

FACT SHEET

All-Electric Buildings: Key to Achieving Massachusetts' Climate Goals

To reach Massachusetts' goal of carbon neutrality by 2050, we must stop burning fossil fuels in buildings. Heat pumps are a readily available and effective solution for reducing building emissions today.

Buildings are a major source of carbon emissions

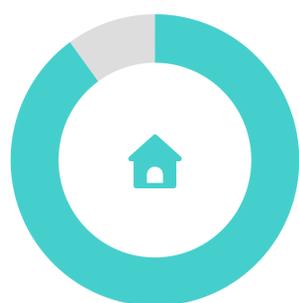
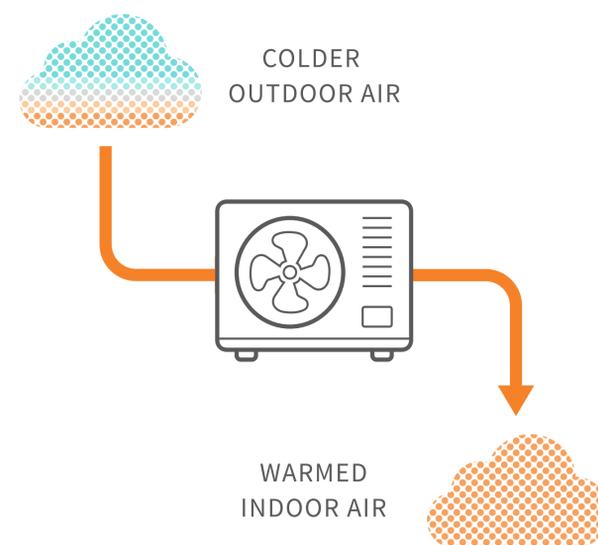
57% of Massachusetts' energy-related carbon emissions come from buildings.¹ Of this, nearly two thirds stem from burning fossil fuels (gas, oil, and propane) for heating, cooking, hot water, and other uses. Despite progress decarbonizing other sectors, these **emissions have decreased by less than 1% in Massachusetts since 2016.**¹ The good news is that we have better technology at our fingertips and can convert these fuel-burning appliances to heat pumps and other efficient, electric systems.

“Why are we transitioning off gas?”

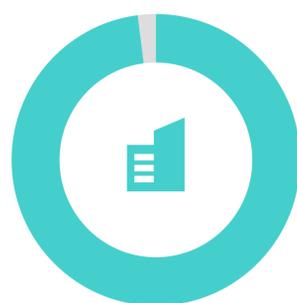
Methane gas (a.k.a. natural gas) served as a “bridge fuel” in the transition away from dirtier forms of energy like coal. That need has changed as Massachusetts has increasingly adopted renewable energy, reducing electric grid emissions by 69% since 2010.¹ It's time to take the next step in the energy transition by harnessing this cleaner grid to power our buildings.

Heat pumps are two efficient appliances in one

Heat pumps are so efficient because **they move heat rather than make heat.** In winter a heat pump gathers warmth from the air or ground (even in sub-zero temperatures) and moves it indoors. That flow is reversed to cool buildings in summer by moving heat outdoors. Heat pumps can replace both a furnace and an air conditioner. Plus, they can be used in water heaters, clothes dryers, and other appliances.



90% of Massachusetts homes burn fuels on-site for cooking, heat, or hot water.²

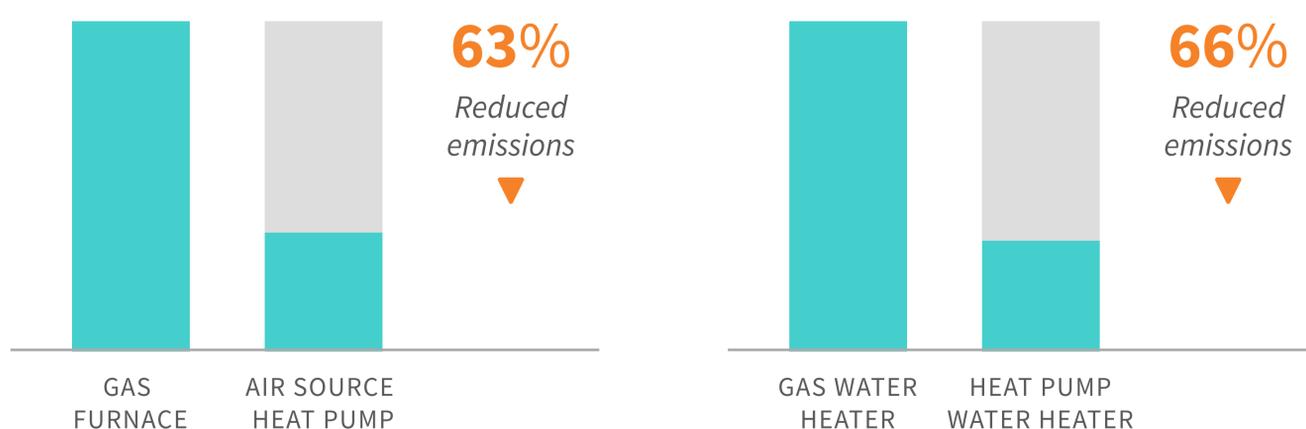


98% of commercial buildings in New England burn fuels on-site.³

All-electric buildings reduce carbon emissions

Replacing fossil fuel appliances with electric heat pumps dramatically reduces carbon emissions from buildings in Massachusetts. This is because **heat pumps are 2 to 4 times more efficient than gas appliances.** The carbon savings are even more significant when replacing oil and propane systems, and will only improve as Massachusetts' electricity grid continues to get cleaner.

