



# Zoning & Planning Committee Report

## City of Newton In City Council

**Tuesday, May 28, 2024**

Present: Councilors Baker (Chair), Oliver, Albright, Wright, Krintzman, Getz, Danberg, and Kalis

Also Present: Councilors Farrell, Leary, Humphrey, Block, Greenberg, Lobovits, Malakie, Kelley, and Gentile

City Staff: Anthony Ciccariello, Commissioner of Inspectional Services; Andrew Lee, Senior Assistant City Solicitor; William Ferguson, Co-Director of Sustainability; Ann Berwick, Co-Director of Sustainability; Liora Siles, Energy Coach; Barney Heath, Director of Planning; Jonathan Yeo, Chief Operating Officer; and Jaclyn Norton, Committee Clerk

All agendas and reports, both past and present can be found at the following link: [Zoning & Planning Committee | City of Newton, MA \(newtonma.gov\)](https://www.newtonma.gov/zoning-planning)

For more information regarding this meeting, a video recording can be found at the following link: [Zoning and Planning Committee - May 28, 2024 \(youtube.com\)](https://www.youtube.com/watch?v=...)

**#49-24      Discussion and possible adoption of an ordinance requiring electrification of all new construction and substantial renovations**  
HER HONOR THE MAYOR AND COUNCILORS ALBRIGHT, DANBERG, LEARY, HUMPHREY, KALIS, DOWNS, LIPOF, WRIGHT, MICLEY, BIXBY, AND GETZ requesting discussion and possible adoption of an Electrification Ordinance that would require all new construction and substantial renovations in Newton to be all-electric. This is in conjunction with the City's recent conditional approval by the State Department of Energy Resources (DOER) for participation in the Ten Communities Program.  
**Zoning & Planning Held 8-0 on 01/27/24; Public Hearing Set for 02/26/24**  
**Zoning & Planning Held 7-1 (Councilor Kalis Opposed) on 02/26/24**  
**Zoning & Planning Approved 7-0 on 03/11/24**  
**City Council Referred Back to Zoning & Planning 22-0-2 (Councilors Grossman and Micley Absent) on 03/18/24**  
**Action:      Zoning & Planning Approved 7-0 (Councilor Kalis Not Voting)**

**Note:** Ann Berwick, Co-Director of Sustainability outlined that the draft ordinance had been updated to reflect updated guidance from the Department of Energy Resources (DOER). In preparation for this meeting Ms. Berwick noted that in the new model rule from DOER it

clarifies that if an individual is building an addition that would qualify under the proposed ordinance that only that addition will need to comply with the ordinance. The proposed ordinance is attached. The rest of the house would not be required to switch to all electric but will need to meet efficiency standards outlined in the state energy code. Regarding these standards, they are focused on the HERS (Home Energy Rating System) and are 52 for mixed fuel and 55 for all electric. Later in the discussion it was clarified that the higher HERS rating for all electric is to provide an incentive of having less stringent HERS requirements if the building is all electric. Regarding what can be done to satisfy this HERS rating Anthony Ciccariello, Commissioner of Inspectional Services stated that it can include but not limited to upgrading windows, insulation, and appliances. Throughout the discussion it was reiterated that these requirements are part of the energy code and not affected by the proposed ordinance. The definitions in the ordinance are also the same as those enumerated in the state building code.

During the discussion Councilors asked what community outreach had been done and how the public will be notified once the ordinance goes into effect. Regarding community outreach Andrew Lee, Senior Assistant City Solicitor, stated that the city has conducted multiple public hearings on June 14<sup>th</sup>, 2023 and February 26<sup>th</sup> 2024 regarding this ordinance. Ms. Berwick added that for each public hearing, notice was sent out to a list of building professionals and that she has been notifying as many individuals as possible about this ordinance. As for what will be done to notify the public of these changes, Commissioner Ciccariello stated that he will look into the suggestions from Councilors regarding the creation of an FAQ, updates on the city website and additional outreach.

Councilors asked about the impact that this ordinance could have on historic buildings. Commissioner Ciccariello and Attorney Lee noted that a building can apply for historic designation with the city and that this would primarily relate to when the historic character of the building is impacted. Two Councilors also raised potential concerns regarding if this ordinance would require restaurants to get rid of a gas stove when moving into a new location and the impact on people needing to replace gas stoves with electric stoves. Ms. Berwick stated in relation to restaurants that there is an exemption in the ordinance that the restaurant can apply for regarding appliances that are necessary to the business. Regarding the impact on people needing to replace gas stoves with electric stoves, Ms. Berwick stated that an individual would only need to do this if the major renovation or addition includes the location of the gas stove. This Councilor stated that he will be proposing an amendment to the proposed ordinance to have a blanket exemption for gas cooking. Ms. Berwick and Attorney Lee will be sending this proposed amendment to DOER for preliminary review in advance of the City Council meeting on June 3, 2024.

Committee members voted 7-0 (Councilor Kalis Not Voting) on a motion to approve from Councilor Albright.

**#42-24 Request for Discussion and Ordinance to require energy use reporting**  
COUNCILORS ALBRIGHT, DANBERG and LEARY on behalf of the Newton Citizens Commission on Energy (NCCE), requesting discussion and an ordinance that would require large property owners (campuses and large commercial buildings) to report energy use and associated greenhouse gas emissions annually to the city of Newton, to be used to encourage reductions in said energy use and greenhouse gas emissions in accordance and support of the goals set forth in the Newton Climate Action Plan.

**Action:** **Zoning & Planning Held 8-0**

**Note:** The Chair stated that tonight's discussion will focus on a presentation from city staff and discussion amongst Councilors. At the June 10<sup>th</sup> Zoning & Planning Committee meeting the Committee will entertain public comment regarding this item with the Newton Citizens Commission for Energy beginning the public comment. William Ferguson, Co-Director of Sustainability, presented the attached presentation which covers the reasoning for crafting BERDO (Building Emissions Reduction and Disclosure Ordinance) and outlines the draft ordinance. Since the previous presentation on this ordinance there have been changes to the ordinance such as this ordinance only covering commercial buildings over 20,000 sf. In the previous iterations the ordinance also covered residential buildings over 20,000 sf including centrally heated residential condos. Mr. Ferguson stated that the administration is committed to adding these residential buildings to BERDO in April 2025. This delay in adding residential buildings to the ordinance is to allow the BERDO team to figure out challenges that present themselves when including residential. In terms of the impact on buildings, Mr. Ferguson stated that this will cover 293 buildings which contribute 23% of Newton's total Greenhouse Gas (GHG) emissions. Another change in the proposed ordinance from the last presentation is excluding electricity from emissions standards. This is due to state policy working to eliminate grid emissions over time and does not need to be covered under BERDO.

Under the proposed ordinance the buildings are broken down into four tiers to increase the number of buildings covered over time. The first tier will cover commercial buildings over 100,000 sf which consists of 47 buildings and the first energy and emission report would be due September 15, 2025. This tier would have its first compliance year for emissions being 2027 with 2028 being the first report under emissions compliance. During the discussion Councilors asked if the Department would have sufficient capacity to implement this ordinance. Mr. Ferguson stated that his department is in communication with the administration and evaluating what additional positions would potentially be needed. The attached presentation has the compliance timeline for the other tiers.

Councilors raised concerns over not including residential buildings in this draft of the ordinance. One of these Councilors proposed having residential buildings be subject to reporting requirements while full inclusion of residential buildings is being worked on. A Councilor also raised concern on having the largest buildings be the first tier. Mr. Ferguson stated that this is due to these buildings having more resources to do the reporting along with

being the smallest number of buildings which will aid the City in the rollout of this ordinance. Regarding cost, Mr. Ferguson stated that these would be similar in cost per square foot to the smaller buildings covered under BERDO. Councilors also raised concerns over potential complexity in reporting energy usage. Mr. Ferguson and Philip Eash-Gates from Synapse Energy Economics stating that the junior staff member at Synapse Energy consultant was able to be trained on the system and reported 30 City buildings in 15 hours. Once residential is added apartment building owners can submit a form to the utility company that would supply them with this information for reporting.

