MA Incentives and Policies for Sustainable Buildings: Options and Case Studies

Building Electrification Accelerator

November 2020

This document outlines the various approaches that municipalities can use to pursue building electrification and other building sustainability policies. Case studies from BEA cohort members and other Massachusetts municipalities are included.

Outline

- Offer Incentives
- Impose Performance Requirements
- Collect Data
- Alter Design Review and Special Permits
- Create Overlay Districts
- Change Composition of Zoning/Planning Board
- Impose a Climate Checklist Requirement
- Require Solar or Solar-Ready Buildings
- Implement Municipal Building Sustainability Mandates and Guidelines
- Establish a Zoning and Incentive Review Process

Offer Incentives

Municipalities can employ a variety of incentive strategies to achieve building electrification. The following chart outlines broad categories:

Incentive Types[1]

Incentive	Description
Density Bonus	Provide an increase in allowed dwelling units per acre, Floor Area Ratio (FAR), or height for fossil fuel free construction
Fee reductions/deferrals/waivers	Offer free or discounted permits for fossil fuel free construction
Tax abatement	Offer a property tax credit/rebate for fossil fuel free construction[2]

[1] Categories adapted from: https://inclusionaryhousing.org/designing-a-policy/land-dedication-incentives/

[2] Detailed model of property tax rebate program for net zero buildings in Appendix 5 on page 50:

https://lpdd.org/wp-content/uploads/2020/05/Strategies-for-Massachusetts-Municipalities-to-Implement-Net-Zero-Building-Mandates-July-2019.pdf.

Design flexibility/flexible development regulations	Allow fossil fuel free buildings more leniency in complying with design guidelines (e.g. setbacks from street)
Fast track processing/permitting priority	Prioritize fossil fuel free construction with faster permitting and hearings - offer "white glove" service
Parking Requirement Reduction	Eliminate or reduce number of required parking spaces for fossil fuel free construction
Subsidies	Offer vouchers or rebates for fossil fuel free construction

Massachusetts Case Example: Somerville

(BEA Cohort Member)

Somerville's new zoning code includes a density (reduced unit size) bonus for net zero ready buildings. Net zero ready is defined as "Any building that 1) has no on-site combustion for HVAC system operation and cooking equipment (all electric systems), excluding floor area Eating & Drinking Establishment principal uses, and is certifiable as Zero Carbon or higher from the International Living Future Institute, or PHIUS+ from the Passive House Institute US." The Gross Floor Area per Dwelling Unit permitted for each building type is different for buildings on different sized lots, Net Zero Ready Buildings, and 100% affordable housing.[3]

Massachusetts Case Example: Acton

(BEA Cohort Member)

Acton has a LEED incentive:

"d) LEED certification – Density on the LOT may be increased if the proposed development is certified under the United States Green Building Council's LEED (Leadership in Energy and Environmental Design) program. The amount of NET FLOOR AREA that is added under this option shall not exceed the equivalent of a FLOOR AREA RATIO of 0.05 on the LOT. To qualify for the density bonus for LEED certification in the East Acton Village District, a project would have to meet the LEED standards for New Construction & Major Renovation Projects.[4]"

This incentive has been in place since 2004 and has never been used – potentially indicating that the incentive is insufficient.

[3] https://3pb8cv933tuz26rfz3u13x17-wpengine.netdna-ssl.com/wp-content/uploads/sites/2/2019/12/20191212-Adopted-SomervilleZoningOrdinance.pdf

[4] https://www.acton-ma.gov/DocumentCenter/View/659/2018-Zoning-Bylaws?bidId=

Massachusetts Case Example: Hull

Hull's freeboard incentive program "enables the Building Department to offer a credit up to $500 for permit fees to builders and homeowners who elevate new and renovated structures at least two feet above the highest federal or state requirement." This is a climate change protection measure for homes in future flood zones.[5]

Massachusetts Case Example: Ipswich

(BEA Cohort Member)

Ipswich has proposed including heat pumps and building insulation exemptions in their zoning requirements to accommodate the new technology. e.g. heat pumps could be located in setbacks and super-insulated building envelopes could have reduced setback requirements.[6] This proposal recently did not pass an Ipswich Town Meeting vote by a narrow margin.

