

MASSACHUSETTS COMMUNITY CLIMATE BANK™

ROUNDTABLE REPORT

February 8, 2024



INTRODUCTION

MassHousing hosted a Roundtable for the Massachusetts Community Climate Bank™ (MCCB™) on November 16, 2023.

This was the inaugural event for MCCB™, which was established in June 2023 by Massachusetts Governor Maura Healey as the nation's first green bank dedicated to affordable housing. MassHousing invited stakeholders representing government, housing and environmental advocacy, development, climate, and non-profits. The Roundtable was attended by approximately 55 people. The goal of the Roundtable was to convene industry leaders from the fields of housing, environment, and government in order to introduce MCCB™ and facilitate a preliminary conversation around the work required to advance the state's 2050 climate goals in the residential building sector.

The event featured opening remarks by Massachusetts Lieutenant Governor Kim Driscoll. MassHousing CEO Chrystal Kornegay welcomed attendees and shared a presentation introducing mission of MCCB™ and providing context for the primary focus of MCCB™ on decarbonizing the residential sector, specifically affordable housing (please see Appendix A).

Three breakout groups followed, facilitated by staff from MassHousing and the Executive Office of Housing and Livable Communities (HLC). The group topics and key questions contemplated by each group included:

- a. **New Construction Solutions:** What are the most promising approaches to increase the production of new low-carbon and net zero residential buildings over the next five years?
- b. **Rehabilitation Solutions:** What are the most important building system upgrades to consider when decarbonizing existing buildings over the next five years?
- c. **Policy Solutions:** What policy or regulatory changes should the administration consider in order to optimize the work of MCCB™ over the next five years?

The purpose of this report is to summarize the themes from the Roundtable and share it with attendees and other interested parties.

Representatives from the following organizations were among those who attended the Roundtable:

Accordia Partners, Alternatives for Community & Environment, Barr Foundation, Beacon Communities LLC, BlueHub Capital, Boston Green Ribbon Commission, Citizens' Housing and Planning Association (CHAPA), City of Boston, Community Economic Development Assistance Corporation (CEDAC), Conservation Law Foundation, Department of Public Utilities (DPU), East Branch Studio, Environmental Justice Advisory Council, Environmental League Massachusetts, Executive Office of Energy and Environmental Affairs (EEA), Executive Office of Housing and Livable Communities (HLC), Green Ribbon Commission, Groundwork Lawrence, HEET, ICON Architecture, International Brotherhood of Electrical Workers / National Electrical Contractors Association, Local Initiatives Support Corporation (LIHC) Boston, Lt. Governor Kim Driscoll,

Mass Audubon, Massachusetts Climate Action Network (MCAN), Massachusetts Competitive Partnership, Massachusetts Housing Investment Corporation (MHIC), Massachusetts Housing Partnership (MHP), Massachusetts Municipal Association, Massachusetts Clean Energy Center (MassCEC), MassDevelopment, MassHousing, MassINC, Metropolitan Area Planning Council (MAPC), Mill Cities Community Investment, NAIOP Massachusetts, Northeast Clean Energy Council, Office of Climate Innovation and Resilience (OCIR), Opportunity Communities, Planning Office for Urban Affairs (POUA), Preservation of Affordable Housing, The Community Builders (TCB), The Massachusetts Business Roundtable, The Massachusetts Business Roundtable (MBR), The Nature Conservancy, TLee Development, Urbanica Inc., Winn Development LLC

ABOUT MCCB™

The Massachusetts Community Climate Bank™ (MCCB™) is an ambitious new climate finance initiative announced by Governor Maura Healey in June 2023 to accelerate achievement of the state's clean energy goals. The MCCB™ mission is to facilitate investment in projects that will reduce greenhouse gas emissions in key sectors of the Massachusetts economy. Offering a variety of financial solutions that are broad enough to work across the Commonwealth will allow MCCB™ to promote an equitable transition to a net-zero future and meet the Commonwealth's 2050 decarbonization goals.

