grants and/or other financial incentives tied to carbon emission reductions to encourage retrofits of buildings.
  - b) Provide financing options for deep energy retrofits that stay with the property through on-bill financing and/or a local improvement charges. Offer more attractive terms or interest rate forgiveness for actual emissions reductions.
  - c) Offer subsidization of relocation costs for tenants during major retrofit activities.

## Discussion:

- Incentives can motivate early renewal. Example is Kanata North Hydro project
- They agree that LIC financing could be helpful if repayment can be on property taxes
- Low interest financing is not available to institutions, but they generally don't use it anyways
- The cost of relocation of tenants is more about the relationship is more a concern than the cost, best done within the buildings

4: Which of the following regulations is most important in encouraging deep energy retrofits of ICI buildings?

- a) Require ASHRAE Level II energy and emissions audit and/or recommissioning for buildings accessing City or utility programs.
- b) Require energy audits or recommissioning at change of use/ownership, before major renovations.
- c) **Implement a performance standard for buildings >50,000ft<sup>2</sup>.**

Discussion:

- They think more than an audit is necessary
- Start with requiring audit/recommissioning

5: What is the most important policy that the Province could implement to support deep energy retrofits?

- a) Roll-out of the EWRB to smaller buildings.
- b) **Adjustments to property taxes and/or land transfer taxes to reflect carbon emissions of buildings. Consider a rebate if improvements are made.**
- c) The addition of a retrofit standard for existing buildings to the Ontario Building Code based on the National Energy Code for Alterations to Existing Buildings expected in 2022.
- d) Including carbon and energy performance training in licensing of property managers, building condition assessors, and real estate agents.

6: What is the most important policy change that the Federal government could implement to support deep energy retrofits?

- a) **Develop an ambitious retrofit code**
- b) Stimulate retrofit economy through post-COVID stimulus measures
- c) Launch the Clean Fuel Standard and include end-use fuel switching in buildings as an eligible compliance option
- d) Create a Green Bank, including substantive financial contributions
- e) Include low carbon certifications in procurement policies

Discussion:

- Municipality could help by negotiating green leases with feds to support private sector

7: What is the most important regulatory change that the OEB could implement to support deep energy retrofits?

- a) Rate structure that favours electrification (e.g. aggressive TOU pricing, heat pump rates).
- b) Strengthening the electrical grid to accommodate fuel switching from natural gas.
- c) Utility mechanisms to support/invest in deep emissions retrofits

#### Discussion

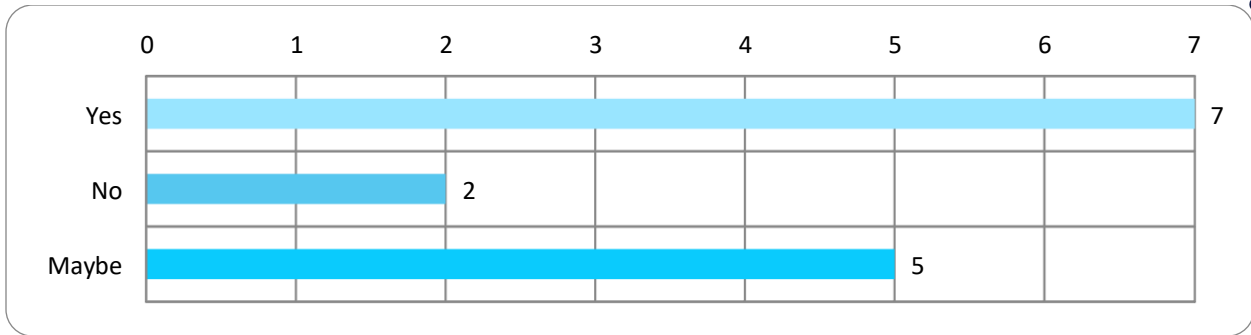
- No specific rate structure recommended
- Existing power supply to building is a barrier