Regarding concerns about compliance with the proposed ordinance being cost prohibitive, Mr. Ferguson stated that the City is engaged in doing analysis with the owner of 181 Lexington Street. The Chair asked if this case study could be presented at the June 10<sup>th</sup> meeting. Councilors also asked about potential funding sources to help building owners comply with the proposed ordinance. Mr. Ferguson stated that there are rebates available from utility companies and he will look into other options available to building owners.

Committee members voted 8-0 on a motion to hold from Councilor Oliver.

**Referred to Public Facilities & Zoning & Planning Committee**

**#63-24**      **Requesting an update on the status of implementing the Climate Action Plan**  
 COUNCILOR ALBRIGHT requesting an update from the Sustainability Team and appropriate staff on the status of implementing Climate Action Plan measures, expanding municipal energy efficiency and renewable energy programs as follows: Newton Power Choice participation rates, municipal power purchasing contracts for gas and electricity; Solar Power Purchase Agreement including operational and PV installations under construction, municipal energy consumption (DOER report) Green Communities grant funded efficiency projects to date, Energy Coach/ "4 our Future" program and zoning ordinances both to increase building energy efficiency/renewables in the private sector and foster sustainable development patterns.

**Action:**      **Zoning & Planning Held 8-0**

**Note:**      The Chair noted that due to the late hour that he would entertain a motion to hold to have this discussion at an upcoming meeting. Councilors voted 8-0 on a motion to hold from Councilor Krintzman.

**#230-24**      **Reappointment of James Miller to the Auburndale Historic District Commission**  
 HER HONOR THE MAYOR reappointing James Miller, 85C Seminary Avenue, Auburndale as an alternate member of the Auburndale Historic District Commission for a term of office set to expire on June 6, 2027. (60 Days: 07/19/2024)

**Action:**      **Zoning & Planning Approved 8-0**

**Note:** The Chair read item #230-24 into the record and Councilors citing no objections voted 8-0 on a motion to approve from Councilor Krintzman.

The meeting adjourned at 10:24 pm.

**Respectfully Submitted,**

**R. Lisle Baker, Chair**

## Memorandum

To: Members of the Newton City Council Zoning and Planning Committee  
From: Ann Berwick, Co-Director of Sustainability  
Cc: Andrew Lee, Anthony Ciccariello  
Re: Proposed electrification ordinance: examples  
Date: May 30, 2024

As you may recall, the proposed electrification ordinance builds on the foundation of requirements for new construction and major renovations already in effect in Newton. This memorandum outlines some examples of what would be required in addition if the electrification ordinance is enacted. Please note that for individual situations, the Commissioner of Inspectional Services can provide specific information. These examples are designed to provide an overview.

There are some technical terms here that are worth clarifying at the outset.

First, there are terms that reference the scale of a renovation, such as “conditioned floor area.” Conditioned areas are those that would normally be heated and/or cooled and cover most areas in a typical dwelling, including the living room, kitchen, bedrooms, dining room, and living room. Unconditioned areas are those that typically have no heating/cooling system.

Second, a goal of the new building codes is for buildings to use less energy. In Newton, our building code uses the HERS (Home Energy Rating System) standard, which is a nationally recognized system for calculating a home's energy performance, to measure a building's energy efficiency. The HERS rating is based on a scale of 0 to 150, with 0 being a net-zero energy home (where the home generates as much energy as it consumes), 100 being a home built to the specifications of the so-called “HERS reference home” (built to 2006 national base building code standards), and 150 a home that is 50% less efficient than the HERS reference home. The HERS rating of a home can be improved (i.e., a lower score) with measures like weather stripping, insulation, high-efficiency appliances, good quality windows, etc.

Third, one of the exemptions in the proposed ordinance is for “fossil fuels for process loads for manufacturing, industrial, and commercial purposes.” The applicable regulation, 225 CMR 24.02, defines “process load” as “energy demand in commercial or industrial buildings that is not covered by the Massachusetts building energy code.” More specifically, process loads relate to the building's specific commercial process, for example, dry cleaning equipment in a dry cleaning store. The National Renewable Energy Laboratory refers to “plug and process loads” as building electrical loads that “typically do not provide comfort to the occupants.”  
<https://www.nrel.gov/docs/fy13osti/54175.pdf>

Fourth, the current Newton building codes already require that new construction and so-called “Major Renovations” (which includes additions as well as renovations) be made more energy efficient and made ready for electrification. Major Renovations are defined in the examples below, and are different for low-rise residential buildings as compared to other types of buildings. Importantly, the definition of Major Renovation is identical in the building codes and in the proposed electrification ordinance. Please keep in mind that the term Major Renovations includes additions above a certain size.

Here are some examples.

## Electrification Examples

### LOW-RISE RESIDENTIAL BUILDINGS

**Major Renovations:** Defined as additions over 1,000 sf or > 100% of conditioned floor area of existing building, or level 3 alterations (consuming over 50% of existing conditioned area) and >1,000 sf.

The Stretch Code requires the *entire* dwelling unit undergoing a Major Renovation to meet the new HERS standard (52 for mixed-fuel buildings; 55 for mixed-fuel with solar or all-electric; 58 for all-electric with solar).

- If an addition is added to an existing dwelling unit, the entire unit must meet the HERS standard; BUT...
- If an addition to an existing dwelling unit is an entirely (thermally- and fire-) separated unit, the existing separated unit does **not** need to meet the HERS standard. The new unit does.

### Electrification ordinance requires:

For additions that qualify as a Major Renovation, the **addition must be fully electrified.**

- The owner may keep an existing fossil-fuel fired system to serve the existing portions of the building.
- The owner **may not** extend the existing fossil-fuel fired HVAC or domestic hot water distribution lines into the addition (e.g., the bathroom and kitchen in the addition must have electrified hot water).

For Major Renovations, **the renovated area must be fully electrified.**

- The remaining portions of the building may continue to be served by an existing fossil fuel-fired system, but an existing fossil fuel-fired HVAC or domestic hot water system may not be extended into the altered area.

**Important note #1: Electrification is required only in new construction and Major Renovations. In other situations, electrification is not required; e.g., a new gas stove can be installed and attached to the existing piping in an existing kitchen if the kitchen is not subject to a Major Renovation. Replacing all the windows in a home is not a Major Renovation, nor is adding a heat pump to help reduce the use of a furnace.**

**Important note #2: The electrification ordinance has no meaningful effect on the HERS rating. The required HERS rating is 52 or lower for a residential building that uses both fossil fuels and electricity as a fuel source (mixed-fuel building). The required HERS rating is 55 or lower for a residential building that uses only electricity for energy. Using electric appliances in a mixed-fuel building will not change the applicable HERS standard. As noted in this document, for Major Renovations, the electrification ordinance does not require that the entire building be electrified.**

#### **Examples of Major Renovations:**

*Alteration example: A Major Renovation of the first floor of a single-family home.*

- If the alteration includes a kitchen and/or laundry, all kitchen and laundry appliances must be electrified. Domestic hot water serving the renovated area must be electric.
- The entire house must meet the applicable Stretch Code HERS requirement.

*Alteration example: Single-family home; two stories; entire second floor is renovated; the house is heated by a gas boiler prior to the alteration.*

- The second floor must be all-electric. It may not be heated by the existing gas boiler.
- The remainder of the house may still be heated by the gas boiler and may continue to use other fossil fuel combustion equipment.
- The entire house must meet the applicable Stretch Code HERS requirement.

*Addition example: Three bedrooms and a bathroom are added to an existing single-family home.*

- The entire addition must be all-electric.
- The entire dwelling unit must meet the applicable stretch code HERS requirement, which normally require weatherization upgrades to the first floor as well.



*Addition example: A third unit is added to the rear of an existing two-family home. The unit is entirely thermally- and fire-separated from the main house.*

- The main house does not need to meet the Major Renovations HERS standard or be fully electrified.
- The new unit must meet the Stretch Code and electrification ordinance requirements.