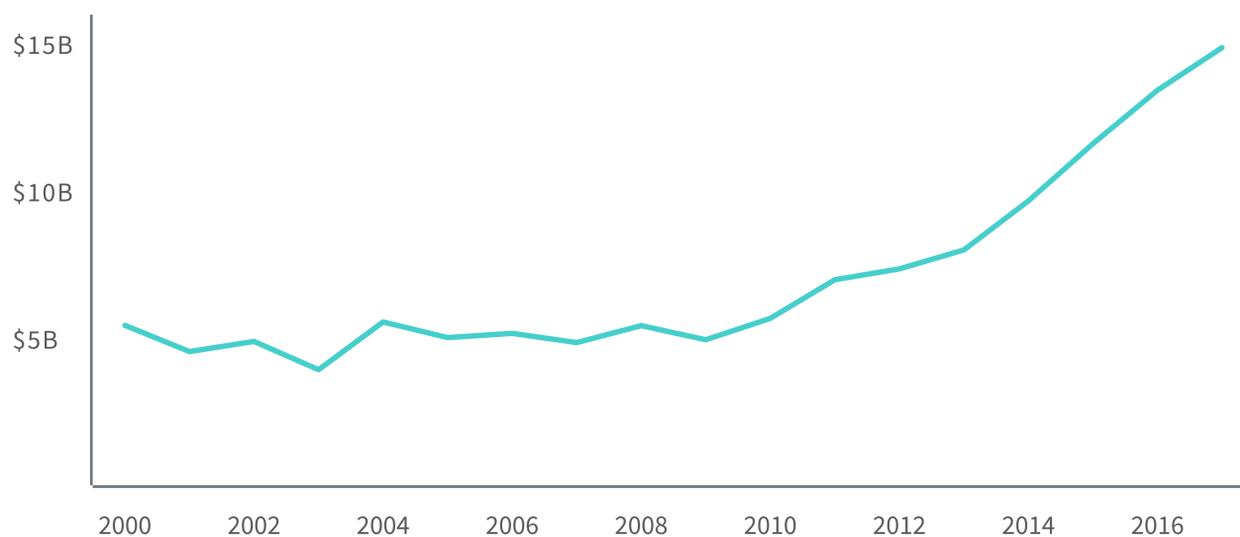
Lifetime gas and electric appliance emissions in Massachusetts⁴



It's time to start the transition off gas

Transitioning from gas to electric is a necessary step toward a zero-carbon future, but we're moving in the wrong direction: **spending on gas continues to rise** as distribution networks sprawl and aging pipelines create leaks and safety concerns. An equitable transition to all-electric buildings requires careful planning that acknowledges the complexities of the current system and the workers and residents who rely on it. Several states have initiated this process, recognizing it's far more efficient and cost-effective to start planning now.

Gas distribution spending in the U.S. has more than tripled since 2009⁷



GAS IS STILL GROWING

Since 2019, utilities in Massachusetts have extended gas service to over

33,800
new customers.⁵

An average of

288 miles

of new gas lines are laid per year in Massachusetts.⁶ These can remain in commission for decades.

Gas equipment and pipelines leak methane, a greenhouse gas 30 times more potent than carbon dioxide. These leaks can **double the climate impact** of gas use in buildings but are often ignored.⁷



Take action

Massachusetts can help accelerate the transition to all-electric buildings in several ways:

▶ **Adopt Massachusetts' Specialized Stretch Code**, which incentivizes all-electric new construction and major renovations. Find more information at www.mass.gov/info-details/building-energy-code.

- ▶ **Provide targeted technical assistance** and develop resources such as decarbonization roadmaps and an incentive clearinghouse to guide customers through electrifying buildings.
- ▶ **Establish coordinated programs and incentives** for all-electric buildings, leveraging federal funding from the Inflation Reduction Act.

Learn more

Clean Energy 101: Heat Pumps, RMI, 2022, rmi.org/clean-energy-101-heat-pumps

Now Is the Time to Go All In on Heat Pumps, RMI, 2023, rmi.org/now-is-the-time-to-go-all-in-on-heat-pumps

The Impact of Fossil Fuels in Buildings, RMI, 2019, rmi.org/insight/the-impact-of-fossil-fuels-in-buildings

NOTES

1. US Energy Information Administration, 2022, bit.ly/42aPZns
2. US Energy Information Administration, 2020, bit.ly/44A8GT6
3. US Energy Information Administration, 2018, bit.ly/3NCTfTt
4. RMI, 2023, bit.ly/3NOTk5V
5. Data for 2020-2021. US Energy Information Administration, 2023, bit.ly/44LkjqL
6. Data for 2020-2021. American Gas Association, 2021, bit.ly/3M0hZVq
7. RMI, 2019, bit.ly/3NbhU0s