The initial focus of MCCB™ is to support decarbonization strategies in the residential sector and specifically in the low- and moderate-income multi-family rental and single-family homeownership markets. MassHousing is the lead sponsoring agency of MCCB™ and will draw on its decades of housing finance and investment expertise and lending capabilities serving these markets to advance the mission of MCCB™. MassHousing operates at significant scale, having financed over \$6.8 billion in residential loans over the last ten years, and has a history structuring financing solutions for decarbonization and clean energy projects including complex deep-energy retrofits and passive house standards.

MCCB™ is positioned to aggregate state, federal, private, philanthropic, and private funds to complement existing programs and introduce new programs and resources. MCCB™ will offer capital and innovative financing structures to support the integration of energy efficiency, electrification, and clean energy technologies into building construction, renovation, and preservation projects across the Commonwealth.

MCCB™ will share more information about forthcoming single-family and multifamily loan products in the spring and summer of 2024.

OVERALL THEMES FROM THE MCCB™ ROUNDTABLE

The attendees were prompted to share barriers and challenges that housing and environmental advocates, practitioners, lending institutions, and policy makers need to address to meet the Commonwealth's decarbonization goals for the residential building sector. Discussions during the Roundtable centered around the following themes:

1. **Challenges:** Decarbonizing the housing sector starting with affordable housing comes

with the following challenges:

- a. **Development Costs:** This is particularly relevant given the current housing crisis facing Massachusetts. The state does not want to inhibit the production and preservation of affordable and deeply affordable housing in a high-cost environment; at the same time, decarbonization measures are more expensive.
- b. **Utility Costs:** Electricity costs are expected to increase for a period of time and remain higher until renewable energy becomes more affordable than fossil fuels. Affordable housing renters and moderate-income homeowners may, unfortunately, bear these costs until such a time when renewable energy costs decrease.

2. **Gaps in the Field:** Attendees noted the following areas that need to be addressed:

- a. **Develop More Financing Options:** New resources in this space must be flexible enough to address the significant costs associated with decarbonization efforts.
- b. **Set Standards:** There is a need for easier access to building, performance, and cost data to assist developers in their planning to meet climate goals. The housing industry will find it helpful to identify what is working and what is the best return on investment.
- c. **Provide Guidance on Development Selection:** Project selection is important in order to triage scarce resources into particular projects. There are building tradeoffs relative to cost. For example, deep, expansive net-zero buildings are desirable but extremely expensive. Conversely, it may be possible to include energy improvements that are more cost-effective but still help the state meet its goals. There is a need for guidance for developers to help them with these considerations.
- d. **Best Practices:** The industry can also help to highlight quality products and services for both homeowners and developers.

3. **The Need for a Skilled Workforce:** In order to build more, the state will need more contractors with expertise in energy efficiency to keep up with demand. Unfortunately, there is a deficit in the pool of skilled, certified workers in Massachusetts who can work on projects including things like solar panel installation and electrification. This labor shortage means that affordable housing developments are competing against each other for workers, which is undesirable. There may be opportunities to connect with local trade schools and community colleges to create a pipeline of training that enables workers to enter these much needed jobs.

SUMMARY OF NEW CONSTRUCTION SOLUTIONS

This breakout group contemplated the most promising approaches to increase the production of new low-carbon and net-zero residential buildings over the next five years.

The group was facilitated by Amy Stitely of HLC, and notes were compiled by Joan Falloni of MassHousing.

