



# Renewable Communities 2020

Massachusetts cities and towns  
leading the way to 100% renewable energy

## Boston: Zero net carbon municipal buildings

In December 2019, Mayor Martin Walsh issued an executive order requiring new municipal buildings to be built to a “zero net carbon” (ZNC) standard, meaning that they use energy efficiently and obtain their energy from renewable sources.<sup>1</sup>

Under this policy, new municipal building projects will aim to reduce energy consumption and avoid the use of fossil fuels. Strategies identified in the executive order include highly efficient building enclosures, efficient lighting and climate control systems, fossil-fuel-free heating systems, and on-site renewable energy generation (for example, from rooftop solar panels).<sup>2</sup>

The city’s ZNC building standard includes four tiers. The highest tier is a building that has no on-site fossil fuel combustion and generates enough renewable energy on-site to meet all of its needs on an annual basis. (Some buildings may even be “energy positive,” producing more renewable energy on-site than they use in a year). The second tier allows for the purchase of energy from off-site renewable sources. The third tier is a “ZNC-ready” building that will become ZNC when 100% of its electricity is supplied from renewable sources. Finally, buildings in the fourth tier, “ZNC-convertible,” use some fossil fuels on-site for heating or electricity, but can be “readily” converted to renewable energy sources when available.<sup>3</sup>

Mayor Walsh’s executive order requires new municipal building projects to aim for the ZNC on-site standard. Buildings may use less stringent standards only if ZNC on-site or energy positive are “clearly infeasible” or not cost-effective.<sup>4</sup>

City-wide, buildings account for about 71% of Boston’s carbon emissions. While the ZNC requirement for new municipal buildings will affect only one portion of Boston’s building stock, it is expected to reduce annual carbon emissions by up to 17,000 tons.<sup>5</sup>

This executive order is part of a broader strategy to reduce carbon emissions from buildings. Other proposed policies include a ZNC standard for city-funded affordable housing, zoning code amendments establishing a ZNC standard for non-municipal buildings, and a performance standard to reduce carbon emissions from existing large buildings. To meet its 2050 climate goals, the city estimates that 80% of existing buildings will need to undergo deep energy retrofits and electrification of heating, and all new buildings will need to meet a ZNC standard by 2030.<sup>6</sup>

1. “Executive order requires new municipal buildings to target carbon neutrality,” Environment Department, City of Boston, 11 December 2019, <<https://www.boston.gov/news/executive-order-requires-new-municipal-buildings-target-carbon-neutrality>>.

2. *Executive Order of Mayor Martin J. Walsh: An Order Relative to Municipal Carbon-neutral Buildings in Boston*, Office of the Mayor, City of Boston, 11 December 2019, <<https://www.boston.gov/sites/default/files/file/2019/12/201912111141.pdf>>.

3. *City of Boston Climate Action Plan: 2019 Update*, City of Boston, October 2019, <[https://www.boston.gov/sites/default/files/imce-uploads/2019-10/city\\_of\\_boston\\_2019\\_climate\\_action\\_plan\\_update\\_2.pdf](https://www.boston.gov/sites/default/files/imce-uploads/2019-10/city_of_boston_2019_climate_action_plan_update_2.pdf)>.

4. *Executive Order of Mayor Martin J. Walsh: An Order Relative to Municipal Carbon-neutral Buildings in Boston*, Office of the Mayor, City of Boston, 11 December 2019, <<https://www.boston.gov/sites/default/files/file/2019/12/201912111141.pdf>>.

5. *City of Boston Climate Action Plan: 2019 Update*, City of Boston, October 2019, <[https://www.boston.gov/sites/default/files/imce-uploads/2019-10/city\\_of\\_boston\\_2019\\_climate\\_action\\_plan\\_update\\_2.pdf](https://www.boston.gov/sites/default/files/imce-uploads/2019-10/city_of_boston_2019_climate_action_plan_update_2.pdf)>.

6. *City of Boston Climate Action Plan: 2019 Update*, City of Boston, October 2019, <[https://www.boston.gov/sites/default/files/imce-uploads/2019-10/city\\_of\\_boston\\_2019\\_climate\\_action\\_plan\\_update\\_2.pdf](https://www.boston.gov/sites/default/files/imce-uploads/2019-10/city_of_boston_2019_climate_action_plan_update_2.pdf)>.