



BUILDING
DECARBONIZATION
COALITION



Thermal Energy Networks - National Landscape

November 2023

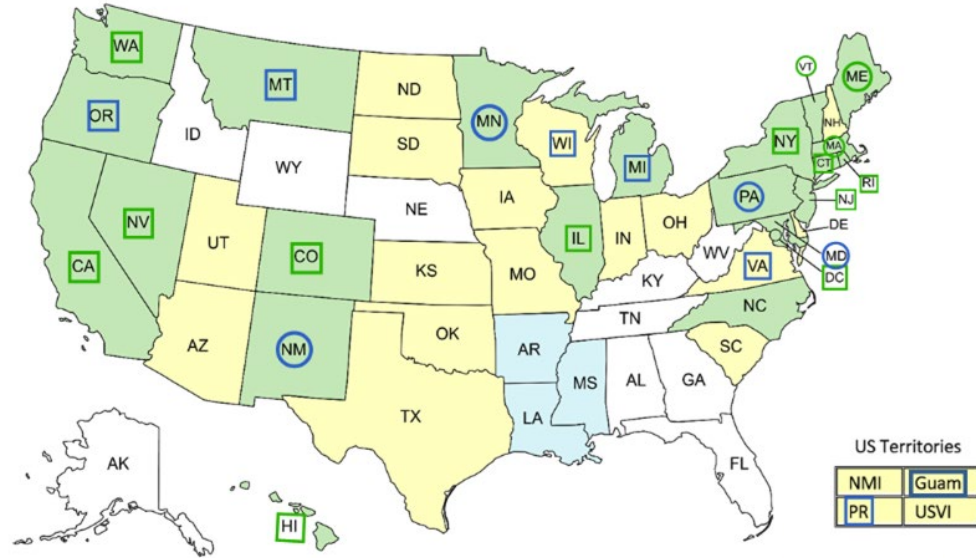
Who we are

The **Building Decarbonization Coalition** unites building industry stakeholders to electrify the building sector through public policy, consumer inspiration, market transformation, and research.

On TENs, we collaborate closely with **HEET**.



Emission Reduction Commitments

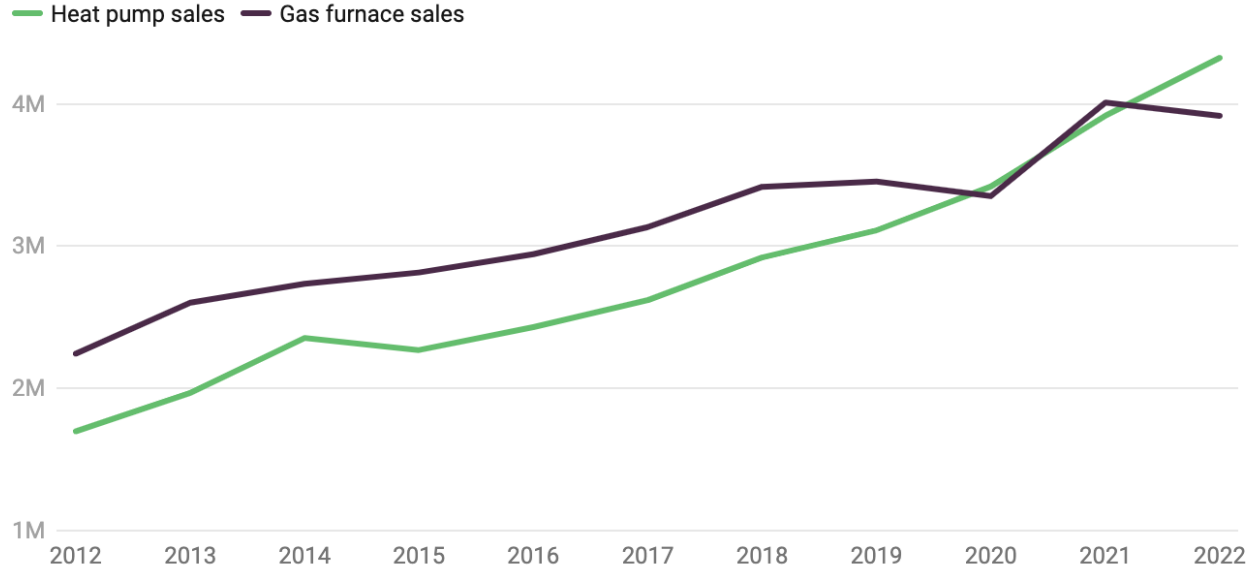


Key:

- Green Square: Jurisdictions with both GHG and RPS/CEPS Commitments
- Yellow Square: Jurisdictions with RPS/CEPS only, or Blue Square with EE Standard only