1. **Building Passive House or Net Zero:** The group noted that building to Passive House or Net Zero standards for new construction is already happening. Some affordable housing developers are willing to build to these standards even without a mandate, which shows that it is possible. There are also examples of heavily subsidized, low-income developments building to these standards.
2. **State Incentives:** The current Qualified Allocation Plan (QAP) encourages meeting Passive House standards, electrification, solar ready, Enterprise Green Communities, and high efficiency goals. As a result, more and more of these types of developments are coming to the state in its funding rounds.
3. **Modular Construction:** Modular and prefab construction can save money, particularly by shortening construction time, even when not directly related to energy savings. Attendees noted that the modular industry is moving in the “high efficiency” direction, so the state should create an environment that allows that sector to scale.
4. **Seeking Private Investment:** The group contemplated opportunities for private investment in the production of affordable housing generally, as employers face challenges with staffing when employees are unable to afford to live in Massachusetts due to its high cost.
5. **Building Expertise:** There are opportunities to grow the field of experts. Given the amount of “new opportunities” in the market, there is a need for a larger pool of specialists with expertise in design (architectural and engineering), building sciences, development, finance, and maintenance/repair.
6. **Challenges Facing Decarbonizing New Construction:** The group identified the following challenges:
 - a. **Adoption of the Building Code:** The new “super stretch code” presents both an opportunity and a challenge. It is unclear if the new baseline will be the existing stretch code, the new building code, or the optional “super stretch code” that the state is trying to incentivize housing developers and owners to reach.
 - b. **Being Specific about Goals and Priorities:** The state must be specific about performance standards for buildings. This is important for the development community and should include providing clarity around what subsidy or incentive is available based on the level of performance reached. This must be done in a way that doesn’t present unreasonable impediments for developers. Additionally, the state should make clear whether the primary priority is production, affordability, or sustainability. If the answer is all of the above, the state should offer roadmaps for how to achieve everything and provide proven models for reference as well.
 - c. **Utility Costs:** The group discussed partnering with utility companies because there is a great deal of work to be done around how utilities are calculated and paid by renters. A complication of building to Passive House standards,

all electric, or zero emissions is that utility costs may increase for a period until the time when renewable energy becomes more affordable than fossil fuels like gas. There is a need to consider how to align incentives for residents as well as developers. For example, are allowances or master metering preferable with certain kinds of rebates? When developers add on-site renewables, like solar, it complicates how the payment structures work and how the returns are distributed, whether to the residents or to the investors. One challenge is determining how the metering is configured for multifamily developments.

SUMMARY OF REHABILITATION SOLUTIONS

This breakout group contemplated the most important building system upgrades to consider when decarbonizing existing buildings over the next five years. The group was facilitated by Mark Attia of MassHousing and notes were compiled by Nancy McDonald of MassHousing.

1. **Balancing Costs and Returns:** The reality is that the cost of full electrification is most likely not financeable currently. For example, a 50% reduction in energy use may come with a commensurate level of 30% emissions reduction that provides no operating cost savings. This means significant changes must be made to the electricity rate structure. There is a need for a dedicated resource that is flexible enough to allow developers to address the significant costs associated with the standards.
2. **Development Selection:** The group discussed the key role MassHousing can play in reviewing its portfolio to consider how to prioritize buildings that would most benefit from deep energy retrofits. This exercise requires a more methodical approach to capturing and tracking building performance. A framework is needed for consistent performance data reporting. This framework will also help to determine which products can serve which developments for the greatest impact. Sufficient resources must be targeted to the uses that achieve the desired outcome while also blending well with other resources and maximizing the use of other scarce, “randomly allocated” resources like volume cap.
3. **Maximizing Outcomes for Residents:** There is a need to measure the benefit to the people living in the housing in addition to measuring building performance. There are other benefits that go beyond short-term cost savings, including better health outcomes and long-term economic outcomes for the building. The state can maximize outcomes by identifying the best standards to build to, consistent with a path to reaching 2050 goals while at the same time producing the maximum amount of affordable housing possible.
4. **Deciding to Rehab Rather than Build New:** Because the total cost of rehabilitation can far exceed the cost of new construction, there should be a roadmap for developers deciding whether it is better to tear down the whole building and dramatically increase the scope of the project in order to be emissions-free. Generally, the group agreed that this is not a compelling idea. Instead, the state should consider more vertical airspace or horizontal land for new construction at the same time a project is being rehabbed for a “preservation plus” approach.

