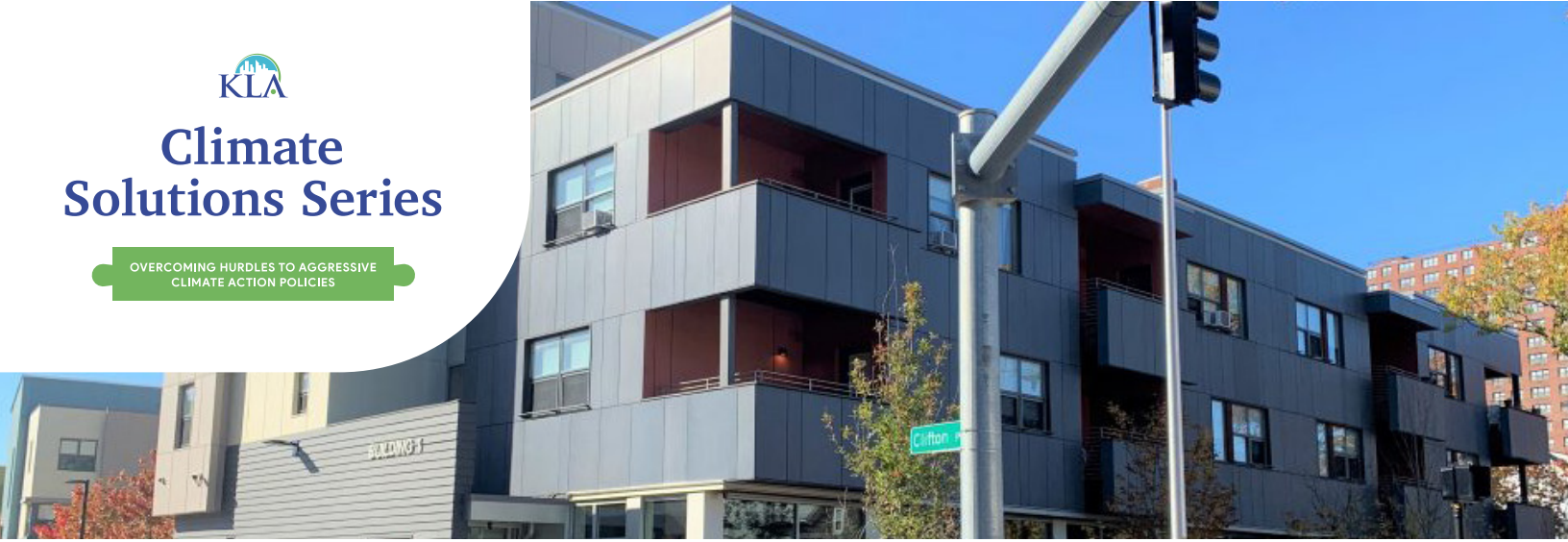




Climate Solutions Series

OVERCOMING HURDLES TO AGGRESSIVE CLIMATE ACTION POLICIES



Experts tell us that we have less than a decade to significantly reduce our greenhouse gas (GHG) emissions to avoid the most dire impacts of climate change. Net Zero Energy buildings are one of the most crucial, low-cost tools we have to help us achieve these reductions. A combination of greater energy efficiency, electrification and increasing use of renewable energy makes this high-impact solution one that local governments **must** incorporate to sustainably reduce emissions in their communities.

What are Net Zero Energy Buildings?

Simply put, Net Zero Energy buildings incorporate high levels of energy efficiency, electrification and generating and/or procuring renewable energy to balance what they consume over the course of a year. The goal is to significantly reduce or eliminate overall GHG emissions. Buildings can be made Net Zero from the onset (new construction) or through retrofits to existing buildings.

Why are they so important for meaningful climate policy?

Buildings account for nearly 40% of annual global GHG emissions. Pursuing Net Zero building technology (energy efficiency and low-carbon energy generation) would cut building emissions 87% by 2050.

In Massachusetts alone, the stock of Net Zero and Net Zero Ready buildings exceeds 7 million square feet.

Community Best Practices

LEAD BY EXAMPLE

Build your government and school buildings to Net Zero Energy specifications. Schools, particularly K-12 are one of the most common building types for Net Zero and therefore offer many best practices.





FOCUS ON EQUITY

Similar to K-12, affordable housing is another very common building type for Net Zero. With low- and fixed-income families spending up to 20% of their income on energy costs, Net Zero housing is a great way to deliver affordable (low/no utility bills) and healthy (high construction quality) housing solutions for your community.

USE THE TOOLS AVAILABLE

The Cities of Boston and Cambridge, MA, have made great strides in driving the growth of Net Zero buildings through amendments to their zoning - avoiding the hurdles associated with changing the state energy code. Boston and Cambridge also leverage their respective building benchmarking and disclosure ordinances to collect much of the needed data to track their progress.

Understanding the arguments against Net Zero is a good place to start when trying to shift the conversation with your development community. This table outlines the most common complaints/misconceptions about Net Zero buildings.

Common Misconceptions	The Facts	Why?
 <p>Construction costs are significantly more than traditional building</p>	<p>Net zero ready buildings are being built at the same cost as conventional buildings. A recent MA survey indicated that 85% of Net Zero Ready buildings (across various building types) reported less than a 1% construction cost premium.</p>	<p>Like many construction and renovation projects, there is the balancing act of what you can add and what you can take away. There are always ways to find a balance between what a building actually needs vs. nice to haves. Also, financing options like Power Purchase Agreements (PPA) can help reduce upfront costs associated with onsite renewable energy.</p>
 <p>Net Zero buildings must produce all their energy on-site</p>	<p>Most Net Zero buildings in MA rely on a mix of on-and off-site renewable energy.</p>	<p>Net Zero buildings are not necessarily required to generate 100% renewable energy on-site. You can develop regulations or standards that allow flexibility to procure a mix of on-and off-site renewable energy to offset 100% of energy consumption.</p>
 <p>Net Zero buildings must be 100% electric</p>	<p>Not all Net Zero buildings are 100% electric.</p>	<p>While Net Zero buildings are focused on sourcing energy from electricity, there is some flexibility to allow for fossil fuel use where appropriate (lab buildings, hot water systems, etc.)</p>
 <p>Electric heat pumps cannot meet the needs of colder climates</p>	<p>7 million square feet of buildings are using heat pumps as the primary heating source in MA. This spans all building types and sizes reported, including high-rise buildings.</p>	<p>Heat pump technology has made significant advancements over the last few years, and they are now the primary way in which buildings are electrifying their heating and cooling needs.</p>



Additional Resources

- [Local Governments Toolkit](#), Getting to Zero Forum
- [Example RFPs](#), Getting to Zero Forum
- [Zero Energy Buildings in Massachusetts: Saving Money from the Start](#), Built Environment Plus
- [Pathway to Net Zero](#), USGBC
- City of Boston [Zero Net Carbon Building Zoning Initiative](#)
- City of Cambridge [Net Zero Action Plan](#)
- [Embodied Carbon in Construction Calculator \(EC3\)](#), Building Transparency
- [KLA Climate Solutions Series](#), Net Zero resources