For **either** GHG or RPS/CEPS, at least 75% (Green Circle) or 100% (Green Square) by 2050 or sooner
 For **both** GHG and RPS/CEPS, at least 75% (Green Circle) or 100% (Green Square) by 2050 or sooner

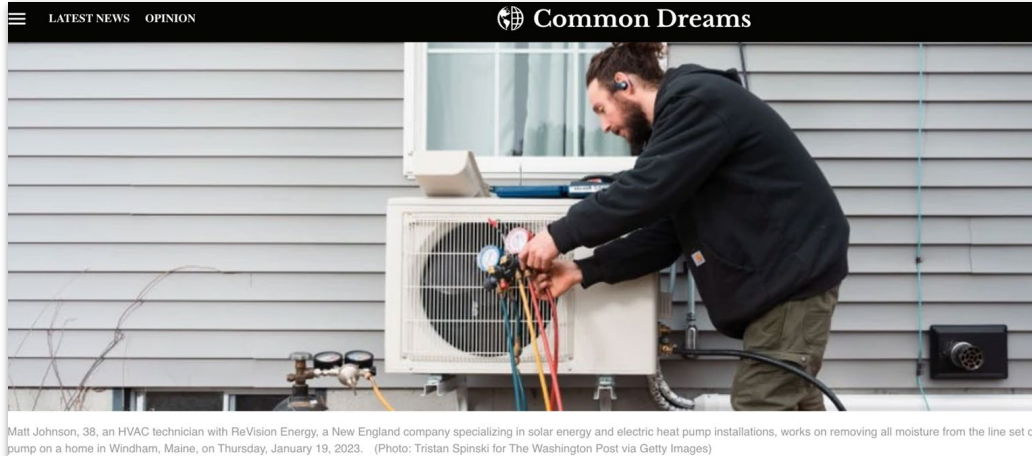
Heat pump sales in U.S. surged past gas furnaces in 2022



2022 figures include sales data for Jan–Nov and projected sales for Dec.

Chart: Canary Media • Source: [Air-Conditioning, Heating, and Refrigeration Institute](#) • [Embed](#) • [Download image](#)

20 Million Heat Pumps by 2030



Matt Johnson, 38, an HVAC technician with ReVision Energy, a New England company specializing in solar energy and electric heat pump installations, works on removing all moisture from the line set of a heat pump on a home in Windham, Maine, on Thursday, January 19, 2023. (Photo: Tristan Spinski for The Washington Post via Getty Images)

‘Almost a Miraculous Solution’: 25 Governors Vow to Quadruple Heat Pump Installations

The heat pump target is part of a broader push to decarbonize buildings—which currently contribute more than 30% of the U.S.’ climate-heating emissions.



The U.S. Climate Alliance—a group of 25 governors leading states that make up 60% of the U.S. economy and 55% of its population—pledged Thursday to quadruple the number of heat pumps installed in their states by 2030.

Benefits of Installing Heat Pumps

- **Comfort:** heating and cooling
- **Efficiency:** more efficient than gas systems and baseboard electric and AC
- **Health:** improved indoor air quality
- **Safety:** only water in the pipes
- **Decreased emissions:** no on-site emissions
- **Costs:** state and federal incentives