*Addition example: Single-family home; addition of garage and accessory apartment over garage, thermally- and fire-separated from the main dwelling unit; rest of the house is heated by a gas boiler.*

- The garage and apartment must be all-electric.
- The remainder of the house can still be heated by the gas boiler and may continue to use other fossil fuel-fired combustion equipment.
- The duct work for heating the remainder of the house may not be extended to the garage and apartment.
- Only the addition must meet the applicable Stretch Code HERS requirement. The existing single-family home does not need to meet the new HERS requirement.

## **BUILDINGS OTHER THAN LOW-RISE RESIDENTIAL**

**Major Renovations:** Defined as additions over 20,000 sf or > 100% of the conditioned floor areas of the existing building, or level 3 alterations (exceeding 50% of the existing conditioned floor area) > 20,000 square feet.

The Stretch Code requires **only** the triggering renovations to meet the Comcheck requirements. Comcheck is the U.S. Department of Energy commercial energy compliance software tool, which determines whether buildings meet certain prescriptive requirements. Note that this is different from how the Stretch Code addresses the HERS requirements.

In other respects, for purposes of the electrification ordinance, the non-residential building examples are analogous to the low-rise residential examples, e.g., for a Major Renovation, the renovated area must be fully electrified; the remaining portions of the building may continue to be served by an existing fossil fuel-fired system, but an existing fossil fuel-fired HVAC system may not be extended into the renovated area.

**See these memos for more information on the commercial and residential building codes.**

CITY OF NEWTON

IN CITY COUNCIL

ORDINANCE NO.

May , 2024

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NEWTON AS FOLLOWS:

- I. That the Revised Ordinances of Newton, Massachusetts, 2017, as amended, be and are hereby further amended with respect to **Chapter 5 Public Buildings and Inspectional Services** by **INSERTING** a new **Article VI** after **Article V. Design Review Committee** as follows:

**ARTICLE VI.**  
**FOSSIL FUEL-FREE ORDINANCE**

**Sec. 5-59. Regulation of use of Fossil Fuels in New Construction and Major Renovation Projects.**

- (a) Purpose: The city adopts this ordinance in order to enable the city to participate in the Commonwealth of Massachusetts Fossil Fuel-Free Demonstration Project, 225 CMR 24.00. The purpose of the Fossil Fuel-Free Demonstration Project is to restrict and prohibit new building construction and Major Renovation Projects that are not fossil fuel-free in ten communities in Massachusetts. This ordinance will protect the health and welfare of the city's inhabitants and the environment by reducing greenhouse gases, which cause climate change, and by reducing other air pollutants.

This ordinance requires new construction and Major Renovation Projects to use electricity instead of fossil fuels for heating and cooling systems and cooking and clothes drying appliances; and, for hot water, to use either electricity or thermal solar.

- (b) Definitions: As used in this section, the following terms shall be defined as set forth herein, unless otherwise stated:

*Commissioner*: means the Commissioner of Inspectional Services of the City of Newton, as established by Section 5-16 of the ordinances of the city.

*Department:* means The Massachusetts Department of Energy Resources, as established by MGL chapter 25A.

*Fossil Fuel-Free Demonstration Project:* means the project codified by the entirety of 225 CMR 24.00, enabling ten communities designated by the Department to require new construction and Major Renovation Projects to be fossil-fuel free, notwithstanding MGL chapter 40A; MGL chapter 142, section 13; MGL chapter 164; or any other general or special law to the contrary.

*Hospitals or Medical Offices:* means a facility licensed or approved by the Department of Public Health to provide health care, including clinics licensed as health care facilities and facilities that provide substance use disorder treatment services, including outpatient withdrawal management, opioid treatment programs, office-based opioid treatment programs, acute treatment services (inpatient detoxification), and clinical stabilization services.

*Major Renovation Project:* means (a) low-rise residential additions over 1,000 square feet and additions exceeding 100% of the conditioned floor area of the existing dwelling unit; (b) additions over 20,000 square feet and additions that exceed 100% of the conditioned floor areas of the existing building for all building use types except low-rise residential; (c) Level 3 Alterations as defined in the International Existing Building Code (IEBC 2021) (which exceed 50% of the existing conditioned floor area) exceeding 1,000 square feet for low-rise residential, or exceeding 20,000 square feet for all other building uses; or (d) Change of use of over 1,000 square feet per International Energy Conservation Code (IECC 2021) Sections R505; or (e) change of use of over 20,000 square feet or change of use of 100% of the conditioned floor areas of the existing building for all building use types except low-rise residential, International Energy Conservation Code (IECC 2021) Sections C505.

*Research Laboratories for Scientific or Medical Research:* means a building in which a laboratory procedure or research activity occurs, and where the building has an average ventilation at full occupancy greater than 0.5 cfm/sf. Such buildings shall provide the ventilation design documentation described in 225 CMR 23.00, Section C103.2, at the time of building permitting.

*Specialized Code:* means the building code in 225 CMR 22.00 and 23.00; including Appendices RC and CC, which add residential and commercial appendices to the Massachusetts Stretch Energy Code.

*Stretch Code:* means the building code in 225 CMR 22.00 and 225 CMR 23.00.

- (c) Applicability: The fossil fuel restriction set forth in this ordinance applies to residential and commercial buildings located in the city that qualify as new construction or Major

Renovation Projects, except as listed in the section herein entitled "Exceptions."

(d) Exceptions: The requirements of this ordinance do not apply to any of the following:

- (1) Research Laboratories for Scientific or Medical Research;
- (2) Hospitals or Medical Offices;
- (3) Freestanding outdoor cooking appliances that are not connected to the building's natural gas or propane infrastructure;
- (4) Freestanding outdoor heating appliances that are not connected to the building's natural gas or propane infrastructure;
- (5) Emergency generators;
- (6) Appliances to produce potable or domestic hot water from centralized hot water systems in buildings with a gross floor area of at least 10,000 square feet, provided that the architect, engineer, or general contractor on the project certifies by affidavit that no commercially available electric hot water heater exists that could meet the required hot water demand for less than 150% of installation costs, compared to the costs of complying only with the requirements of the applicable (i.e., residential or commercial) Stretch or Specialized Code;
- (7) Multi-family buildings over 12,000 square feet with permit application filed prior to January 1, 2027 may utilize gas or propane for domestic water heating as the only combustion equipment; or
- (8) Fossil fuels for process loads for manufacturing, industrial, and commercial purposes.

(e) Waivers: The Commissioner may grant a waiver to the provisions of this ordinance for:

- (1) Major Renovation Projects if an architect, engineer, or general contractor on the project certifies by affidavit that compliance with the requirements of the ordinance will increase the costs of the project by fifty (50%) percent or more, compared to the costs of complying only with the requirements of the applicable (i.e., residential or commercial) Stretch Code;
- (2) New construction and Major Renovation Projects if the electric utility company notifies the City, in writing, that the project is unable to comply with the provisions of this ordinance because of insufficient electric grid, transmission, distribution, or related electrical infrastructure capacity in the particular location necessary for the project.