5. **Supporting Homeowners:** For 1-4 family homes, the group determined that the state needs to educate millions of homeowners to help them make decisions. Included in this effort is the difficult conversation about historic codes. The state needs to determine where to compromise on historic codes versus efficiency measures while remembering that while some upgrades are done for decarbonization, other things like air conditioning can also help improve indoor air quality.
6. **Challenges:** The group identified the following challenges facing rehabilitation projects:
 - a. A deficiency of skilled, certified workers in Massachusetts that are needed for the work that is required, such as solar panel installation.
 - b. The structural cost of electricity.

SUMMARY OF POLICY SOLUTIONS

This breakout group contemplated the policy or regulatory changes the administration should consider in order to optimize the work of MCCB™ over the next five years. The group was facilitated by Maggie Super Church of MassHousing, and notes were compiled by Hana Migliorato of MassHousing.

1. **Highlighting Best Practices:** There is a lot of new knowledge and every development will be an opportunity to understand what works and what doesn't. It will be important to identify specifically what works and in turn highlights quality products and services for homeowners and developers.
2. **Need for Data:** There is a lack of reliable and comprehensive data on decarbonization interventions and associated costs for both existing and new buildings. There are building tradeoffs to consider. As previously noted, deep, expansive fossil-fuel free rehabilitation projects cost more; however, there are other options that may fall short of net zero standards while still improving the building and are important to enable the state to meet decarbonization goals. There is a need to analyze the incremental cost of decarbonization and energy efficient solutions for each unit of emissions reduced. This information can be compiled and shared with developers to help inform their decision-making.
3. **Myth Busting:** The group noted the challenges of misinformation and misconception around housing development and decarbonization. Addressing these myths is important for the public. There should be a focus on helping municipalities make the case for the importance of housing and decarbonization.
4. **Challenges Identified:** The group identified the following policy challenges:
 - a. **Capital and Operating Costs:** The tough economic climate means every decision comes down to costs, which are going up across the board. The question therefore becomes how to target scarce resources to prioritize the

outcomes the state cares about including emissions reduction and long-term affordability.

- b. **Utility Cost Burdens:** The state needs to be mindful of the impact on residents as buildings are electrified. Creative solutions are needed to solve for utility rate issues and to determine who will bear the burden of higher costs.
- c. **Gas and Electric Utilities:** The utilities of the future need to include innovative solutions such as networked geothermal and load balancing.
- d. **Renter Protections:** In an unregulated market, there is a risk of displacement if/when improved buildings become inaccessible or unaffordable to existing tenants. The state needs to protect renters and to provide renters with knowledge.
- e. **Developing the Workforce:** There are not enough people working in the construction industry, so projects are competing with each other for labor. The state needs to support partnerships to develop and expand the workforce.

APPENDIX: MASSHOUSING CEO'S INTRODUCTORY PRESENTATION

Massachusetts Community Climate Bank (MCCB) Roundtable

November 16, 2023



Goals for Today's Roundtable

1. Introduce the MCCB
2. Gather Ideas
3. What's Next

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The Commonwealth has created a successful environment to accelerate decarbonization.

- 2008** The **Global Warming Solutions Act of 2008** benchmarked greenhouse gas (GHG) emissions across Massachusetts and legally committed the state to lowering emissions by at least 80 percent below statewide 1990 GHG emission levels by the year 2050.
- 2010** Massachusetts **enacted its first stretch energy code**, with an emphasis on energy-efficient cost-effective construction.
- 2013** The City of Boston implemented the **Building Emissions Reduction and Disclosure Ordinance (BERDO)**, which requires large buildings in Boston to report their annual energy and water use and reduce their GHG emissions over time.
- 2014** The City of Cambridge implemented the **Building Energy Use Disclosure Ordinance (BEUDO)**, which requires owners of larger buildings to track and report annual energy use to the City, and to reduce their GHG emissions on a schedule.
- 2021** The **Massachusetts 2050 Decarbonization Roadmap** lists steps needed to realize emissions targets in each sector and is supported by a detailed analysis of emissions and mitigation solutions across the state's building sector.
- 2023** Governor Maura Healey issued an Executive Order **establishing the position of Climate Chief** and creating an Office of Climate Innovation and Resilience within the Governor's Office. The Healey/Driscoll Administration **created the MCCB**.