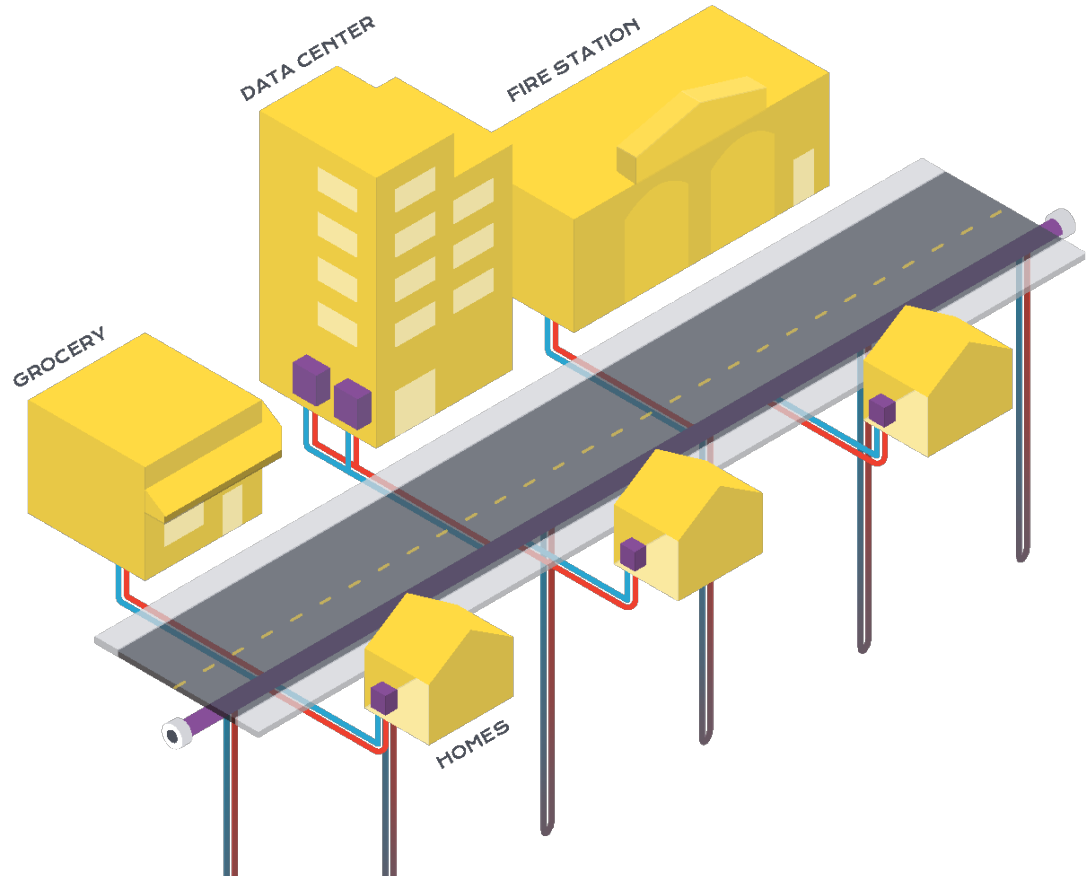


Fleeing Customers, Increasing Gas Bills

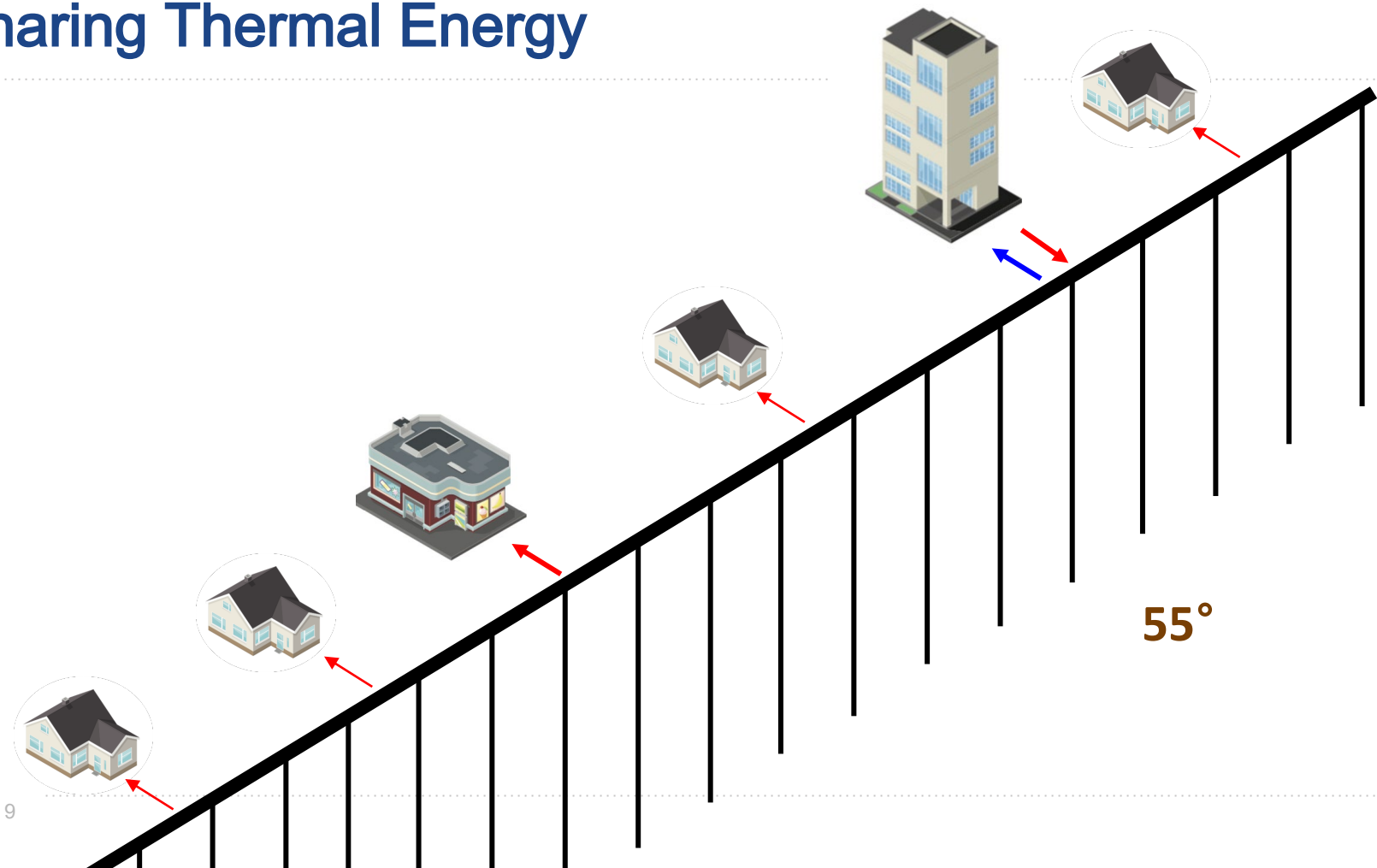


Thermal Energy Networks - Networked Geothermal