- (f) Application Requirements: When applying for a building permit for new building construction or a Major Renovation Project the applicant must submit documents with the application that identify the heating and cooling and hot water systems and cooking and clothes drying appliances that will be used in the new building or, in the case of a Major Renovation Project, that will be used in the portions of the building that are within the scope of the Major Renovation Project.
- (g) Compliance: The Commissioner shall not issue any building permit for the construction of a new building or Major Renovation Project unless the applicant submits the documentation set forth in the Section herein titled “Application Requirements.” The Commissioner shall not issue a certificate of occupancy for any building subject to this ordinance prior to inspection and confirmation that the heating and cooling, hot water systems, and cooking and clothes drying appliances used in the building conform to the applicant’s documents submitted pursuant to the Section herein entitled “Application Requirements.”
- II. That the new **Article VI. Fossil-Free Ordinance.** as ordered in Paragraph I herein shall be effective on January 1, 2025, and shall apply to all building permits, special permits, and comprehensive permits issued on or after the effective date.
- III. That the City of Newton hereby adopt the following amendments to the Specialized Code. These changes are enforceable by the Commissioner, shall be effective on January 1, 2025, and shall apply to all building permits, special permits, and comprehensive permits issued on or after the effective date.
  - a. Low-rise Residential Code (225 CMR 22 Appendix RC)
    - i. Sections RC102 and RC101 “Zero Energy Pathway” and “Mixed Fuel Pathway” shall not be permitted for use for new construction or Major Renovations.
  - b. Commercial and All Other (225 CMR 23 Appendix CC)
    - i. Sections CC103 and CC105 “Zero Energy Pathway” and “Mixed-Fuel Pathway” shall not be permitted for new construction or Major Renovations, with the following exceptions:
      - 1. Research Laboratories for Scientific or Medical Research as defined in paragraph I of this Order;
      - 2. Hospitals or Medical Offices as defined in paragraph I of this Order;
      - 3. Multi-family buildings over 12,000 square feet with permit application filed prior to January 1, 2027 may utilize gas or propane for domestic water heating as the only combustion equipment; or

4. Buildings heated with Clean Biomass Heating Systems as defined in 225 CMR 23, as the only combustion equipment;

Approved as to legal form and character:

ALISSA O. GIULIANI  
City Solicitor

Under Suspension of Rules  
Readings Waived and Adopted

EXECUTIVE DEPARTMENT  
Approved:

(SGD) CAROL MOORE  
City Clerk

(SGD) RUTHANNE FULLER  
Mayor

DRAFT

# City of Newton Proposed BERDO

Building Emissions Reduction and Disclosure  
Ordinance

May 28, 2024

Zoning and Planning Committee of the Newton City Council

## City Council Resolution Calling for BERDO

- Resolution passed unanimously in April 2022
- “NOW, THEREFORE BE IT RESOLVED, That the City Council commits to developing an ordinance that will require large property owners to report energy use and emissions to the city annually, and in subsequent years demonstrate reductions in energy use and emissions to meet benchmarks established for their building type, with the goal of becoming carbon neutral by 2050.”

## What is BERDO?

- BERDO is an ordinance that will require large buildings to report energy and emissions to the City.
- It requires large buildings to gradually reduce GHG emissions over time to zero by 2050.
- BERDO is necessary for the City to meet its Climate Action Plan target of zero emissions by 2050.

## Discussion

- BERDO Team
- Why BERDO
- Buildings Covered
- Compliance Timeline
- Electricity Excluded from Emission Standard
- Reporting Simplified



# Discussion

- Boston as a Model
- Rate of Emissions Reduction
- Compliance Flexibility
- Example Compliance Pathways
- Enforcement
- Emissions Investment Fund

## Newton BERDO Team

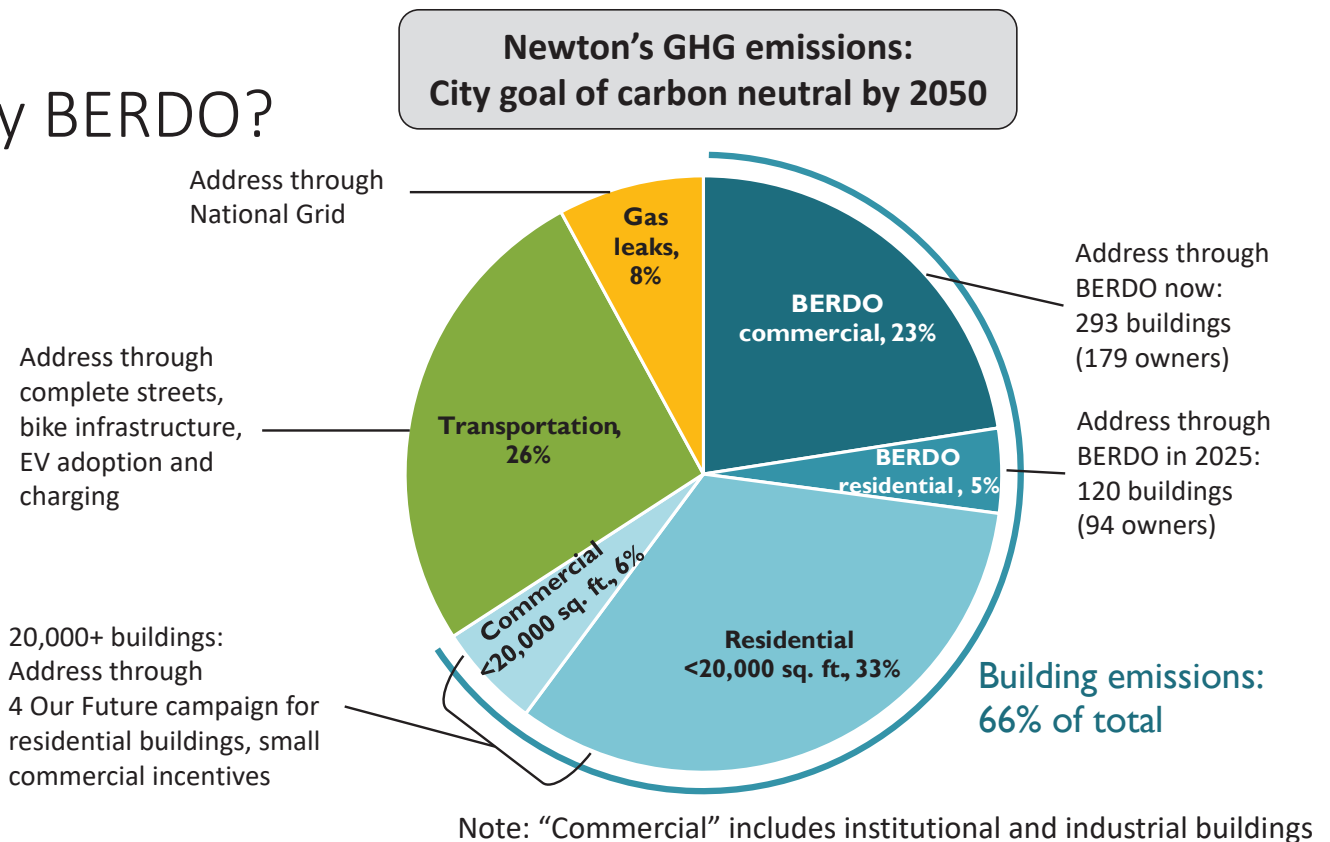
Subject matter experts developing BERDO policy since March 2022

- **City Staff:**
  - **Policy leads:** Bill Ferguson, Ann Berwick, Liora Silkes, Andrew Lee
  - **Coordinating with:** Josh Morse, Barney Heath, John Sisson
- **NCCE:** Halina Brown, Phil Hanser, Michael Gevelber
- **Green Newton:** Dan Ruben
- **Consultant:** Philip Eash-Gates, Synapse Energy Economics

# Why BERDO?

- Efficient approach to advancing Climate Action Plan targets through 2050
- Substantially reduces Newton’s total emissions by regulating a small number of buildings
  - 293 commercial buildings, 179 owners, 19.3 million sq. ft.
- **Buildings:** 1.3% of buildings. 0.7% of owners, 14% of gross floor area (GFA)
- **Emissions:** 34% of buildings emissions and 23% of Newton emissions
- Consistent with local strategies in Greater Boston area
  - Boston BERDO 2.0 (2021)
  - Cambridge BEUDO amendments (2023)
  - Watertown BERDO (planned 2024)

# Why BERDO?



## Buildings Covered

- BERDO covers commercial buildings
- Exception: state and federal buildings
- 293 buildings  $\geq 20,000$  sq. ft. GFA
- Mayor proposes to add residential buildings  $\geq 20,000$  sq. ft. GFA in April 2025, including centrally heated residential condos

## Policy Design: Covered Buildings

Scope	Number of buildings	Number of owners	Gross floor area (sq. ft.)	Emissions (Metric tons CO <sub>2</sub> e)	% of Newton emissions, all sectors
All buildings $\geq 20,000$ sq. ft. GFA	413	267	26,624,758	202,794	28%
Only commercial buildings $\geq 20,000$ sq. ft. GFA. (No residential buildings).	293	179	19,308,136	167,860	23%