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1.

Introduction to the MCCB

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About the MCCB

The MCCB is an **ambitious new climate finance initiative** announced by Governor Maura Healey in June 2023 to **accelerate achievement of the state's clean energy goals**.



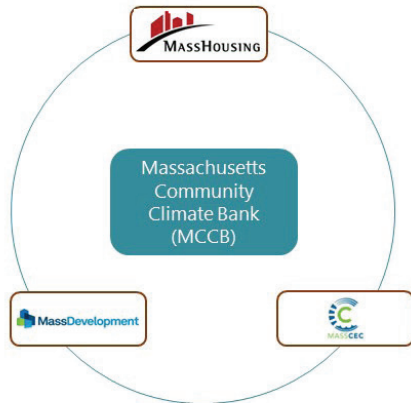
MCCB Announcement, June 2023

Mission | To facilitate investment in **projects that will reduce greenhouse gas emissions** in key sectors of the Massachusetts economy.

MCCB's Charge | Offer a variety of **financial solutions** that are broad enough to **work across the Commonwealth** that will allow the MCCB to promote an **equitable transition** to a net-zero future and **meet the Commonwealth's 2050 decarbonization goals**.

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Cooperative Initiative



The MCCB has been **established as a cooperative effort** among MassHousing and its partner state agencies, the Massachusetts Development Finance Agency ("MassDevelopment") and the Massachusetts Clean Energy Technology Center ("MassCEC") through a Memorandum of Understanding.

Through this collaboration, the MCCB benefits from **complementary and specialized expertise** in economic development and clean energy policy.

Additionally, MassHousing will establish an **advisory council** of public, private, and nonprofit sector stakeholders and experts, who will advise on the activities of the MCCB.

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MCCB Operations Plan

The MCCB's initial focus is to **support decarbonization of the residential building sector**.

The MCCB is positioned to **aggregate state, federal, philanthropic, and private funds to complement existing programs and introduce new programs and resources**.

The MCCB is currently developing a **five-year operations plan** that takes into account the current market and context.

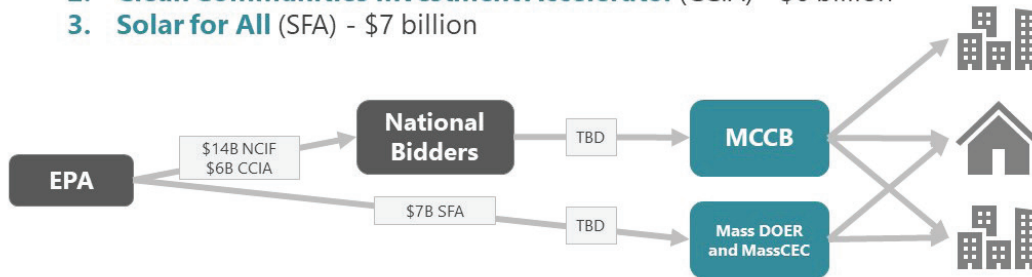
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New Federal Funding

President Biden's Inflation Reduction Act of 2022 created the **\$27 billion Greenhouse Gas Reduction Fund (GGRF)** to mobilize financing and private capital to address the climate crisis.

The GGRF is made up of three funds:

1. **National Clean Investment Fund (NCIF)** - \$14 billion
2. **Clean Communities Investment Accelerator (CCIA)** - \$6 billion
3. **Solar for All (SFA)** - \$7 billion



Note: SFA will be funded through Massachusetts Department of Energy Resources (DOER) and MassCEC.

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Of the three qualified project types for GGRF, the MCCB will focus on net-zero emission buildings.