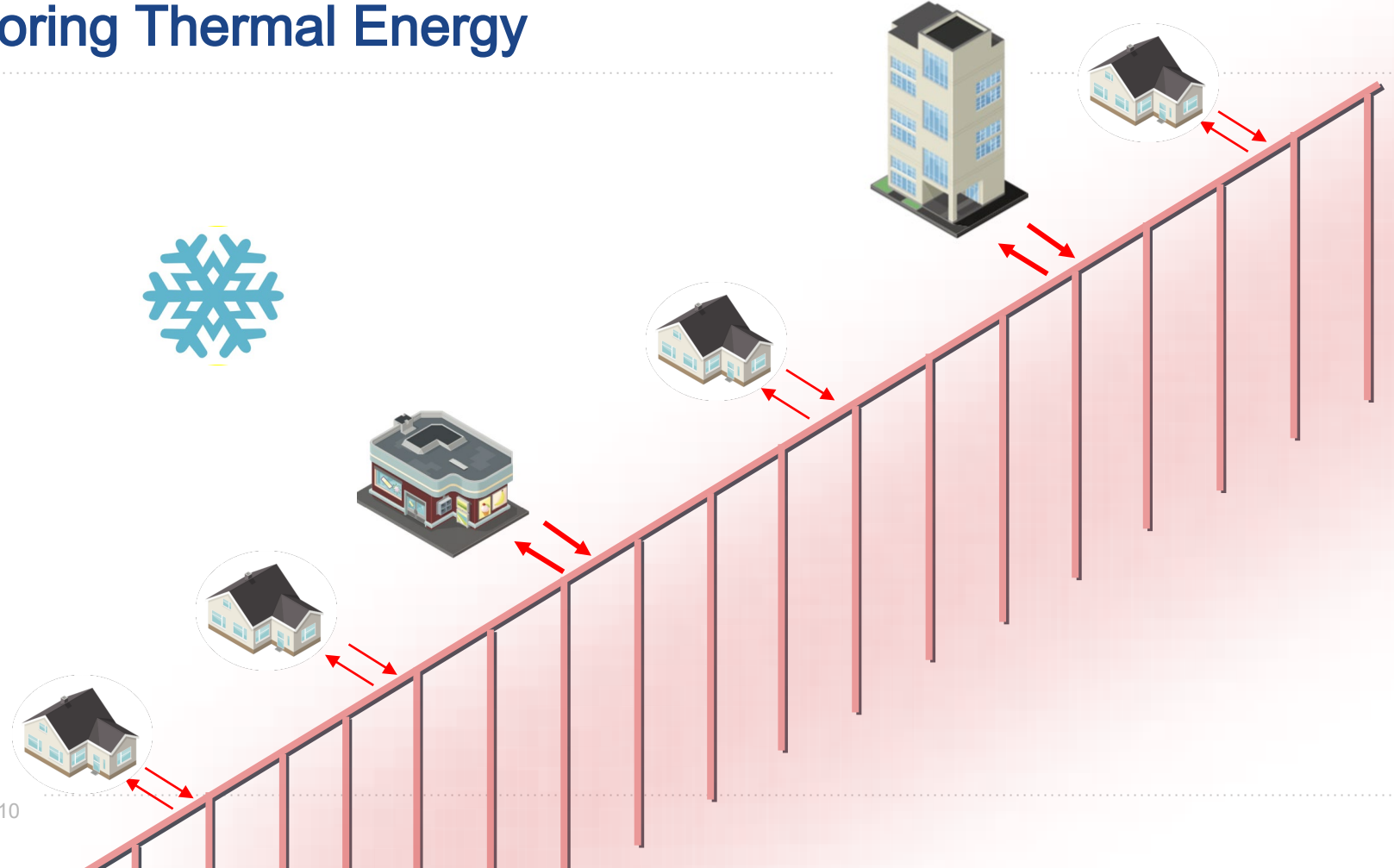
- Infrastructure in the street
- “Shallow” boreholes
- Single pipe
- Ambient temperature