#### General Discussion

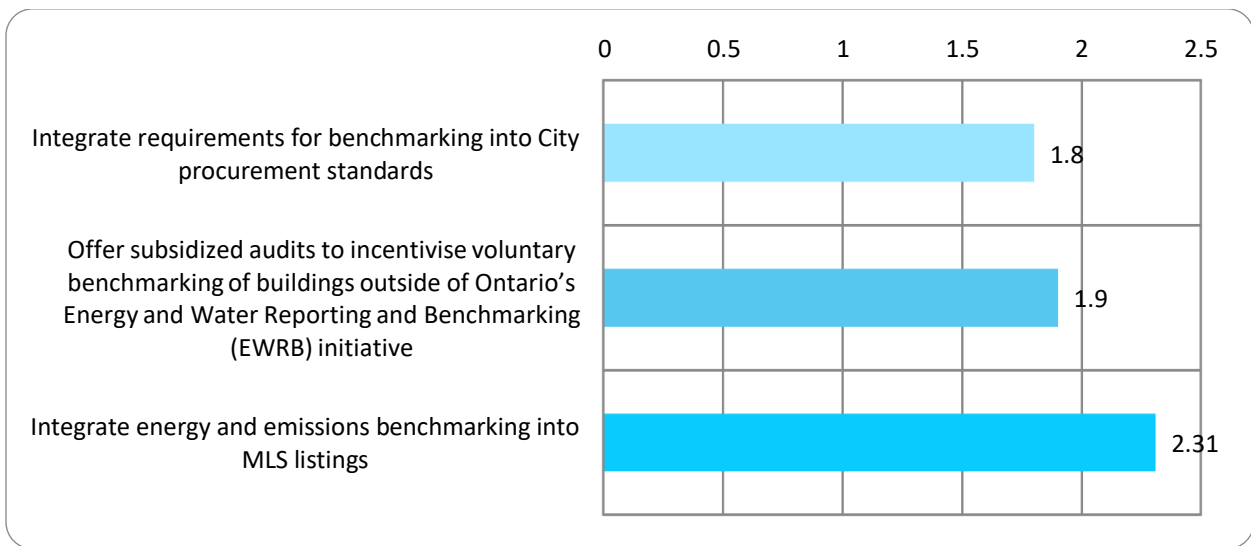
- GRESB index is the most popular index used by the stakeholders. Some landlords have set a goal of being in the top 10%.
- Property managers need help building a case for fuel switching. Federal carbon tax promise will help but not until it is legislated
- Some landlords are looking at climate impacts in various regions and assigning funds/plan to adaptation, which allows them to some budget for mitigation too
- Many curtain walls are well past their age and are only upgraded when bones are being rebuilt or to meet the lease requirement
- Post COVID, some new requirements such as Fit Well are being used by federal gov, and 1 private firm in Montreal
- Thermal scans had been used by 1 building so far
- Suggestion to get rid of parking in new buildings and make it easier to convert parking spaces to amenity spaces and more bike lanes

#### Survey #2 Responses

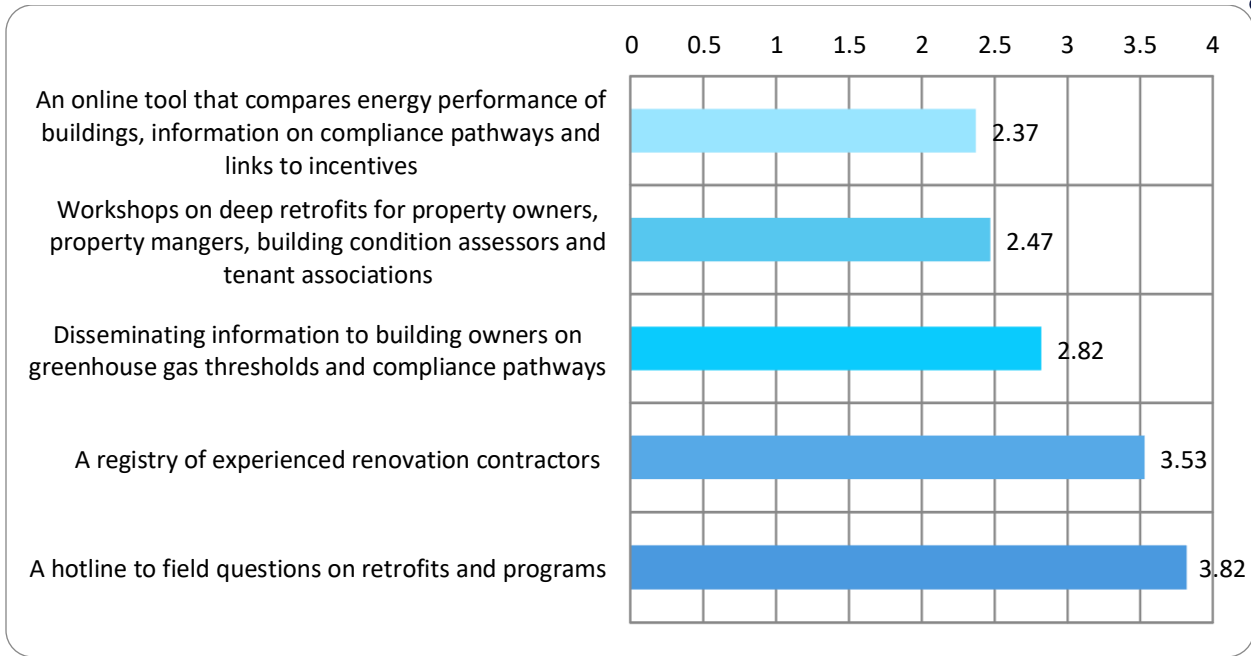
Question: The City is considering a benchmarking and auditing program for buildings 20,000 square feet and larger. Participants would be asked to publicly benchmark their energy and water consumption annually through the Canada Green Building Council's Disclosure Challenge. In exchange, participants will receive: Subsidized thermal energy audits (if resources allow), Energy scorecards, Energy Star certification, Tailored information sessions on energy and emission reduction opportunities. The program will be free to join. Would you be interested in joining the program?