Distributed Energy Generation and Storage	Net-Zero Emissions Buildings	Zero-Emissions Transportation
<p>Projects, activities, and technologies that deploy small-scale power generation and or storage technologies (1 kW-10,000 kW) and infrastructure necessary for deployment of such technologies.</p> <p>Examples</p> <ul style="list-style-type: none"> Residential rooftop solar + storage Community wind and solar Fuel cells Stand-alone energy storage, including replacement of backup diesel generators with battery Distributed generation and storage assets that support microgrids 	<p>Projects, activities, and technologies that either retrofit an existing building as part of a plan for that building achieving zero-over time or construct a new net-zero emissions building in "Low-Income and Disadvantaged Communities" (LI/DAC).</p> <p>Examples</p> <ul style="list-style-type: none"> Energy and water efficiency Geothermal heating and cooling Grid-interactive appliance electrification Whole-home retrofits Decarbonization retrofits as part of adaptive reuse of existing buildings New construction of net-zero residential buildings 	<p>Projects, activities, and technologies that deploy zero emissions transportation modes or enabling infrastructure, especially in communities that are overburdened by existing diesel pollution, particulate matter concentration, and degraded air quality.</p> <p>Examples</p> <ul style="list-style-type: none"> Deployment of chargers or charging depots (e.g. at multifamily housing) Infrastructure to support zero-emissions micro mobility options (e.g., electric bikes and scooters) particularly at and near multifamily housing Small-scale infrastructure to improve walkability and bikeability

Low-Income and Disadvantaged Communities: Categorically includes multifamily housing where half the units have an affordability covenant at "30% of 80% AMI" (e.g., LIHTC) 10

The MCCB Fund will complement existing resources.

Financing	Grant	Tax Credit	Tax Rebate
<ul style="list-style-type: none"> • Inflation Reduction Act (IRA): National Clean Investment Fund (NCIF) • IFA: Solar for All (SFA) • MCCB Climate Bund • MassDevelopment Property Assessed Clean Energy (PACE) • Fannie Mae HomeStyle Energy • Freddie Mac GreenCHOICE • MassHousing Home Improvement Loan (HILP) • MHP Green Building Certification Financing (GBC) • MHP Green Retrofit Financing (GRF) • Healthy Housing Financing (HHF) 	<ul style="list-style-type: none"> • IRA: Clean Communities Investment Accelerator (CCIA) • IRA: Building Energy Codes • IRA Community Change Grants Program • IRA: Green and Resilient Retrofit Program (GGRP) • Bipartisan Infrastructure Law: Mass. Weatherization Assistance Program • IRA: Thriving Communities Technical Assistance (TCTAC) • IRA: EJ Collaborative Problem-Solving Grants (EJ-CPC) • IRA: EJ Government to Government Grants (EJ-G2G) • IRA: EJ Grantmakers (EFTCGM) • IRA: Utility Benchmarking • IRA: Climate Pollution Reduction Grants (CPRG) • Climate Ready Housing • Integrated Climate Strategy • Municipal Vulnerability Preparedness (MVP) • MVP Implementation • Public Housing Resiliency • Greening the Gateway Cities • Public Health Response to Climate Change • MassDevelopment Community Health Center Grant Program • MassDevelopment Cultural Facilities Fund • MassHousing Capital Magnet Fund • MassHousing Neighborhood Stabilization Program • MassSave 	<ul style="list-style-type: none"> • Residential Solar Energy • IRA: Section 25C: Residential Energy Efficiency • IRA: Section 25D: Residential Clean Energy • IRA: Section 45L: Zero Energy Ready Homes • IRA: Section 30C: EV Charging • IRA: Section 48 & 48e: New Renewable Energy • IRA: Section 179d: Energy Efficient Commercial Buildings 	<ul style="list-style-type: none"> • IRA: High-Efficiency Electric Home Rebate (HEEHR) • IRA: Home Energy Performance Based Rebate (HOMES)