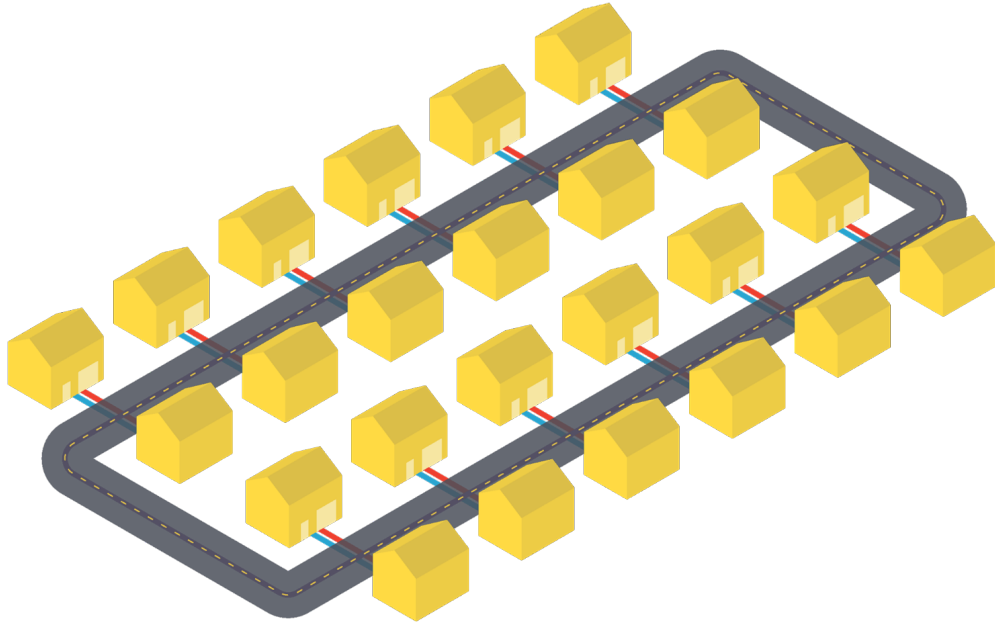
Sharing Thermal Energy



Storing Thermal Energy

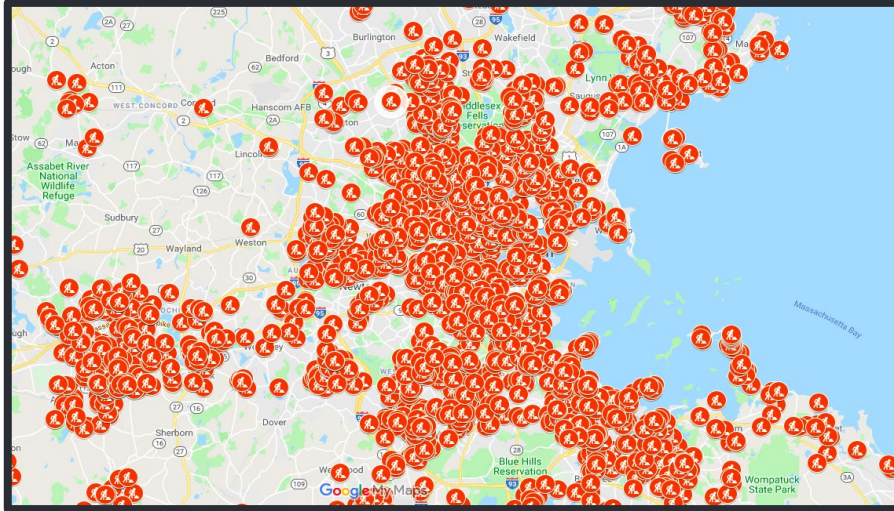


TENs System Benefits



- Path for gas utilities and workers
- Equitable and Affordable Transition
- Benefits to the electric grid

