

Climate-Friendly Heating and Cooling



Bob Zogg
Carlisle Earth Day
April 22, 2021



The HeatSmart Alliance

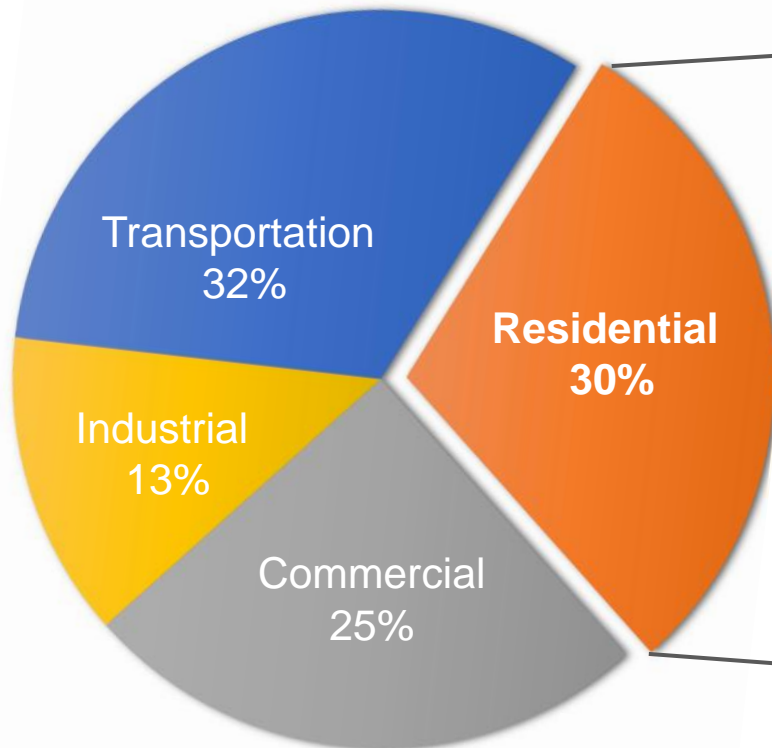
Mission: Reduce greenhouse gas emissions by accelerating the adoption of energy-efficient heat pumps in MA homes and buildings

- **Applications:** Home heating, home cooling, water heating
- All-volunteer organization
- 22 MA communities (~ 230,000 households) and growing
- **Approach:** Educate / Coach / Collaborate

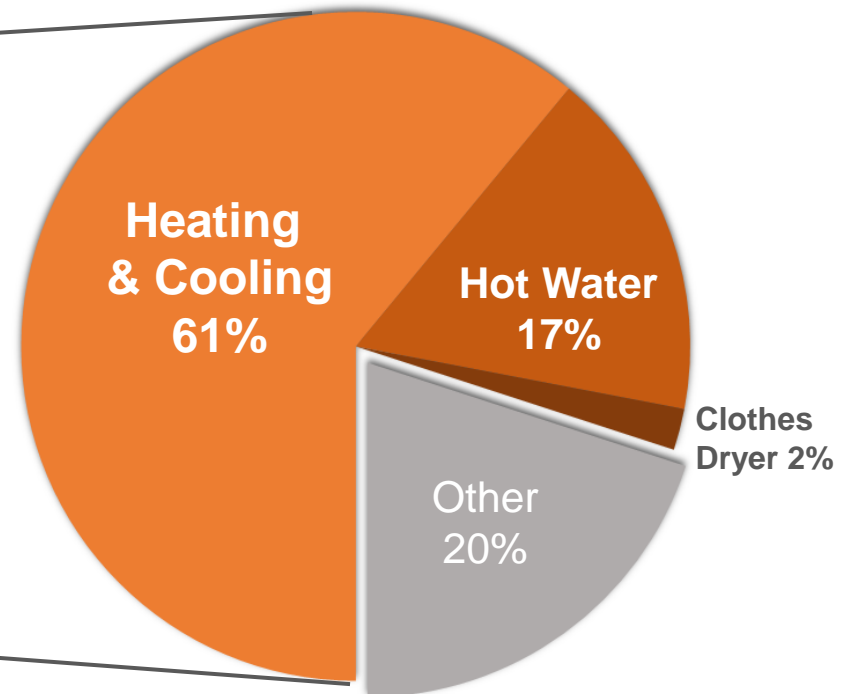


Home heating and cooling matters...