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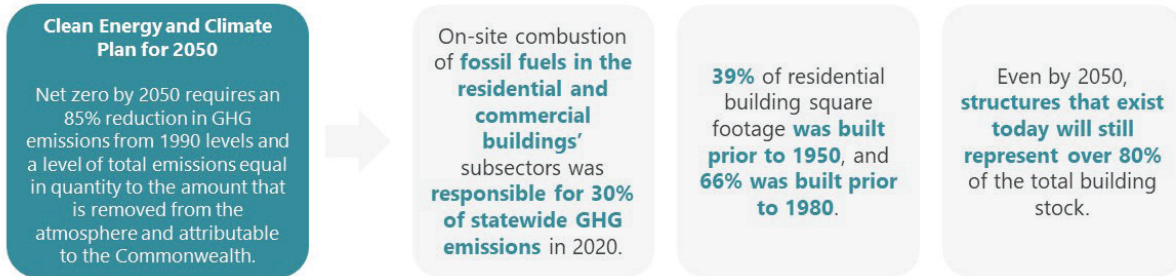
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Context: Why Housing?

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Decarbonizing housing is key to meeting the Commonwealth's climate goals.

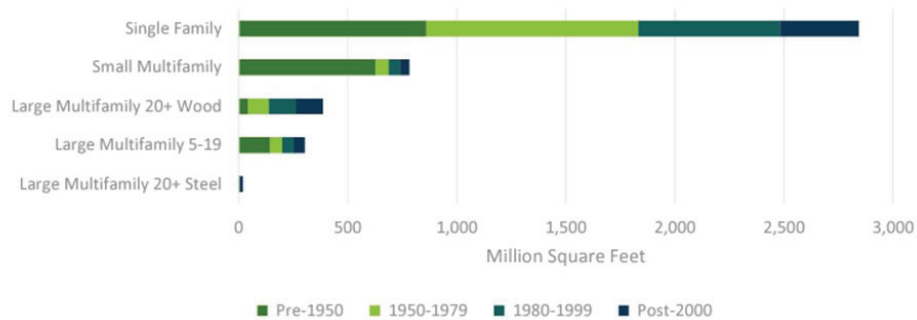
The MCCB's initial focus is to **support decarbonization of the building sector.**



Sources:
 • The Commonwealth of Massachusetts. (2020). *Building Sector Report: A Technical Report of the Massachusetts 2050 Decarbonization Roadmap Study*. The Commonwealth of Massachusetts. <https://www.mass.gov/doc/buildings-sector-technical-report/download>.
 • The Commonwealth of Massachusetts. *Massachusetts Clean Energy and Climate Metrics*. The Commonwealth of Massachusetts. [Massachusetts Clean Energy and Climate Metrics | Mass.gov](https://www.mass.gov/doc/massachusetts-clean-energy-and-climate-metrics/download)

Pre-1980s homes consume more than double the heating energy used by newer buildings.

66% of residential buildings in the Commonwealth were built before 1980.



Source: The Commonwealth of Massachusetts. (2020). *Building Sector Report: A Technical Report of the Massachusetts 2050 Decarbonization Roadmap Study*. The Commonwealth of Massachusetts. <https://www.mass.gov/doc/buildings-sector-technical-report/download>. Figure 7.

The scale of the challenge requires addressing both rehab and new construction projects.

Attaining 2050 emission reduction goals will require a simple annual average of:

- **90,000 retrofits** for existing residential units, both single-family and multifamily
- **7,000 new construction high performance** units



Stone Mill, Lawrence
MassHousing financed the first all-electric mill conversion in MA, turning a vacant property into 86 units of affordable rental housing.



Castle Square, Boston
MassHousing financed a deep energy retrofit of the 500-unit development, resulting in 50% reduction in energy usage.



25 Sixth Street, Chelsea
MassHousing financed this new 56-unit rental and homeownership development that will meet Passive House standards.