## Proposed Covered Buildings

- Large impact by regulating a small number of buildings
  - 293 commercial buildings, 179 owners, 19.3 million sq. ft.
- **Buildings:** 1.3% of buildings, 0.7% of owners, 14% of gross floor area (GFA)
- **Emissions:** 34% of buildings emissions and 23% of Newton emissions

Tier	Description	Count of Buildings	Number of Owners	Total GFA (sq. ft.)	Emissions (metric tons CO <sub>2</sub> e)	
1	Commercial, GFA ≥ 100,000 sq. ft.	47	29	8,631,279	77,774	46%
2	Commercial, GFA 50,000–99,999 sq. ft.	70	41	4,948,885	42,246	25%
3	Commercial, GFA 35,000–49,999 sq. ft.	67	51	2,825,059	23,480	14%
4	Commercial, GFA 20,000–34,999 sq. ft.	109	94	2,902,913	24,381	15%
<b>Total</b>	<b>All covered buildings</b>	<b>293</b>	<b>179*</b>	<b>19,308,136</b>	<b>167,860</b>	<b>100%</b>

\*Note that the total number of covered building owners is less than the sum of the rows, because some owners appear in multiple tiers.

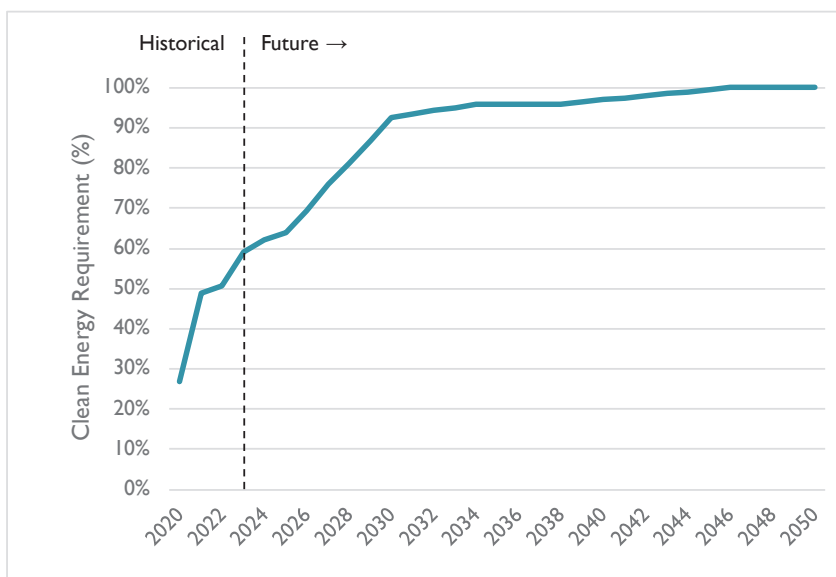
## Proposed Compliance Timeline

Building Tier	Building Tier Description	Buildings count	1st Energy and Emissions Report Due	1st Emissions Compliance Year	1st Report under Emissions Compliance
Tier 1	Commercial ≥ 100,000 sq. ft. GFA	47	Sept. 15, 2025	2027	Sept. 15, 2028
Tier 2	Commercial 50,000–99,999 sq. ft. GFA	70	Sept. 15, 2026	2028	Sept. 15, 2029
Tier 3	Commercial 35,000–49,999 sq. ft. GFA	67	Sept. 15, 2026	2029	Sept. 15, 2030
Tier 4	Commercial 20,000–34,999 sq. ft. GFA	109	Sept. 15, 2026	2030	Sept. 15, 2031

# Electricity Excluded from Emission Standard

- Because State policy eliminates grid emissions over time, BERDO can exclude electricity
- Greatly simplifies reporting and compliance
  - Will cover onsite natural gas, oil, and propane emissions only
  - Owners will report electricity use, but not electricity emissions
- Reporting is covered in more detail later

## Massachusetts Clean Electricity Regulations



Source: [Massachusetts Department of Environmental Protection 310 CMR 7.75: Clean Energy Standard \(CES\)](#)

- Combined clean and renewable electricity procurement mandates:
  - 92 percent by 2030
  - 100 percent by 2050
- Technologies included in statutes:
  - Solar
  - Wind
  - Ocean
  - Fuel cells with qualified fuel
  - Qualified landfill methane gas
  - Large hydro
  - Low-impact, small hydro
  - Qualified biomass
  - Geothermal
  - Nuclear
  - Municipal waste

## Newton BERDO Simplifies Reporting

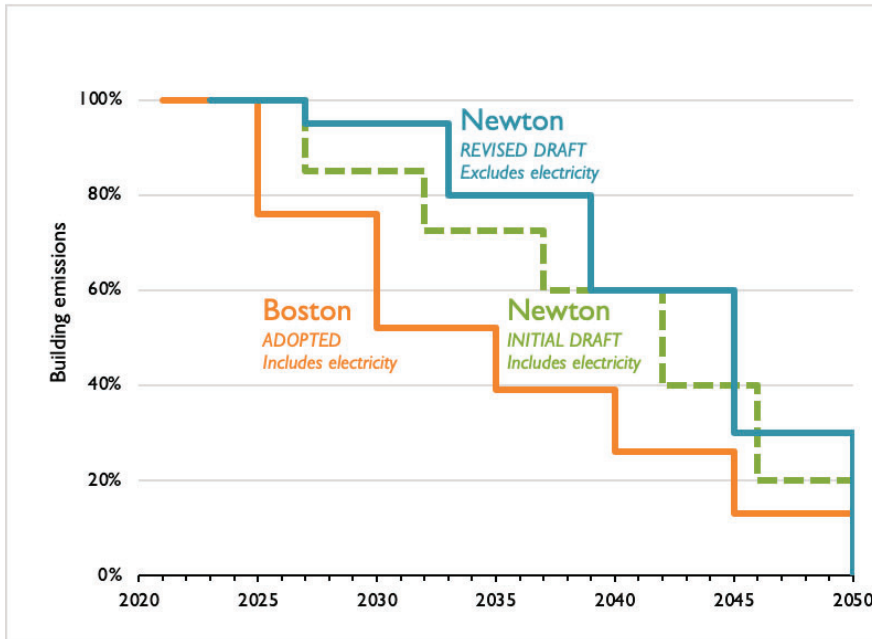
- Submit reports via ENERGY STAR Portfolio Manager
  - Free, industry-standard, widely adopted webtool
  - Junior staff learned the tool and reported 30 City buildings in about 15 hours
- Report all energy use—electricity, natural gas, fuel oil, propane
  - Annually for the prior year
  - One bill per utility account provides 12 months data
  - Receipts for delivered fuels—fuel oil and propane
- The City will provide training and education

## Boston as a Model: Proposed Differences

- **Building types**: Initially excludes residential—apartments and condos
- **Scale**: 47 buildings in year 1 (vs. 3,975 in Boston), ramping to 293; lower staff demand
- **Scope**: Includes direct emissions only; excludes electricity emissions
- **Timeline**: Requirements phased in over 4 years, beginning in 2027 (vs. 2025 in Boston)
- **Compliance periods**: aligned with capital planning cycles
- **Stringency**: Reductions are more gradual; first major decrease in 2033 (vs. 2025 in Boston).
- **Enforcement**: Penalties begin in year 3 of emission standards

# BERDO: Proposed Rate of Emissions Reduction

In light of stakeholder input, revised trajectory is more gradual than Boston’s and than proposed at prior ZAP Committee hearing (Nov. 13, 2023).



