

All-electric buildings

Electric heating technologies have improved

Most Massachusetts homes are heated with gas or oil, but clean heating technologies powered by electricity are an increasingly viable alternative.⁶⁶

Air-source and geothermal heat pumps are several times more efficient than fossil fuel heating. Due to recent advances in technology, air-source heat pumps can operate in temperatures as low as -12 °F, making them a viable option in nearly every part of the United States.⁶⁷

Cost-effective option

Using heat pumps in new construction is more cost-effective than fossil fuel heating, saving residents between \$2,000 and \$13,700 for space and water heating over 15 years.⁶⁸

Retrofitting an existing building with heat pumps can also be cost-effective, particularly when switching from heating oil or propane.⁶⁹

Buildings with efficient, modern electric heating are being built today in Massachusetts at a similar cost to buildings heated with fossil fuels.

Existing office buildings can be retrofitted to be zero energy with a payback period as low as 5–6 years.

Other technologies, such as solar thermal and district heating powered by renewable energy, can also provide efficient, clean heating and cooling.

Replacing other fossil fuel uses

Technologies to replace other uses of fossil fuels in homes are available. Heat pump water heaters are up to five times as efficient as gas-powered heaters, and generally save customers money over the long term.⁷⁰

Induction stovetops use electricity to cook food, while providing greater temperature control and shorter cooking times than gas ranges.⁷¹

Health benefits

Moving to all-electric buildings can reduce indoor and outdoor pollution that is harmful to our health.⁷²

A study in Southern California found that gas stoves add 21–39% to the level of indoor pollutants like nitrogen dioxide and carbon monoxide.⁷³

All-electric buildings are cost-effective

By pairing clean heating technologies with renewable electricity, we can provide power, heating, and cooling for our homes and businesses without the use of fossil fuels. A zero energy building is a highly efficient building where on-site renewable electricity generation, from sources like rooftop solar panels, produces enough energy to power the building on an annual basis.⁷⁴

A study from the Massachusetts Chapter of the U.S. Green Building Council found that zero energy buildings are being built in Massachusetts today at a comparable cost to conventional buildings, and that existing buildings can be retrofitted to be zero energy with a payback period of as little as 5–6 years.⁷⁵