Impose Performance Requirements

Require buildings meeting certain criteria (e.g. over a certain size or in a special overlay district) to conform with approved green building rating program(s). There is some legal uncertainty over the viability of these options for a Town.

Massachusetts Case Example: Cambridge

(BEA Cohort Member)

For projects of 25,000 square feet or more:

"Authorized Green Building Rating Programs. Any of the following Green Building Rating Programs may be used for the application of these Sections 22.20 through 22.25:
(a) the Leadership in Energy and Environmental Design (" LEED") Green Building Rating Program developed and overseen by the United States Green Building Council;
(b) the Passive House Green Building Rating Program developed and overseen by either Passive House Institute US, Inc. or the Passive House Institute; or
(c) the Enterprise Green Communities Green Building Rating Program developed and overseen by Enterprise Community Partners, Inc." [7]

Massachusetts Case Example: Somerville

(BEA Cohort Member)

In December, Somerville passed a new zoning code. In summary, citywide:

---

[5] https://www.mass.gov/service-details/hull-freeboard-incentive-and-storm-surge-visualization

[6] http://thelocalne.ws/2020/08/20/legal-notice-energy-efficient-zoning/

[7] Cambridge zoning code:
https://library.municode.com/ma/cambridge/codes/zoning_ordinance?nodeId=ZONING_ORDINANCE_ART22.000SUDEDE

1. Defined a "Net Zero Ready Building" standard that is passive house or Zero Carbon from International Living Future Institute (requires addressing embodied carbon) and with no fossil fuel combustion for HVAC or domestic cooking (exemptions for commercial kitchens and hot water). Definition is in Article 2.

2. Created a density bonus for Net Zero Ready Buildings. The bonuses vary by district and can be found in the Use and Occupancy tables for all the Residential, Mid-Rise and High-Rise use types.

3. Requires buildings larger than 25,000 sf to be LEED Gold certifiable and above 50,000 sf to be LEED Platinum Certifiable. That's in Article 10.11 Development Standards-Sustainable Development.

4. Other requirements on stormwater and green roofs in Article 10.11 Development Standards-Sustainable Development. High albedo roofs are also required there.

5. Sets a Green Score that incentivizes landscape elements that minimize stormwater runoffs in Article 10.4 Development Standards-Green Score.

6. There are other smaller things, such as allowing heat pumps inside setbacks (most Somerville homes are very close to lot lines).[8]

Massachusetts Case Example: Salem

(BEA Cohort Member)

Salem has a proposed "Green Building Ordinance" that is currently under development. The current version of the ordinance includes the following:

- "All projects for commercial, multi-family or city-owned buildings with at least 5,000 square feet of new construction must follow an "Integrated Building Design and Construction Goals" checklist and draft reports after every phase of the project showing adherence to or departure from the checklist, scope, and schedule of the project;
- All projects must strive for at least a silver rating from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) certifications, which provides benchmarks for green construction projects. Any project developer failing to get LEED certification "shall owe the city a penalty";
- Commercial or multi-family buildings with 20,000 square feet of space or more must go for a gold rating under LEED;
- Any building roof undergoing major construction must be covered either in solar panels or a green roof system (except "building conversions with insufficient structural load capacity");
- Anybody selling residential property in Salem must give the city building department and buyers a MassSave energy assessment completed before the sale, as well as documents showing the property's "most recent two years of yearly/monthly energy costs and use."[9]

---

[8] Additional info can be found here: https://neep.org/blog/getting-zone-using-green-zoning-achieve-our-carbon-reduction-goals

The sustainable building aspect of the Somerville zoning code - with detailed info on LEED requirements is in article 10.

[9] https://www.salemnews.com/news/local_news/salem-eyes-green-building-ordinance/article_fb5b11bd-f34b-576c-93bb-24e99d000a6a.html

Collect Data

Require new buildings to complete a cost assessment of fossil fuel systems compared with renewable energy sources and systems. As an additional option, require existing buildings (often over a certain size) to report their emissions data.