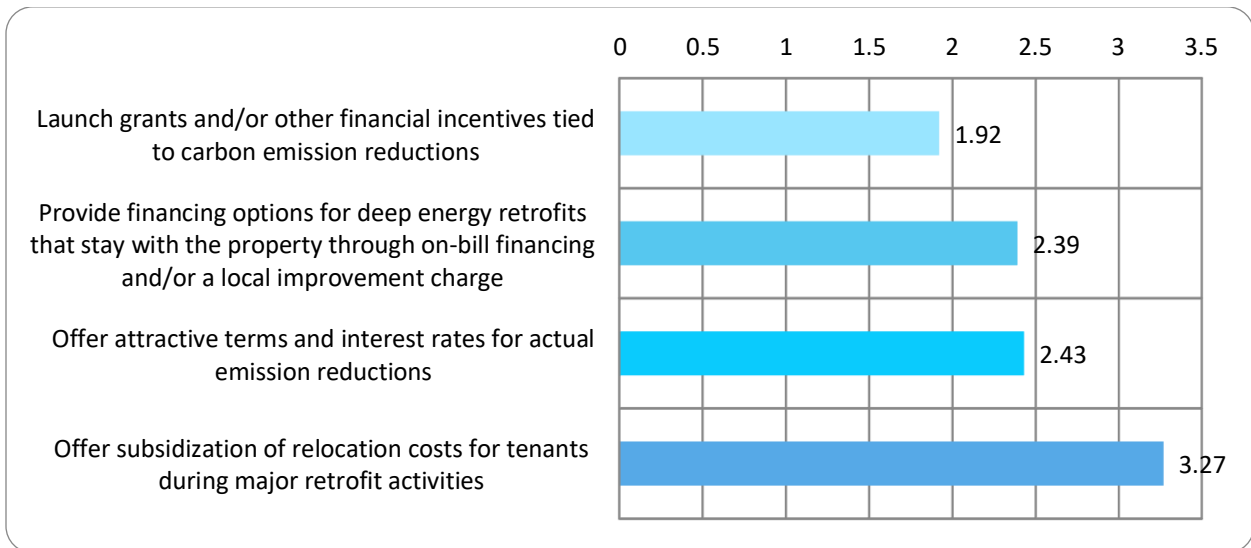
Question: Which benchmarking strategy do you believe would most support the realization of deep energy retrofits of industrial, commercial, institutional, and multi-residential buildings? Please rank from 1 - 3 where 1 is the highest.



