



**Patrick Woodcock, Commissioner**  
**Massachusetts Department of Energy Resources**  
**100 Cambridge Street, Suite 1020**  
**Boston, MA 02114**  
**ma-eeac@mass.gov**

**Re: Deep Energy Retrofit Market Transformation Program**

Dear Commissioner Woodcock and members of the Energy Efficiency Advisory Council:

I served as a voting councilor in the role of Energy Efficiency Expert on the EEAC from 2009-2010. Around that time, I also spearheaded the Castle Square deep energy retrofit, the first large scale deep energy retrofit in the US in Boston's South End. I currently oversee RMI's REALIZE program for the East Coast. REALIZE is a market facilitation platform that seeks to establish high volume net zero carbon retrofit delivery programs across the US.

Given the threat of climate change, there is an urgent need to spur market transformation to decarbonization. We must swiftly eliminate fossil fuels from our buildings, including decarbonizing our existing building stock. For this reason, I am writing to ask for your support for a **Deep Energy Retrofit Transformation Program**. This program would radically cut carbon and the associated energy consumption in existing buildings that enroll. In a matter of years, such a program could also trigger significant cost compression in the marketplace, making deep energy retrofits more affordable for all.

Thanks to the hugely successful Mass Save Passive House New Construction Program, the multifamily housing sector has taken significant steps toward high-performance, low-carbon new construction projects. More specifically, the Passive House Incentive Program has propelled over 100 projects consisting of 8,000 units toward superior energy savings. While tremendous progress has been made to reduce emissions from new construction projects, retrofitting existing buildings to super low-carbon levels of performance is not currently happening. In the absence of new incentive programs, existing building owners will be unable to make the type of low-carbon investments needed for the State to achieve its decarbonization goals. **To complement the successful Passive House Incentive Program for new construction, we need a new, aggressive retrofit program for multifamily housing, including both 1-4 family and 5+ unit market rate, mixed income, and low-income communities.**



Now is the time for us to transform existing buildings toward a decarbonized future. I am writing to strongly urge the EEAC and PAs to build on the success of the Passive House New Construction Program through the creation of a new Deep Energy Retrofit (“DER”) market transformation program for multifamily housing. The DER Program will be essential for transforming our existing buildings into healthy, durable, comfortable, and energy efficient communities.

**Deep Energy Retrofit (DER) Market Transformation Program:**

We recommend the DER Program include the following:

- Meet Passive House certification standards OR not exceed a site Energy Use Intensity (EUI) of 30 kBtu/ft<sup>2</sup>/year and an air tightness of 2.0 ACH50;
- Utilize heat pump-based technology for space heating and cooling;
- Utilize energy or heat recovery ventilation technology;
- Fully electrify domestic hot water systems;
- Include serious consideration of material decisions related to embodied carbon.

The new DER Program should mirror the Passive House New Construction Program, but the incentive amounts per unit must be substantially higher as suggested below:

	1-4 units	5+ units
Feasibility Study – 100% reimbursement up to	\$7,500	\$10,000
Modeling – 75% reimbursement up to	\$15,000	\$30,000
Pre-certification reimbursement	\$500 per unit	\$500 per unit
Certification reimbursement	\$35,000 per unit	\$35,000 per unit

The DER Program will incentivize early adopters to pioneer these critically needed types of retrofits, and identify replicable solutions that can lead to greater market adoption and cost compression. By scaling DER projects from early pilot projects to a predictable project pipeline, DER project costs, and incentives, will decline over time. Furthermore, collaboration with affordable housing developers and housing finance agencies will prove critical for identifying and enrolling DER projects at the point of refinancing, ensuring timing of utility incentive commitments align with housing finance agency awards.