Massachusetts Case Example: Cambridge

(BEA Cohort Member)

Cambridge is in the process of requiring an energy assessment for new buildings that will require property owners to compare fossil fuel systems to renewable energy sources and systems.[10] The current language – which is currently being slightly modified by the Planning Department before a City Council vote – is as follows:

A plan shall be submitted to Community Development and Inspectional Services Departments for city and public review, that provides an analysis of the feasibility and cost of installing renewable energy sources and systems (such as solar, ground source or air source heat pumps, including through district energy systems), compared to equivalent fossil fueled energy systems.

Note: This does not mandate a non-fossil fuel system be installed. [11]

In related data-collection programs, Boston and Cambridge both currently require large buildings to submit data on their emissions. Boston is in the process of designing new programs (and potentially binding legislation) to reduce emissions from large buildings.

Massachusetts Case Example: Concord

(BEA Cohort Member)

Concord's April 2020 revised zoning bylaw includes "energy calculation for the proposed project" as a requirement for Planned Residential Developments.[12]

Alter Design Review and Special Permits

Certain developments require special permits vs. construction by-right – and developments that require special permits often undergo significant design review by city/town boards. Municipalities could alter any existing special permitting/design review rules and criteria to encourage building electrification.

Massachusetts Case Example: Concord

---

[10] More detail on the Cambridge process is here: https://www.cambridgema.gov/CDD/zoninganddevelopment/Zoning/Amendments

[11] http://cambridgema.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&MeetingID=2646&MediaPosition=&ID=12093&CssClass=

[12] https://concordma.gov/DocumentCenter/View/23779/-2020-Concord-Annual-Town-Meeting-Warrant

(BEA Cohort Member)

In April 2020, Concord approved a zoning bylaw that incorporated new sustainability criteria for Planned Residential Developments:[13]

> *10.2.11 Sustainable Design Requirement The proposal for the built environment should reflect thoughtful consideration of a broad range of sustainability goals. Such design should be consistent with and further the goals of the Town. In determining whether the intent of this Section has been satisfied, the Planning Board shall consider the extent to which the design plan incorporates the following:*
>
> *(a) Low Impact Development for Stormwater Design. Low impact development relies on natural features (indigenous to the site or bio-designed) to protect water quality and encourage on-site infiltration of stormwater. Such measures may include use of natural drainage flow paths, minimization of land clearance, incorporation of bioretention features/raingardens, and minimization of the creation of 30 impervious surfaces (through building clustering, minimizing size and footprint of buildings and paved areas, use of pervious surfaces where practical).*
>
> *(b) Energy Efficiency and Clean Energy Usage. Use of energy efficient appliances and HVAC systems is desired. All-electric buildings, with no fossil-fuel usage, and the use of more sustainable forms of energy production, such as geothermal and solar, are encouraged.*
>
> *(c) Energy Efficient Building Design. The building envelope and components (Building framing, insulation, windows, HVAC systems) should be designed to maximize energy conservation.*
>
> *(d) Building Layout. The arrangement of building on the site and the accompanying infrastructure minimizes impervious surface area and maximizes contiguous open space for both residents and wildlife.*
>
> *(e) Ways to Minimize Greenhouse Gas Emissions. Maintaining or proposing new vegetation to maximize carbon sequestration on site. Selection of HVAC systems and appliances to encourage use of renewable energy sources. Construction design to minimize emissions from construction vehicles.*
>
> *(f) Other green building, energy efficiency, sustainability measures. The applicant may propose other measures that fit within the broad rubric of sustainable site planning, design and construction.* [14]

---

[13] "Planned Residential Development allows by special permit from the Board Planning Board an alternative pattern of residential land development. It is intended to encourage the conservation of open space, while at the same time providing for a mixture and diversity of housing types in the Town at somewhat greater dwelling unit densities than is otherwise permitted without a significant increase in Town-wide population density. In a PRD, dwelling units should be constructed in appropriate clusters that are harmonious with neighborhood development and will not detract from the ecological and visual qualities of the area and incorporate Low Impact Development for stormwater design and green building practices."