# Newton Proposed Rate of Emissions Reduction

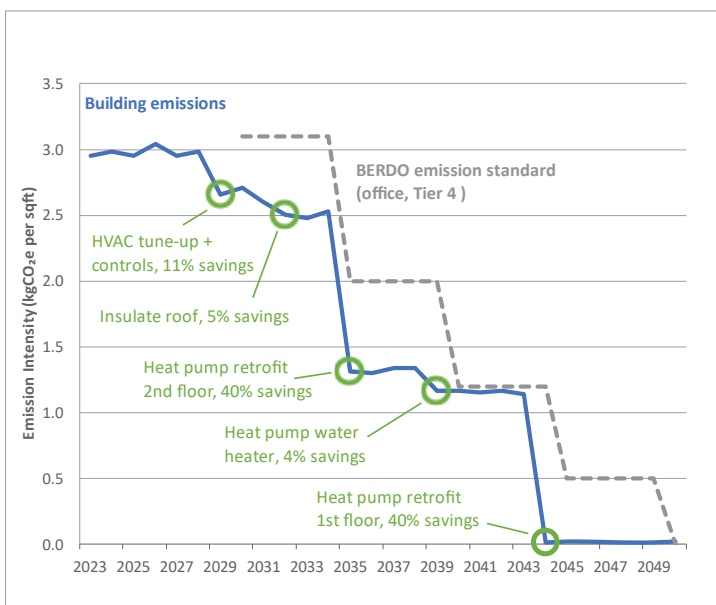
Building use	Emission standards (kgCO <sub>2</sub> e/sq. ft.)				
	Period 1	Period 2	Period 3	Period 4	Period 5
Assembly	6.1	3.7	2.3	1.1	0.0
College/University	9.5	5.7	3.5	1.5	0.0
Education	4.1	2.8	1.9	0.9	0.0
Food Sales & Service	6.8	4.4	3.2	1.5	0.0
Healthcare	14.3	9.2	6.5	3.2	0.0
Lodging	4.6	3.1	2.1	1.0	0.0
Manufacturing/Industrial	3.9	2.9	2.2	1.0	0.0
Office	3.1	2.0	1.2	0.5	0.0
Retail	3.4	2.3	1.4	0.6	0.0
Services	6.5	4.2	2.9	1.4	0.0
Storage	2.5	1.8	1.3	0.6	0.0
Technology/Science	14.6	10.7	6.7	2.8	0.0

*Includes direct GHG emissions only (electricity emissions excluded)*

# Proposed Compliance Flexibility

- **Phased implementation:** Tiers by building size phased in over time
- **Penalties delay:** Not levied prior to 3<sup>rd</sup> year of emissions requirement
- **Portfolios:** Combine emissions rating of 2 or more buildings
- **Individual Compliance Plans:** Allows a change of schedule
  - Choose a base year from 2013 to now and follow percentage-based reduction schedule
  - Period 1: 95%, Period 2: 80%, Period 3: 60%, Period 4: 30%, Period 5: 0%
- **Hardship Plans:** Allows change of emissions
  - Accommodates unique circumstances or conditions
  - Considerations: financial hardship, regulatory or contractual restriction, technical or operational constraint (e.g., utility service electrical capacity)
- **Multiple Compliance Pathways:** Energy efficiency, phased electrification, alternative compliance payment (ACP)

## Compliance Pathway Example



### **Building profile:**

- 30,000 sq. ft. office building
- Built 1980, 2-story
- Natural gas use
  - Space heating (95%)
  - Water heating (5%)
- New roof needed by 2032
- Separate heating systems for 1<sup>st</sup> and 2<sup>nd</sup> floors



# Enforcement

- Non-compliance penalties begin the 3<sup>rd</sup> year of the effective date of emissions requirements
- Penalties are \$300 per day (Boston maximum of \$1,000 per day)
- Penalties for:
  - Failure to submit a report
  - Inaccurate report
  - Failure to meet emissions standard

# Proposed Emissions Investment Fund

- Fines, fees, and penalties are placed in a special City fund
- Fund to be administered by the Climate/Sustainability Office and can be used for:
  - Projects that benefit environmental justice populations in Newton
  - Costs to the City to administer BERDO
  - Costs to the City to comply with BERDO
  - Costs to local non-profits (such as affordable housing providers) to comply
  - Education related to implementation of BERDO

# Extra Slides

## Building Performance Standards in the United States



As of December 2023  
Source: IMT

## Residential Context

- Mayor proposes to add residential buildings  $\geq$  20,000 sq. ft. GFA in one year, April 2025. Includes adding centrally heated condos.
- Amending in 2025 does not delay residential implementation because they are in Tier 3 which begins in 2029 and Tier 5 which begins 2031.
- Residential  $\geq$  20,000 sq. ft. GFA accounts for 5% of emissions, commercial accounts for 23%
- One-year delay allows additional time for planning and evaluation.
- The Cambridge City Council removed residential from the emissions requirement last June 2023. Through thorough planning, Newton has a better chance of including residential in BERDO.

## Remaining Issues with Residential Bldgs.

BERDO Team working with residential owners on the following issues:

- Understanding the cost impact on market price housing costs.
- Understanding the cost impact on affordable housing.
- Determine ways to deal with cost impacts on housing.
- Identifying contacts for condo associations.
- Identifying centrally heated condo buildings.
- Identifying availability and cost of new electrification technologies.
- Identifying utility incentives for technologies.

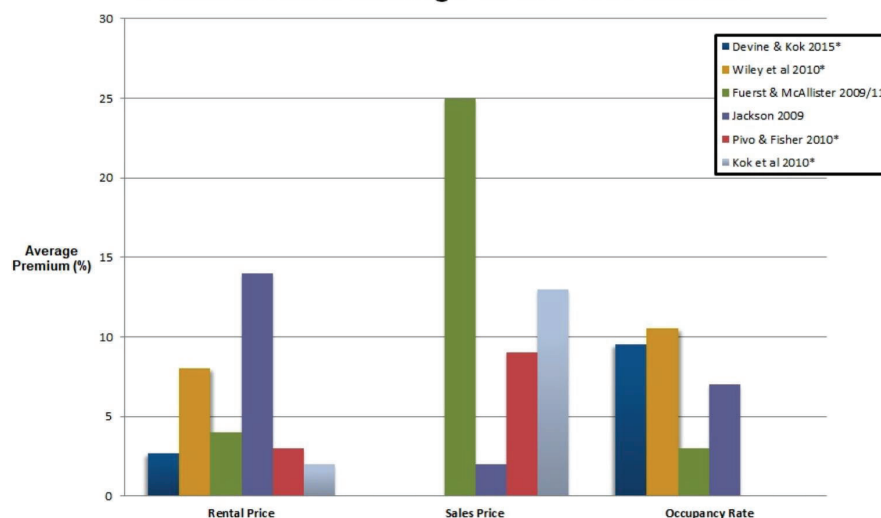
# Residential Buildings

- Extensive BERDO Team discussions about including in BERDO
- Initially excluded to give BERDO Team additional time to assemble information, evaluate costs, develop case studies, and meet with stakeholders
- Table shows potential impact of adding residential, including +5% of citywide emissions

Tier	Description	Count of Buildings	Number of Owners	Total GFA (sq. ft.)	Emissions (tons CO <sub>2</sub> e)	(% total GHG)
R1	Residential, ≥50,000 sq. ft.	37	35	4,988,829	23,721	+3.4%
R2	Residential, 20,000–49,999 sq. ft.	83	60	2,356,977	11,427	+1.6%
<b>Total</b>	<b>All Potential Res. Buildings</b>	<b>120</b>	<b>94</b>	<b>7,198,737</b>	<b>35,148</b>	<b>+5%</b>
<b>Total</b>	<b>All Covered Buildings</b>	<b>413</b>	<b>267</b>	<b>26,506,873</b>	<b>201,930</b>	<b>28%</b>

# Potential Market Value Impacts

## Added Value of ENERGY STAR-Labeled Commercial Buildings in the U.S. Market

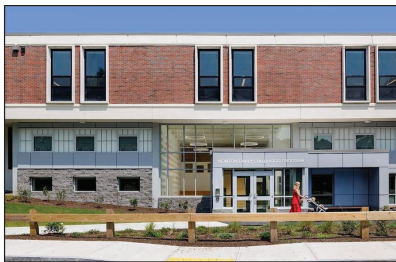


Source: Institute for Market Transformation

# Retrofit Case Examples: Cost to Achieve Zero Emissions

- BERDO Team evaluated completed projects, reviewed literature, and obtained quotes
- Net incremental costs to building owners typically in the range of \$5-20 per sq. ft.