## Updating Cost-Effectiveness Calculations:

Recognizing that DER projects will require costlier measures and holistic retrofit approaches, it is essential that the EEAC consider the true benefits and value of such projects in cost-effectiveness screening and similar considerations. We urge the EEAC, DOER, and DPU to ensure compliance with Senate Bill 9 – *An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy* (“the Climate Bill”), which states “...provided, however, that when determining cost-effectiveness, the calculation of program benefits shall include calculations of the social value of greenhouse gas emissions reductions.”

Additionally, we recommend the following updates to cost-effectiveness calculations:

- Refer to the precedent set by the DPU in the 2018 three-year planning process that states that programs need to be cost-effective OR have a plan to reach cost-effectiveness.<sup>1</sup> The proposed DER program has a clear path towards cost-effectiveness. With strategic incentives to drive market transformation, deep energy retrofits are projected to have significant cost compression after the pilot phase.<sup>2</sup> In the Netherlands, the Energiesprong program reduced costs by 50% in the five years following its pilot phase. Similar results are now being experienced elsewhere in Europe. Incremental cost data for deep energy retrofits are available for NYSERDA's RetrofitNY pilots, as well as RMI's REALIZE pilots in California and Massachusetts.<sup>3</sup> If these costs follow a similar cost compression trajectory, then DER projects should meet the DPU's cost-effective criteria as the market is transformed.
- Update the 2011 Residential and Low-Income Non-Energy Impacts Evaluation Report<sup>4</sup> to reflect results of the *Low-Income Multifamily Health- and Safety- Related NEIs Study (TXC 50) Preliminary Findings Report* that was completed by NMR Group and Three<sup>3</sup>, Inc. on 10/15/2018.

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<sup>1</sup> "To the extent any core initiatives within programs are not projected to be cost-effective over the plan term, the Program Administrator should be prepared to demonstrate, in its plan year and term reports, how it plans to achieve cost-effective core initiatives going forward." Page 77 of the DPU's order to National Grid for the 2016-2018 plan and referenced again on page 62 of the 2019-2021 Plan order.

<sup>2</sup> DER cost compression is projected to occur as a result of reductions in component costs by developing and optimizing products and specs; creating competition in the marketplace with multiple players providing deep energy retrofit solutions; and risk mitigation, as uncertainty related to new products and process is reduced. NYSERDA, 2019

<sup>3</sup> NYSERDA, RetrofitNY Cost-Compression Study Phase Two: Mid-Rise Opportunities for Cost-Effective Improvements in Net Zero-Level Performance Multifamily Residences, 2020

<sup>4</sup> Massachusetts Program Administrators – Massachusetts Special and Cross-Sector Studies Area, Residential and Low-Income Non-Energy Impacts (NEI) Evaluation FINAL (August 15, 2011): <https://ma-eeac.org/wp-content/uploads/Residential-and-Low-Income-Non-Energy-Impacts-Evaluation-1.pdf>



- Update the Massachusetts Technical Reference Manual (TRM)<sup>5</sup> to reflect the full estimated useful life (EUL) of all eligible measures – many 30 or 50 years – in multifamily housing. Specifically, we believe the following measures should be revisited:
  - Measure Code IE-BS-I, Building Shell – Insulation – IE Multi-Family (25 years)
  - Measure Code IE-BS-AS-MF, Building Shell – Air Sealing – IE Multi-Family (15 years)
  - Measure Code IE-BS-W, Building Shell – Weatherization (20 years)

Kickstarting deep energy retrofits across a diverse multifamily housing sector is the single most important effort that Mass Save can undertake to set the stage for the work needed to retrofit tens of thousands of units across the Commonwealth over the next 10 to 20 years. In short, it is critical to the State’s ability to meet the 50% reductions of greenhouse gas emissions legally required by the Climate Bill by 2030.

Thank you for your consideration.

Sincerely,

**Heather Clark**  
**Manager, Carbon-Free Buildings**

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<sup>5</sup> Mass Save Data Technical Reference Manual: <https://www.masssavedata.com/Public/TechnicalReferenceLibrary>