Path for Gas Utilities and Workers



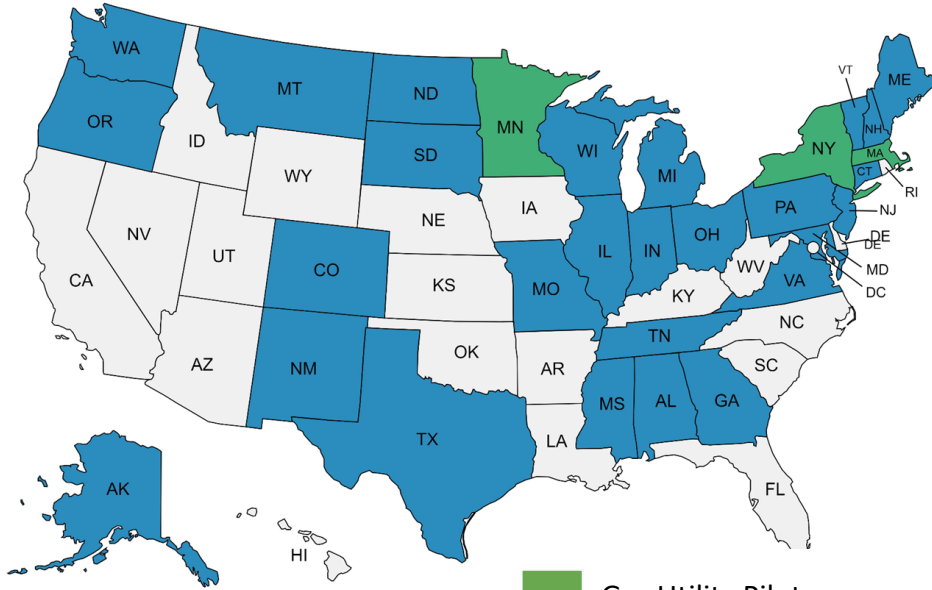
- Safe and systematic decommissioning the existing infrastructure
- Workforce with comparable skills
- Speed and scale needed to meet mandates

Utility Business Model



- High capital expenditures
- Year round revenue (not just heating)
- No price volatility
- Safe
- IRA incentives

Utility Interest



■ Proposed Pilots
■ Utility NetGeo Coalition

- Gas Utility Pilots
- Utility NetGeo Coalition

Updated Oct 2, 2023



Equitable & Affordable Transition



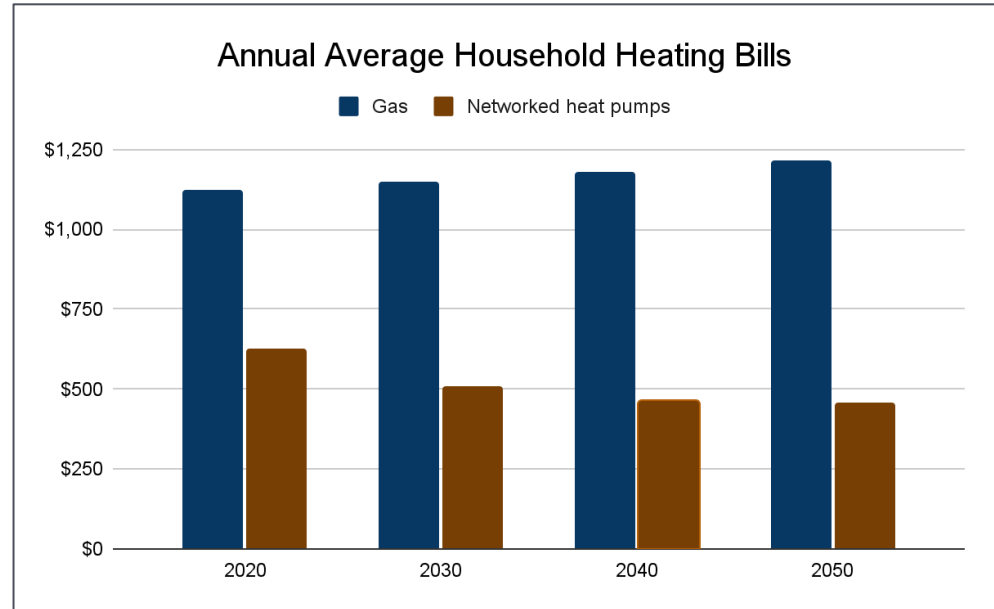
- Eversource pilot in MA
- 37 Buildings, 140 customers
- Includes offices, businesses, households
- Cost of installation spread over all customers and time