[14] https://concordma.gov/DocumentCenter/View/23779/-2020-Concord-Annual-Town-Meeting-Warrant

Massachusetts Case Example: Arlington

(BEA Cohort Advisor)

Arlington's Environmental Design Review Standards offers guidance for green buildings:

"Sustainable Building and Site Design. Projects are encouraged to incorporate best practices related to sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. Applicants must submit a current Green Building Council Leadership in Energy and Environmental Design (LEED) checklist, appropriate to the type of development, annotated with narrative description that indicates how the LEED performance objectives will be incorporated into the project."[15]

Massachusetts Case Example: Ipswich

(BEA Cohort Member)

Ipswich's proposed zoning amendment (which did not pass a recent Town Meeting vote) included Net Zero Ready as a requirement for residential developments obtaining special permits, waivers, or other local approvals (italics = proposed changes).

From Ipswich's proposed zoning amendment:

> 25. If a residential development obtains a special permit, waiver or other local approval that increases the density or intensity of use beyond what is otherwise allowed by the Table of Uses, said development shall conform to Section IX.I.2.b*, and dwellings in the development must be Net Zero Ready Buildings*.

(Definition of Net Zero Ready Building: A building that 1) has no on-site combustion for any purpose, including HVAC system operation, water heating, and cooking equipment (all electric systems), 2) has a solar-ready roof with appropriate orientation to capture solar radiation, and 3) is wired for EV charging.)

Create Overlay Districts

Create or modify overlay districts to include sustainable building requirements.

Massachusetts Case Example: Northampton

Northampton has an "urban residential sustainable growth overlay district" that is a 40R overlay district. Among other things, the overlay requires:

(4) Environment and energy. Buildings shall meet one of the following environmental standards:
(a) Home Energy Rating System (HERS) rating no greater than 47 for units of 1,200 square feet or less, and no greater than 41 for units larger than 1,200 square feet. Alternatively, for units of 1,200 square feet or less, the PAA may consider a comparable energy standard to the HERS rating of 47 after consultation with the Building Commissioner.

[15] https://www.arlingtonma.gov/town-governance/laws-and-regulations/zoning-bylaws

(b) U.S. Green Building Council LEED New Construction Gold or Neighborhood Development Gold Certified.[16]

Massachusetts Case Example: Oak Bluffs

"In 2010, the town of Oak Bluffs on Martha's Vineyard adopted amendments to its Floodplain Overlay District By- law which prohibits new residential development and expansion of existing development in FEMA flood Zones V, VE and AO. The amendments also require that construction in Zone A meet design criteria and performance standards and go through a special permitting process."[17]

Massachusetts Case Example: Somerville

(BEA Cohort Member)

Projects that opt into Somerville's Master Planned Development Overlay District must meet the following sustainability standards: "Sustainable Development i. Laboratory buildings must be LEED Platinum certifiable. ii. All other building types must meet the following: a). No on-site combustion for HVAC system operation; b). No on-site combustion for cooking equipment, excluding Eating & Drinking Establishment principal uses; and c). Be certifiable as: i). Zero Carbon or higher from the International Living Future Institute; or ii). PHIUS+ from the Passive House Institute US. iii. All new principal building types must include a green roof, photovoltaic (PV) devices, or both for 100% of the roof area not occupied by building systems equipment or required outdoor amenity spaces." MPD Overlay Districts are restricted to areas of the city planned for transformational redevelopment.

[16] https://ecode360.com/13265306

[17] https://www.clf.org/wp-content/uploads/2019/03/CLF_ClimateCodeReport_2019.pdf (bylaw linked here: https://www.mass.gov/files/documents/2016/08/sm/oak-bluffs-bylaw.pdf)

Change Composition of Zoning/Planning Board

Municipalities can ensure municipal zoning and planning boards contain environmental and climate change experts.

Massachusetts Case Example: Boston

Boston is currently attempting to reform its Zoning Board of Appeal with a home rule petition: "Under the proposed additions to the board, one board member and one alternate would be environmental protection and climate change experts nominated by the Conservation Law Foundation, and one member and one alternate would be people with a background in urban planning nominated by the Metropolitan Area Planning Council."[18]

Impose a Climate Checklist Requirement

Requires property owners to complete paperwork that considers green building elements/environmental impacts (non-binding).