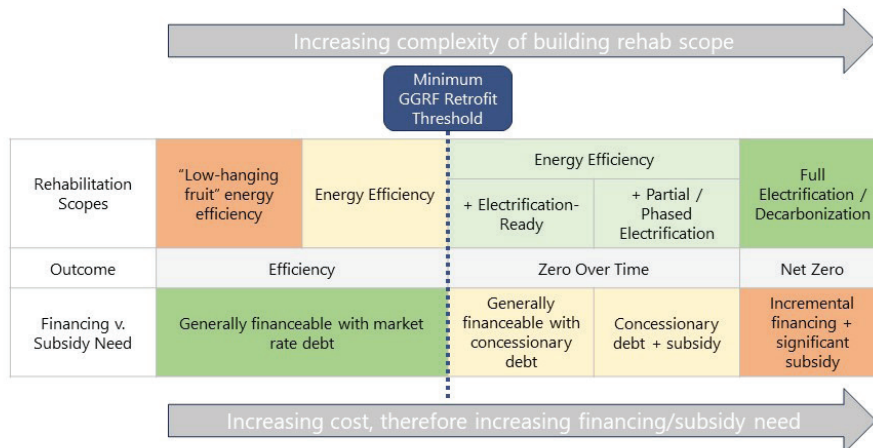
MassHousing Borrower's Home, Lowell

Source: The Commonwealth of Massachusetts. (2020). *Building Sector Report: A Technical Report of the Massachusetts 2050 Decarbonization Roadmap Study*. The Commonwealth of Massachusetts. <https://www.mass.gov/doc/buildings-sector-technical-report/download>

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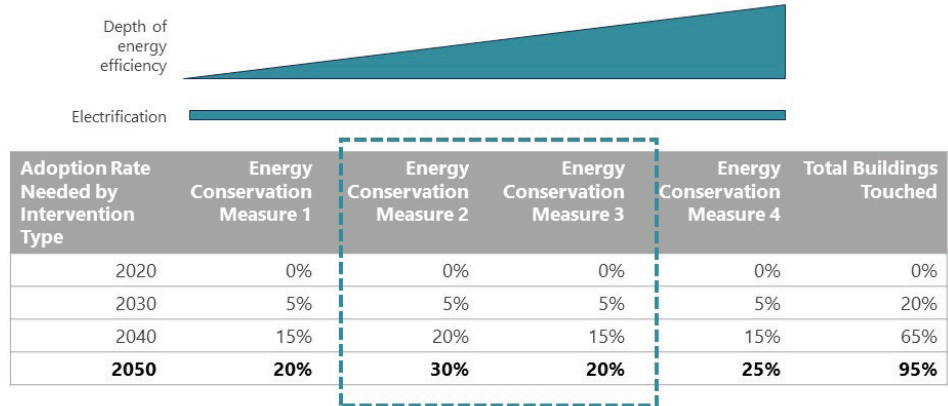
At a building level, there is a tradeoff between impact and cost.

As rehabilitation scope increases, costs will increase. The financeable gap vs. subsidy gap will vary by building rehabilitation scopes.



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Meeting 2050 goals requires a balanced approach to retrofitting older housing stock.



Source: The Commonwealth of Massachusetts. (2020). *Building Sector Report: A Technical Report of the Massachusetts 2050 Decarbonization Roadmap Study*. The Commonwealth of Massachusetts. <https://www.mass.gov/doc/buildings-sector-technical-report/download>. Table 19.

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3. Breakout Groups

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Breakout Groups



New Construction Solutions

What are the most promising approaches to increase the production of new low-carbon and net zero residential buildings over the next five years?

Room 1: Uxbridge
Amy Stitely



Rehabilitation Solutions

What are the most important building system upgrades to consider when decarbonizing existing buildings over the next five years?

Room 2: Pittsfield
Mark Attia



Policy Solutions

What policy or regulatory changes should the administration consider to optimize the MCCB's work over the next five years?

Room 3: Board Room
Maggie Super Church

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What's Next?

- Produce report based on this Roundtable session
- Announce new MCCB logo
- Launch of MCCB website
- Establish MCCB Advisory Council
- Launch MCCB's pilot programs – 2024 Q1
- Share highlights of MCCB operations plan

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