BOSTON: CHARTING A PATH TO ZERO NET CARBON BUILDINGS

USING ZONING TO COMBAT CARBON EMISSIONS

Buildings account for nearly 70 percent of Boston's total carbon emissions—the pollution caused by burning fossil fuels that is the root cause of climate change and extreme weather events and harms public health. With the new **Zero Net Carbon Building Zoning** rules in place, emissions from new buildings will go down dramatically as all electricity used by buildings will be powered by clean, renewable energy instead of polluting fossil fuels.

Thanks to innovative new zoning rules expected to be adopted in January 2023, new buildings in Boston will be largely carbon-free and powered by clean, renewable energy. The city's new **Zero Net Carbon Building Zoning** rules (ZNC Zoning) require all newly-constructed buildings 20,000 sq. ft. or larger to drastically reduce their carbon emissions through low-carbon construction and building operational practices and the use of on- and off-site renewable energy.

The rules were developed based on the input and insights provided over many years by local residents and building and energy professionals, and technical advisory committees charged with exploring building decarbonization and **renewable energy procurement strategies**. The **Zero Code Renewable Energy Procurement Framework**, a flexible policy framework for jurisdictions seeking to ensure the energy needs of buildings are met by renewable energy resources, was a key tool for developing the renewable energy aspects of the new zoning regulations.

Building owners and developers have a variety of options for procuring clean energy to meet the renewable energy requirements of ZNC Zoning, including generating energy on-site, buying power from the city's community choice program, paying into an Equitable Emissions Investment Fund (see Renewable Energy Investment Funds outlined in the **Zero Code Renewable Energy Procurement Framework**) that supports local clean energy projects, and other options.

Adding renewable energy to buildings, as well as applying the other emissions-reducing strategies included in the new rules, will result in a new building stock that emits nearly zero greenhouse gas emissions from building operations, spurs local clean energy development, creates jobs, and puts the city on a path to meeting its goal of carbon neutrality by 2050.

architecture 2030

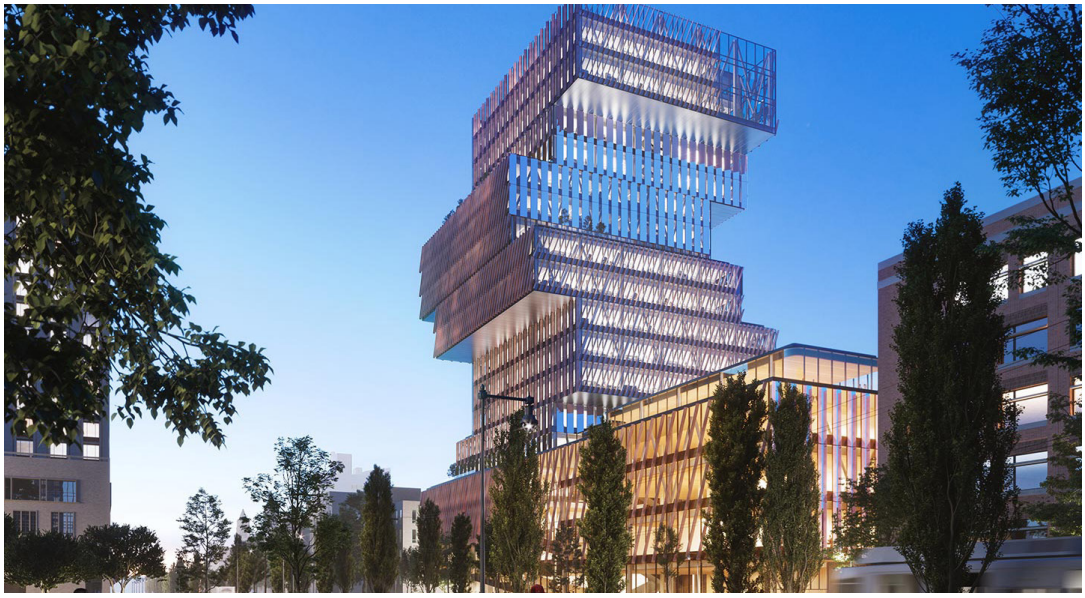
John Dalzell, AIA, LEED Fellow

Senior Architect for Sustainable Development

City of Boston Planning and Development Agency

"There are a lot of good reasons for pursuing renewable energy. It has great job creation and resiliency benefits, and having on-site renewable energy is advantageous to grid and building management."

BOSTON UNIVERSITY CENTER FOR COMPUTING AND DATA SCIENCES



Boston's ZNC Zoning is one example of the **policy pathways that cities, counties and states can take** to advance renewable energy use in new and existing buildings. Other pathways include **passing local ordinances**, updating building codes, and other strategies. Which strategy is right for a jurisdiction depends on its local context.

For Boston, the zoning pathway was the best choice as it allowed the city to pair renewable energy procurement with other building decarbonization strategies into one policy package. Plus, the city was already in the process of updating its zoning rules to comply with its climate action plan. Boston also already has good options for procuring local renewable energy, including a municipal community choice program and renewable energy incentive programs from their local utility.

"There are a lot of good reasons for pursuing renewable energy," said John Dalzell, Senior Architect for Sustainable Development for the Boston Planning & Development Agency, who led the ZNC Zoning initiative for the city. "It has great job creation and resiliency benefits, and having on-site renewable energy is advantageous to grid and building management."

More of Boston's building developers, designers and owners are discovering how **powering buildings with clean energy pencils out**. Several buildings in the city are already using or plan to use on- and off-site renewable energy to lower their carbon emissions, such as the **Bunker Hill** affordable housing development and Boston University's **Center for Computing and Data Sciences**.

"Across the board, we are seeing less than a 1% cost difference to build low and zero-carbon buildings. And in many cases, when you factor in utility incentives, we are seeing net-zero carbon buildings that are cheaper to build than those that aren't pursuing these performance levels," said Dalzell.

Thanks to Boston's new ZNC Zoning rules, even more building owners and residents will benefit from lower energy costs, cleaner air and less climate pollution that is a direct result of powering buildings with renewable energy.

To learn more about policy options to advance renewable energy procurement for buildings, visit zero-code.org or contact Architecture 2030 at info@architecture2030.org.