Projected Lower Energy Bills

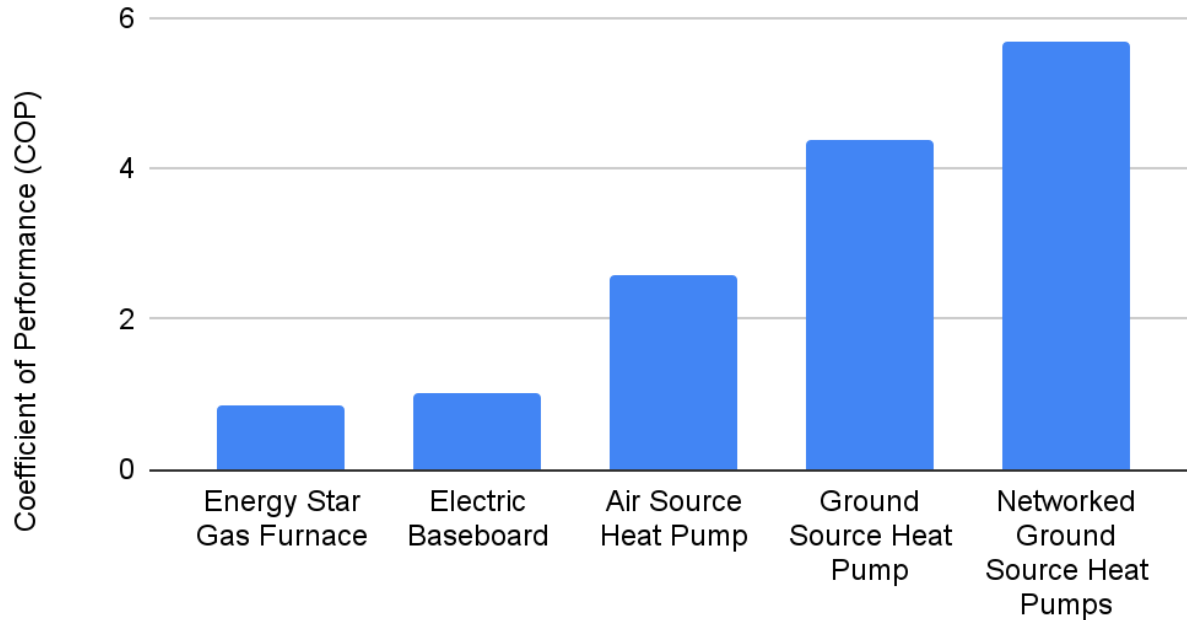
Lower monthly heating bills due to:

- No need to pay for gas
- Reduced energy use because of system efficiency

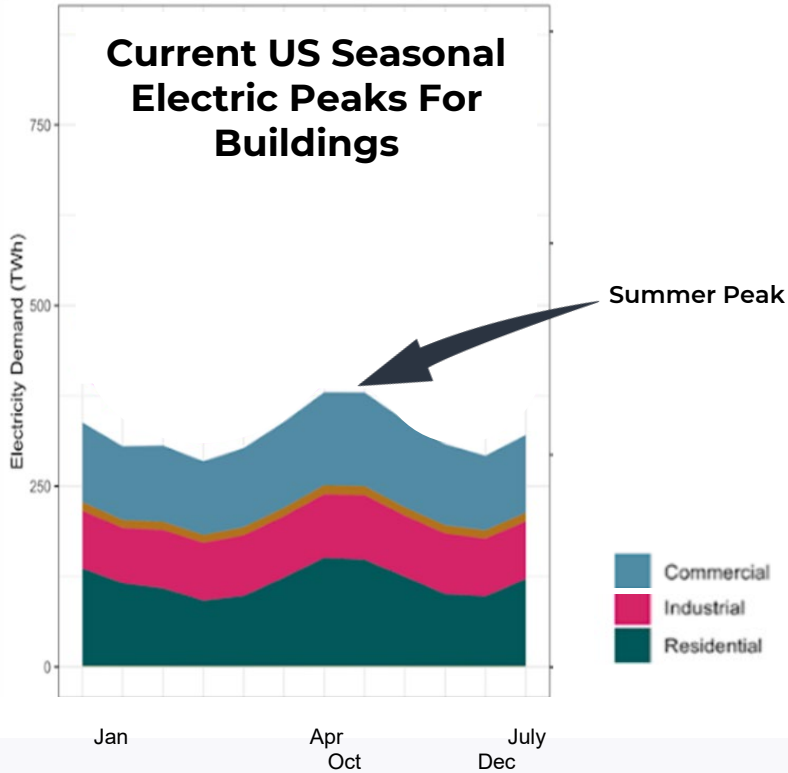
MA Energy Bill Projection
(Applied Economics Clinic Brief)