New England Energy Use*



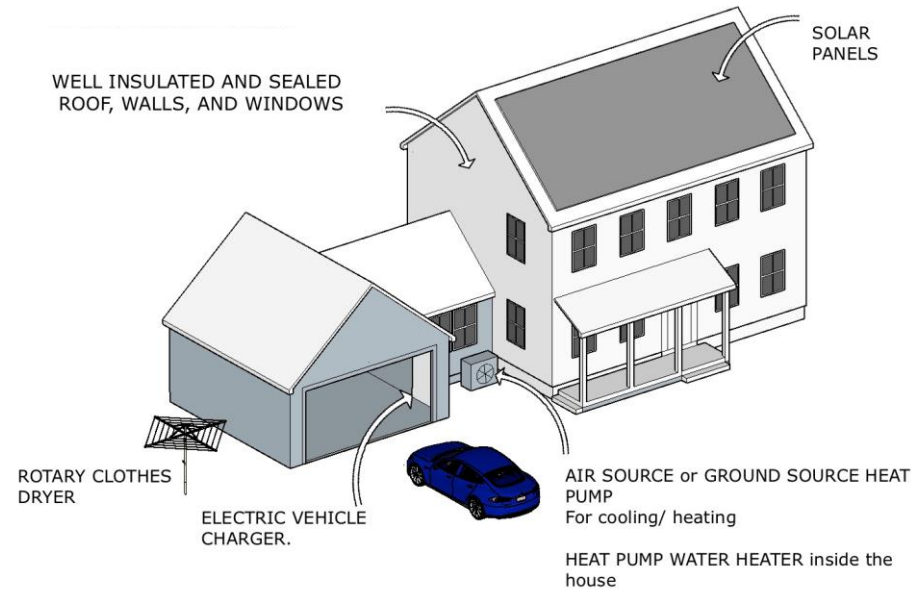
Average Home Energy Use*



About 80% of home energy load can be handled by heat pumps

Path to home decarbonization

1. Weatherize
– *insulate, air seal*
2. Electrify
3. Shift to renewable electricity



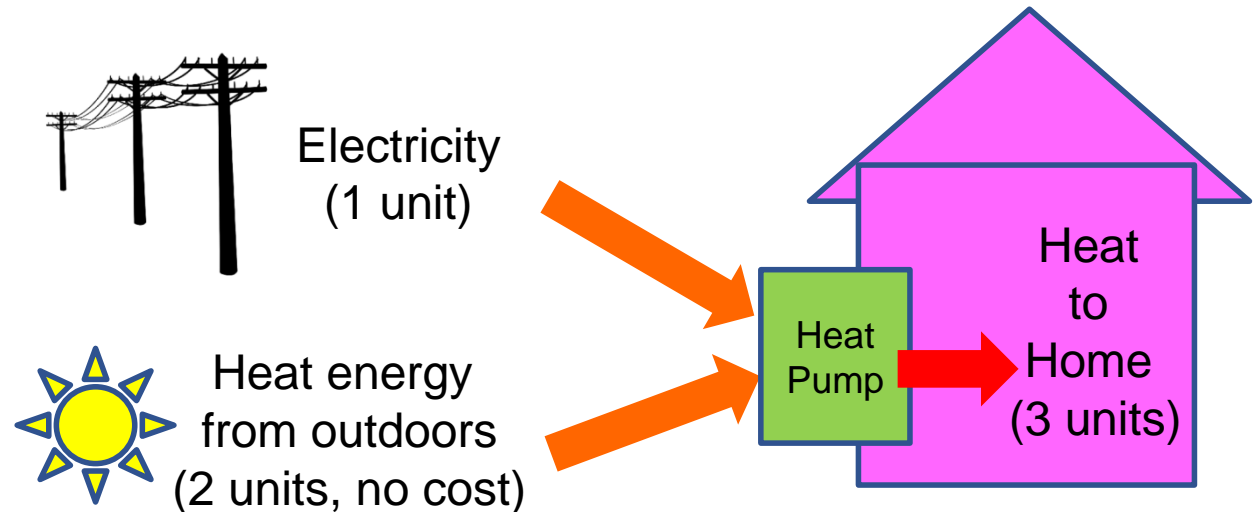
Renewable electricity ↑



Insulation photo courtesy of NEEP

What's a heat pump?