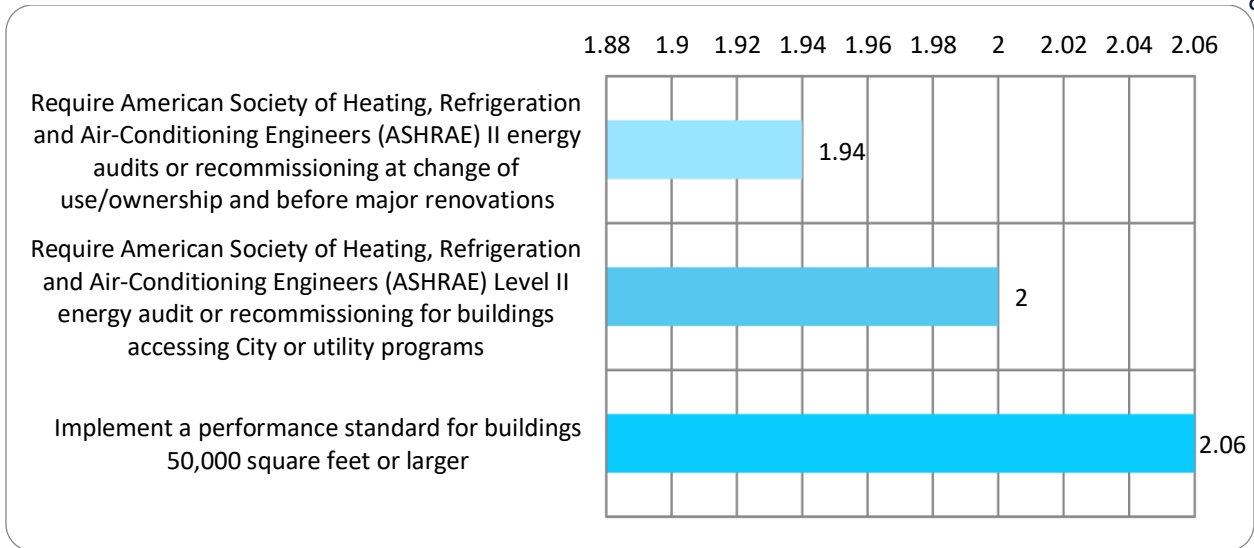
Question: Which education strategy is most important to support the realization of deep energy retrofits in industrial, commercial, institutional, and multi-residential buildings? Please rank from 1 - 5 where 1 is the highest.



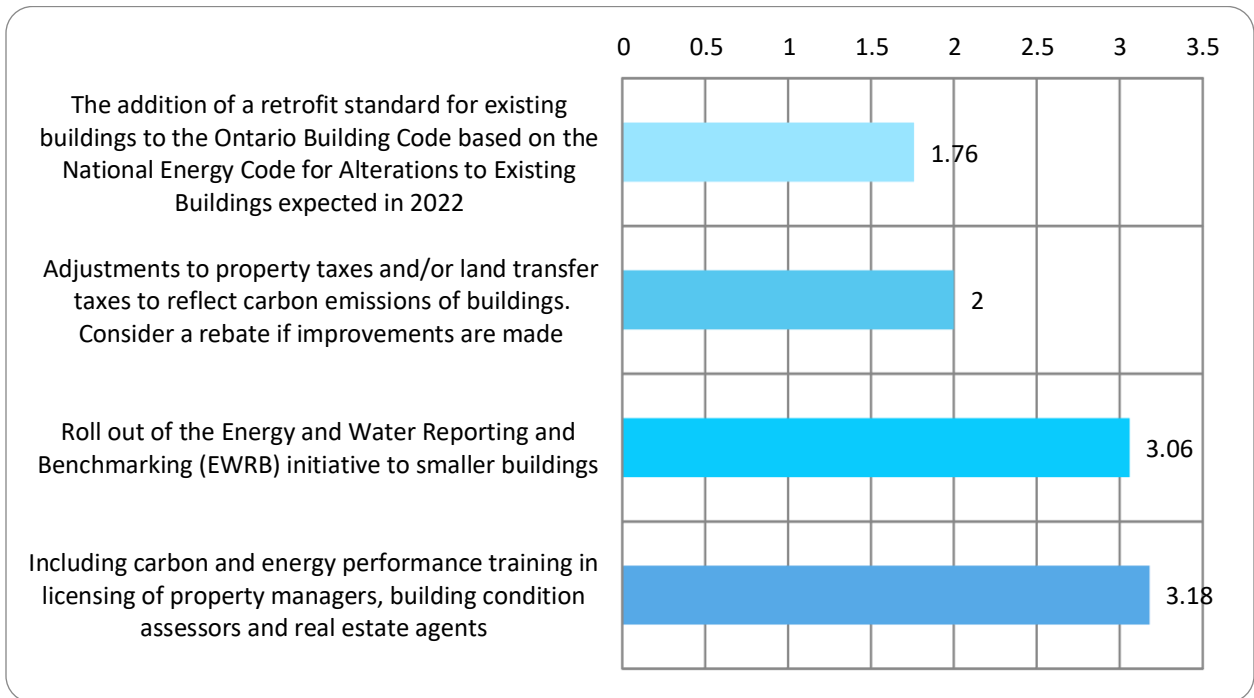
Question: Which economic tool is most important to encourage deep energy retrofits of industrial, commercial, institutional and multi-residential buildings? Please rank from 1 - 4 where 1 is the highest.



