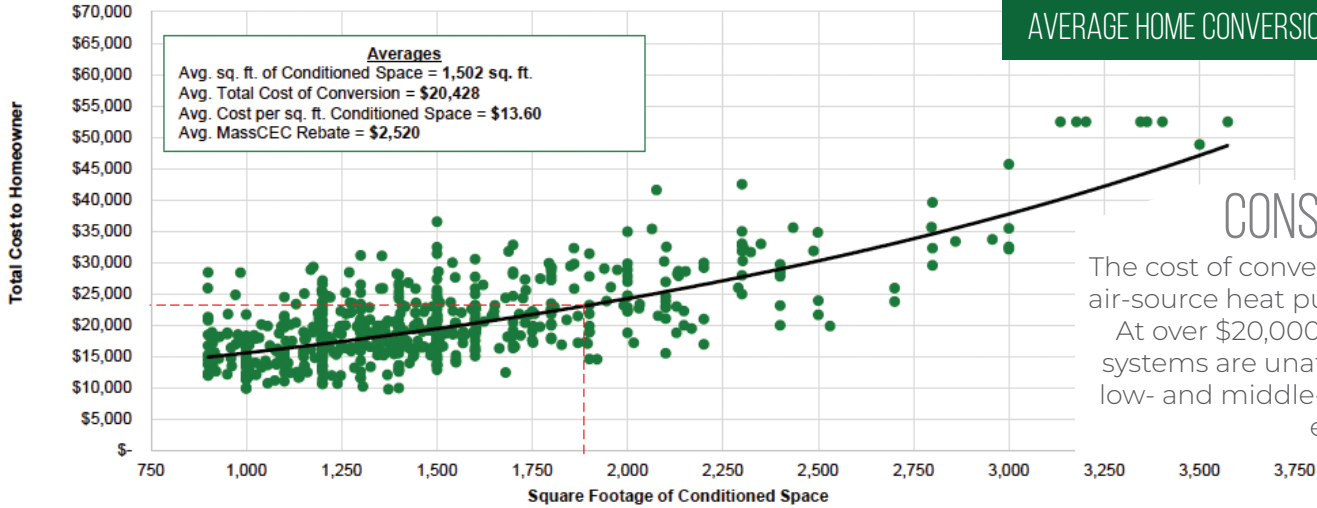




ELECTRIC HEAT PUMPS

Northeast states are looking to convert homes to electric heat pumps to help reduce emissions. However, according to real-world data from the Massachusetts Clean Energy Center, heat pumps come with considerable financial and performance challenges.

Massachusetts Heat Pump Conversion Cost 2014-2019 (sample size = 622 homes)



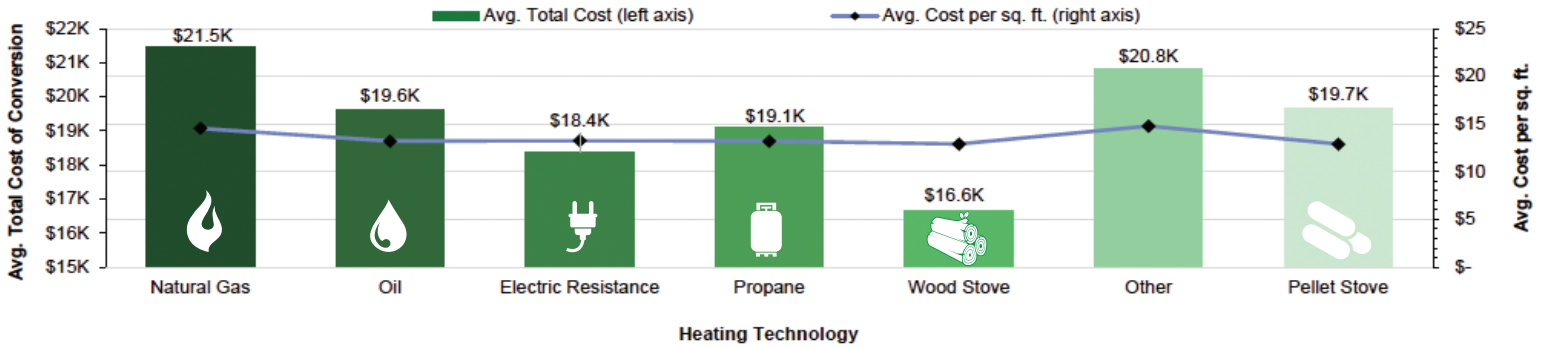
CONSUMER COSTS

The cost of converting to an electric air-source heat pump is substantial. At over \$20,000 on average, these systems are unaffordable for many low- and middle-income residents, even with a rebate.

CONSUMER COSTS VARY DEPENDING ON HEAT SOURCE

The average price of a heat pump conversion varies depending on the home's existing heat source. The cost remains above \$16,000 regardless of the technology converted.

Conversion Cost to Heat Pumps by Original Heating Technology



Percent of Conversions Retaining a Supplementary Heat Source

ONLY HEAT PUMPS: 7.2%

SUPPLEMENTARY SOURCE: 92.8%

HEATING PERFORMANCE

Most heat pumps begin to lose efficiency at 47°F, so more than 92% of homeowners who install heat pumps keep their existing heat sources or install supplemental heat sources.

ABOUT BIODIESEL AND RENEWABLE DIESEL

Sources: Massachusetts Department of Energy Resources; Massachusetts Clean Energy Center.

- Made from plant-based oils, used cooking oils, and animal fats
- Clean-burning ultra-low carbon
- Can be used in any diesel engine without modification
- Commercially available nationwide
- Today's solution for heavy-duty trucking, emergency vehicles, bus fleets, and farm equipment