- “Pumps” heat from a **cooler** place to a **warmer** place
- Used in refrigerators, dehumidifiers, air conditioners
- Available for:
 - Home heating *and* cooling
 - Water heating
 - Clothes drying
 - Pool heating



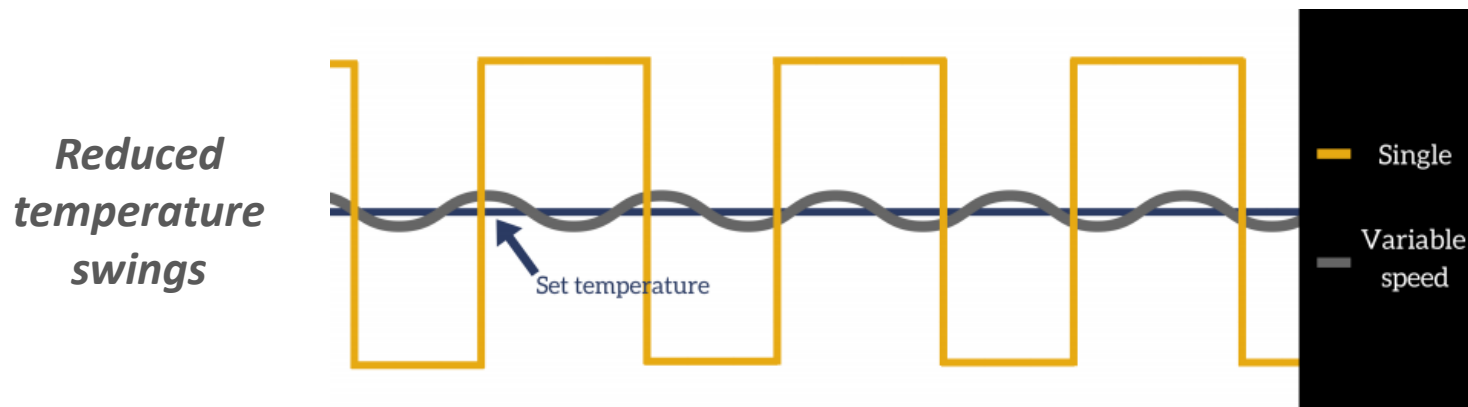
Today's Heat Pumps

- Work well in New England's climate
- Deliver warm, comfortable air
- Operate reliably



What's in it for you?

- Superior ***year-round comfort*** (summer and winter)
- ***Substantial reduction*** in greenhouse gas emissions
- **Energy-cost savings**
 - Modest vs. fuel oil
 - Significant vs. propane or electric baseboards
- A ***safer home*** (no carbon monoxide risk, low fire risk)



Example Heat Pumps

Air-Source— Ductless “Mini-Split”



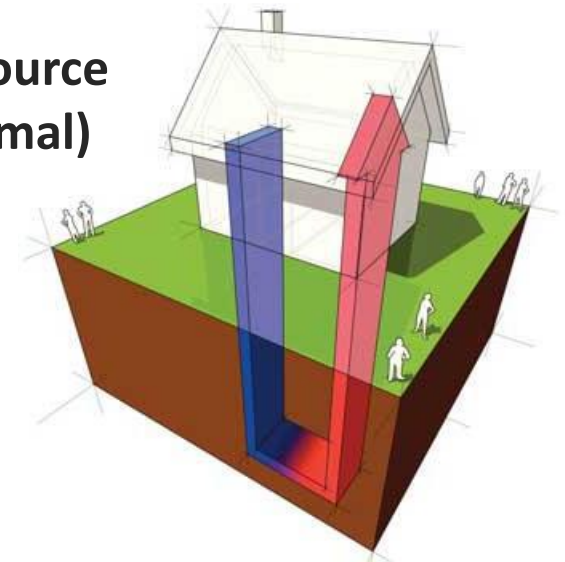
Air-Source— Central, Ducted



Heat-Pump Water Heater (Hybrid Water Heater)



Ground-Source (Geothermal)



*Some photos courtesy of NEEP.
No brand endorsement intended.*

When to consider a heat pump



- Your heating **or** AC system is over 15 years old
 - *Don't wait until system fails and replacement is urgent*
- Your house does not have AC and you want it
 - *Heat pumps provide both efficient heating **and** cooling*
- You're building an addition or new house
 - *A heat pump can provide 100% of heating and cooling needs*

How do I get started?

- Get informed
 - Visit <http://heatsmartalliance.org/>
- Get a home energy assessment
 - *Weatherize to the extent practical*
- Get help from your community heating coach
- Get 2-3 quotes from heating/cooling installers
 - *Every home is unique*