Building	Type	Location	Size (sq. ft.)	Description	Project cost		Net cost		
					\$	\$/sq. ft.	\$	\$/sq. ft.	
Newton Early Childhood Program	Education	Newton	42,000	All-electric heat pumps	\$1,570,600	\$37.4	-\$176,000	-\$4.2	Net cost less standard gas boiler with heating distribution system
Auburndale Library	Services	Newton	5,500	All-electric heat pump, insulation, air sealing	\$75,000	\$13.6	\$30,400	\$5.5	Net cost less standard gas boiler after rebate
Apartment	Residential	Newton	25,000	All-electric central heat pump and water heater	\$415,000	\$16.6	\$227,500	\$9.1	Net cost less standard gas boiler



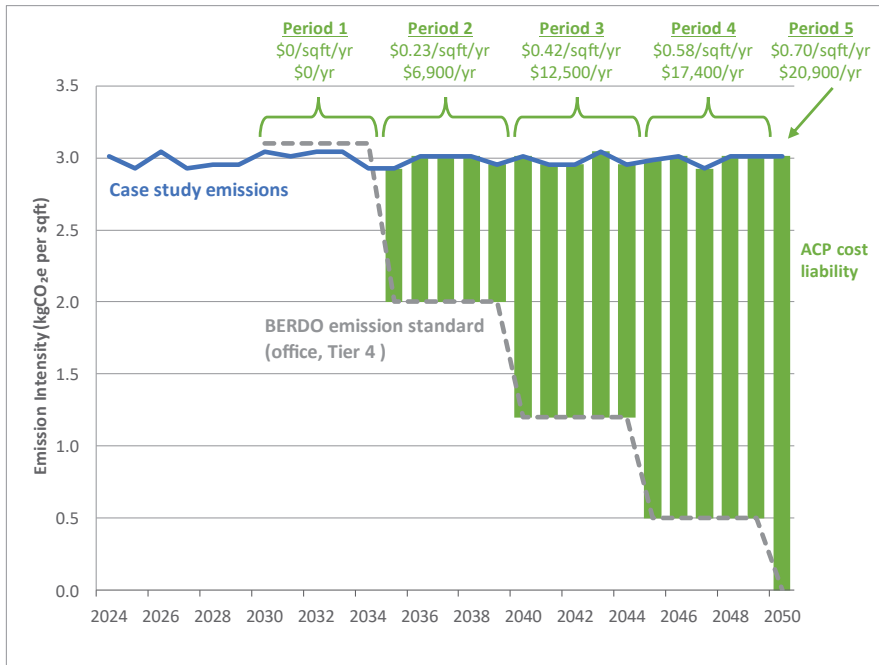
# Retrofit Case Examples: Cost to Achieve Zero Emissions

TOTAL	RESIDENTIAL									COMMERCIAL					
	Single Family			Small Multifamily			Large Multifamily			Small & Medium			Large Commercial		
	Low	High	Per (Unit)	Low	High	Per (Unit)	Low	High	Per (Unit)	Low	High	Per (Unit)	Low	High	Per (Unit)
Benchmarking							\$580	\$750	building	\$580.00	\$750.00	building	\$580.00	\$750.00	building
Basic Efficiency 10-14%	\$3,100	\$5,400	unit	\$2,600	\$4,300	unit	\$2,300	\$3,800	unit	\$2.60	\$4.20	sq ft	\$2.60	\$4.20	sq ft
Efficiency 15-30%	\$8,200	\$12,200	unit	\$7,200	\$10,200	unit	\$6,600	\$9,200	unit	\$8.60	\$11.50	sq ft	\$8.60	\$11.50	sq ft
Deep Energy Retrofit 30%+	\$20,600	\$33,500	unit	\$19,000	\$30,200	unit	\$18,100	\$28,500	unit	\$33.65	\$40.36	sq ft	\$33.65	\$40.36	sq ft
Space Heating/Cooling Electrification	\$19,500	\$20,500	unit	\$9,000	\$11,000	unit	\$11,600	\$12,200	unit	\$4.00	\$11.33	sq ft	\$19.00	\$28.00	sq ft
Water Heating Electrification	\$3,000	\$3,100	unit	\$1,180	\$2,740	unit	\$890	\$1,180	unit	\$0.79	\$0.88	sq ft	\$0.44	\$0.52	sq ft
Dryer Electrification	\$1,000	\$1,800	unit	\$1,300	\$2,600	building	\$1,300	\$2,600	building			sq ft			sq ft
Miscellaneous										\$1.50	\$2.00	sq ft	\$1.50	\$2.00	sq ft
Cooking Electrification	\$1,400	\$2,900	unit	\$1,400	\$2,900	unit	\$1,400	\$2,900	unit	\$16.00	\$20.00	sq ft of kitchen space	\$16.00	\$20.00	sq ft of kitchen space
Gas Disconnection	\$400	\$600	unit	\$600	\$800	building	\$600	\$800	building	\$800.00	\$1,000	building	\$1,200	\$1,600	building
Panel up-grades	\$4,400	\$4,500	unit	\$11,540	\$89,600	building	\$179.2k	\$281k	building	\$20k	\$40k	building	\$68k	\$128k	building

Source: Jones, B. 2021.

Costs based on published literature, case studies, construction cost estimators, and interviews with industry professionals.

# Alternative Compliance Payment (ACP) Example

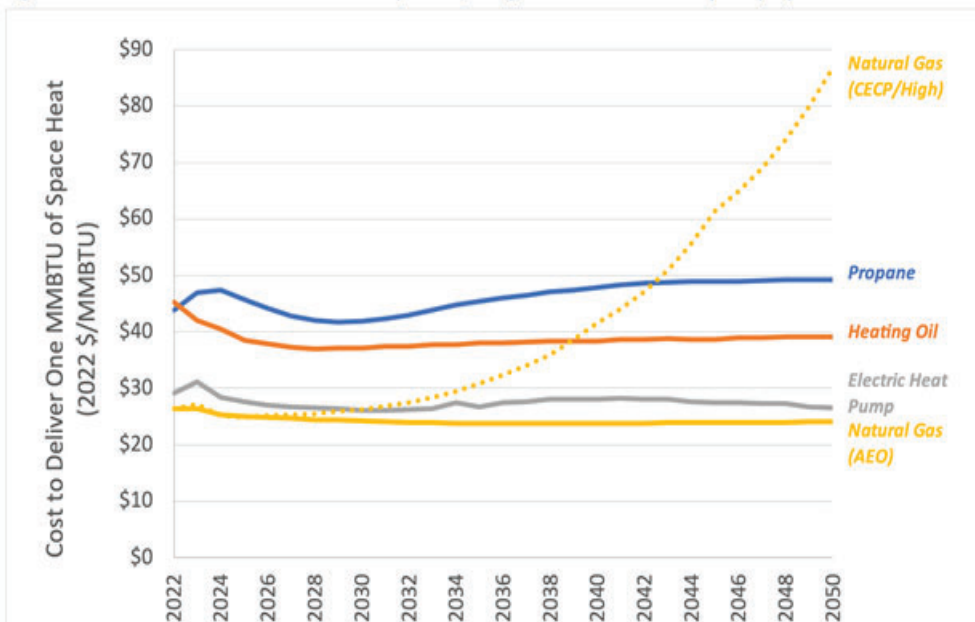


## Building profile:

- 30,000 sq. ft. office building
- Natural gas use, annual:
  - 1,685 MMBtu
  - \$28,350
  - \$0.95 per sq. ft.
- ACP costs:
  - \$0 through 2034
  - Rises to \$0.70 per sq. ft. (\$20,900 total) per year
  - 2050 Cumulative: \$205,000