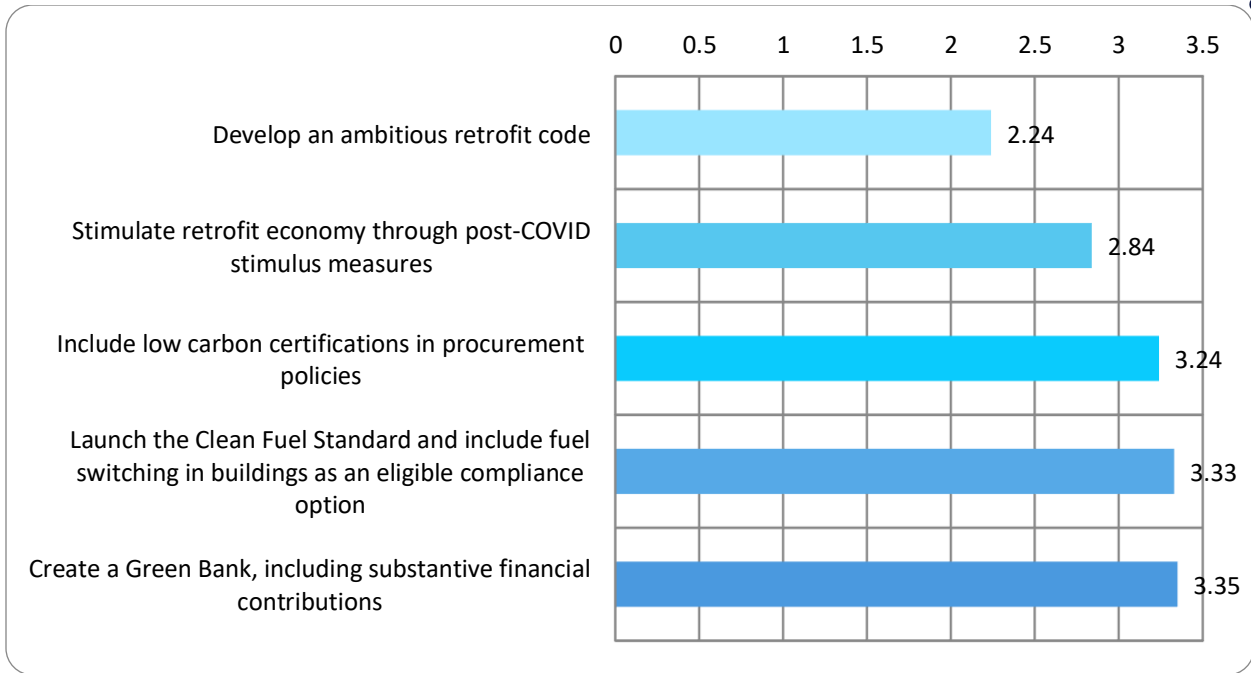
Question: Which of the following regulations is most important in encouraging deep energy retrofits of industrial, commercial, institutional and multi-residential buildings? Please rank from 1 - 3 where 1 is the highest.



Question: What is the most important policy that the Provincial government could implement to support deep energy retrofits? Please rank from 1 - 4 where 1 is the highest.



Question: What is the most important policy change the Federal government could implement to support deep energy retrofits? Please rank from 1 - 5 where 1 is the highest.



Question: What is the most important regulatory change that the Ontario Energy Board could implement to support deep energy retrofits? Please rank from 1 - 3 where 1 is the highest.