Massachusetts Case Example: Boston

"Climate Change Preparedness and Resiliency Guidelines" as an addition to Article 80 of the Boston Zoning Code. These guidelines require a checklist to be completed and approved before the BPDA authorizes final approval of new development projects. This checklist was updated in 2017 to include geospatial mapping of future climate risks. Other recommended strategies, like elevating new residential structures above design flood elevation or locating building mechanicals above the expected flood elevation, remain voluntary options in cities like Boston, in part, due to MSBC preemption."[19]

Require Solar or Solar-Ready Buildings

Massachusetts Case Example: Watertown

"In 2018, the town council unanimously passed an ordinance requiring all new commercial buildings greater than 10,000 square feet or residential buildings with more than 10 units to be built with solar panels on at least 50 percent of the roof area. Additionally, parking structures must have solar panels covering 90 percent of their top surface. The ordinance also requires existing buildings that are undergoing renovation to install solar panels. It allows for exemptions for buildings that do not have sufficient solar exposure on their roofs."[20]

---

[18] https://www.bostonglobe.com/2020/07/30/metro/boston-city-council-backs-zba-changes-state-house-must-okay/

[19] https://www.clf.org/wp-content/uploads/2019/03/CLF_ClimateCodeReport_2019.pdf

[20] https://environmentmassachusettscenter.org/sites/environment/files/resources/Watertown.pdf

Implement Municipal Building Sustainability Mandates and Guidelines

Require new municipal buildings to meet sustainable building performance standards (e.g. all-electric, net zero, passive house, etc.).

Massachusetts Case Example: Amherst

(BEA Cohort Member)

In 2017, Amherst required all municipal buildings costing over $2 million to meet a zero-energy standard. With a few small exceptions, renewable energy must supply all of the buildings' annual energy needs.[21]

Massachusetts Case Example: Boston

In December 2019, Mayor Walsh signed an executive order requiring all new municipal buildings to target a Zero Net Carbon standard.[22]

Massachusetts Case Example: Wellesley

Wellesley's Sustainable Energy Committee, in collaboration with the Facilities Management Department, developed Municipal Sustainable Building Guidelines and presented them in January 2020. The hope is these guidelines will be brought to a vote and adopted. The Committee is also engaged in the sustainable redesign of Wellesley's public schools.[23]

Massachusetts Case Example: Lexington

(BEA Cohort Member)

Lexington is currently building two new net-zero schools.[24]

Establish a Zoning and Incentive Review Process

Massachusetts Case Example: Boston

The Boston Planning and Development Authority is in the process of designing net zero zoning for new construction. This initiative was announced in August 2020 and the BPDA is currently holding public meetings and seminars and assembling Technical Advisory Groups.[25]

Massachusetts Case Example: Brookline

(BEA Cohort Advisor)

---

[21] https://zeroenergyamherst.weebly.com/the-bylaw.html
[22] https://www.boston.gov/news/executive-order-requires-new-municipal-buildings-target-carbon-neutrality
23 https://wellesleyma.gov/840/Sustainable-Buildings
24 https://lexington.wickedlocal.com/news/20190730/net-zero-schools-opening-soon-in-lexington-receive-statewide-recognition
[25] http://www.bostonplans.org/planning/planning-initiatives/zero-net-carbon-building-zoning-initiative

The Brookline Select Board tasked the Brookline Planning Department with examining incentive mechanisms to encourage fossil fuel free construction and producing a report by January 2021 to inform spring Warrant Articles.[26]

Massachusetts Case Example: Newton

(BEA Cohort Member)

Newton has a Working Group on Climate and Zoning Redesign and a Citizens Commission on Energy. The groups sent a joint October 2020 memo outlining recommendations for zoning and incentive reform to City staff members.[27]

[26] Brookline Select Board Motion:
https://drive.google.com/file/d/1j26rEt8MbYZftPLugjdtrjIYpLKHbgXl/view?usp=sharing

[27] Newton Zoning Redesign and Climate Action Plan Memo:
https://drive.google.com/file/d/1r6flCFPDGWqc6ijLmWRCY4tZueHqU0R5/view?usp=sharing