# Energy Operating Costs for Heating

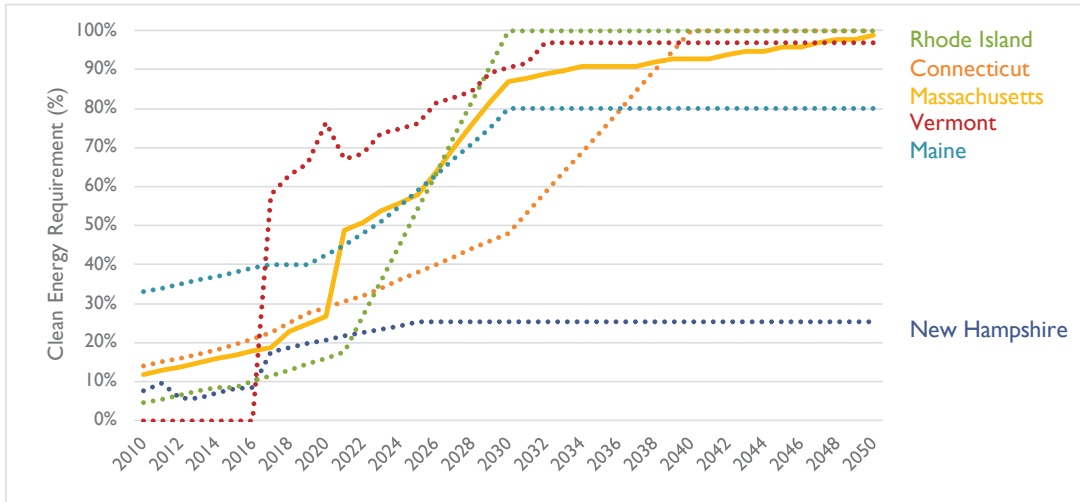
Figure 4. Residential delivered heat cost comparison, using AEO 2023-based fuel price projections



CECP = MA Clean Energy and Climate Plan  
 AEO = U.S. EIA Annual Energy Outlook

# New England Clean Energy Regulations

Most other states in New England have similar requirements

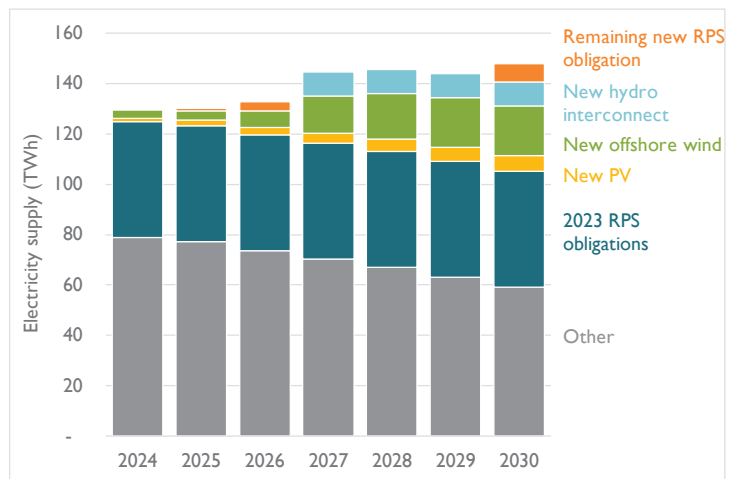


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 --- Compliance Review 2018, Compliance Review 2017, Compliance Review 2016, Compliance Review 2015.  
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# New England Clean Energy Regulations

- In 2022, New England achieved greater than 55% clean energy supply
- New renewable projects are needed to meet state mandates by 2030
- Planned offshore wind, PV, and hydro interconnect projects will meet most of the requirements
- Remaining obligations not covered by planned projects range from 1% of load in 2025 to 5% in 2030, with excess production in some years
- Remaining obligations can be met in several ways
  - New renewable projects that are not yet planned
  - Renewable imports from adjacent grid regions
  - "Banked" renewable energy certificates
- Potential offshore wind and transmission project delays may pose a risk to meeting states' obligations

New England Electricity Supply and Clean Energy Requirements

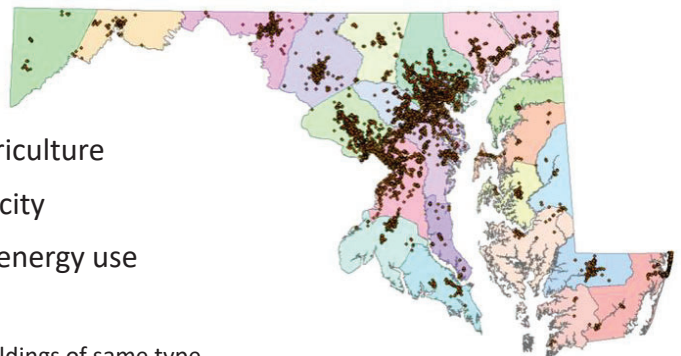


# Planned Offshore Wind Projects

Location	Name	Completion Date	Capacity (MW)	Current Status	Offtaker State
ME	New England Aqua Ventus I	2024	12	Permitting	ME
MA/RI	Revolution Wind	2026	704	Permitting	RI (400 MW) and CT (304 MW)
MA	Vineyard Wind 1	2024	800	Under Construction	MA
MA	SouthCoast Wind 1a	2028	804	Permitting	MA
MA	SouthCoast Wind 1b	2029	400	Permitting	MA
MA	New England Wind I	2027	800	Permitting	MA
MA	New England Wind II	2027	1232	Permitting	MA

## Maryland Building Energy Performance Standards

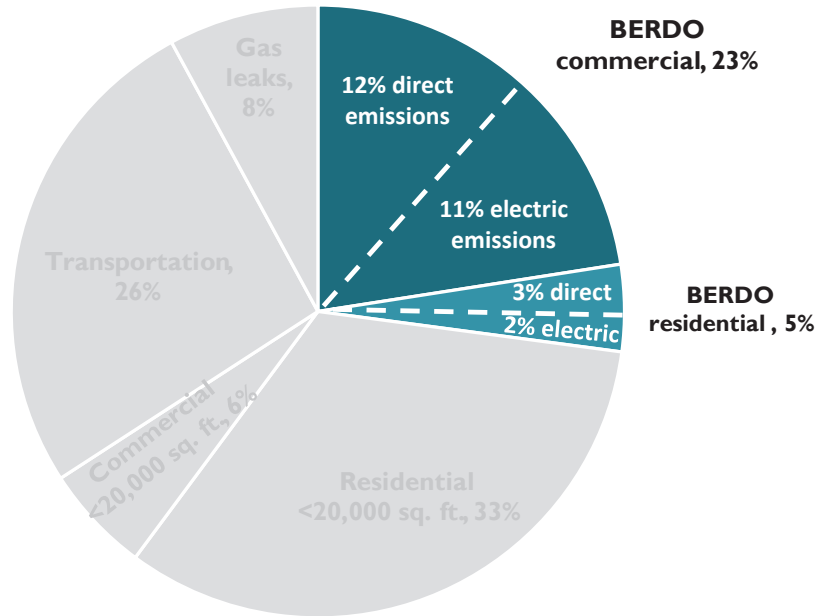
- Covers buildings  $\geq 35,000$  sq. ft.
- Exempt buildings: historic, schools, manufacturing, agriculture
- Does not regulate indirect GHG emissions from electricity
- Regulates “direct greenhouse gas emissions” and site energy use
  - Net direct GHG emissions standards
    - 20% reduction by 2030 compared with 2025 average buildings of same type
    - 60% reduction by 2035 compared with 2025 average buildings of same type
    - Net-zero direct GHG emissions by 2040
  - Site energy use intensity (EUI) standards
    - Yet to be established, but will require straight line progress toward final 2040 EUI target
    - Intended to reduce GHG, peak load, and energy costs
    - Likely not necessary in Newton to reduce GHG (Maryland RPS caps out at 50 percent in 2030)





# Why BERDO?

**Newton's GHG emissions:  
City goal of carbon neutral by 2050**



Note: "Commercial" includes institutional and industrial buildings

## Legal Authority

- Newton Law Department has reviewed
- This is new territory legally
- Boston BERDO may be challenged by building owners