System Energy Efficiency

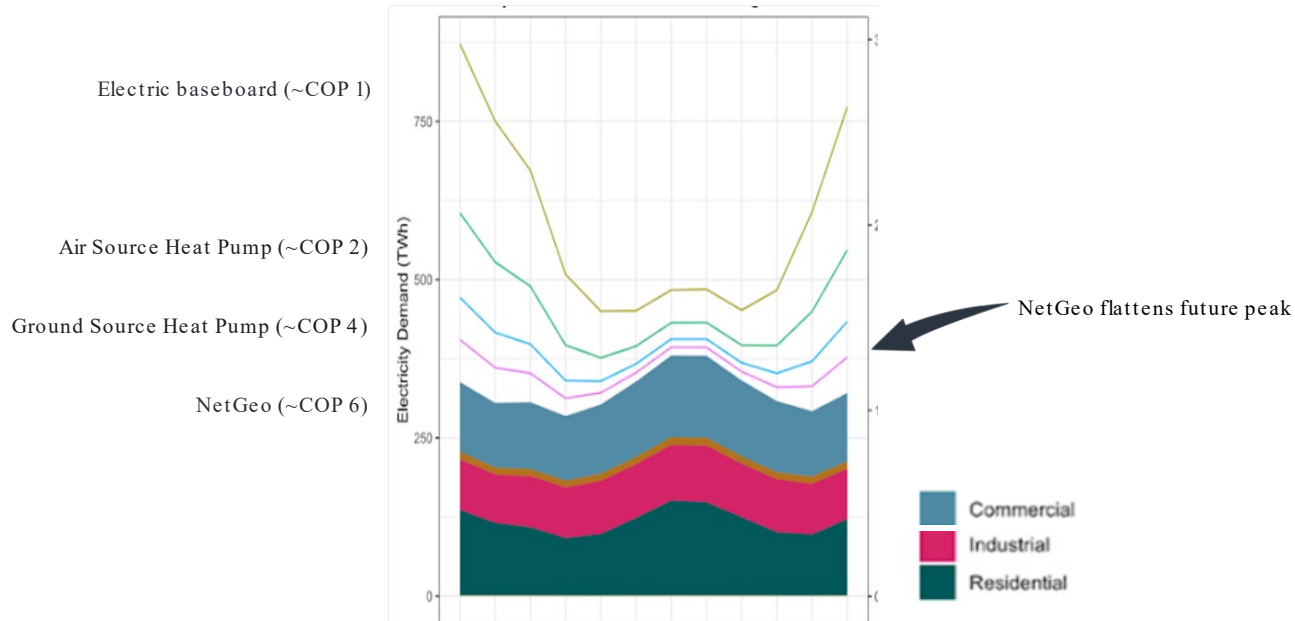


Impact on the Electric Grid

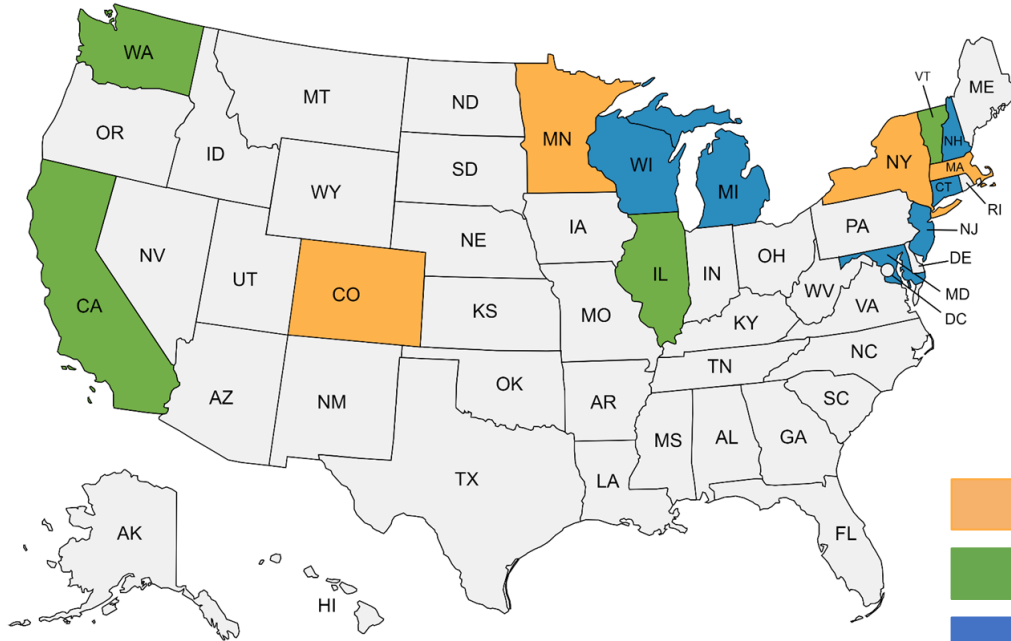


Impact on the Electric Grid

Future US Seasonal Electric Peaks (as we electrify)



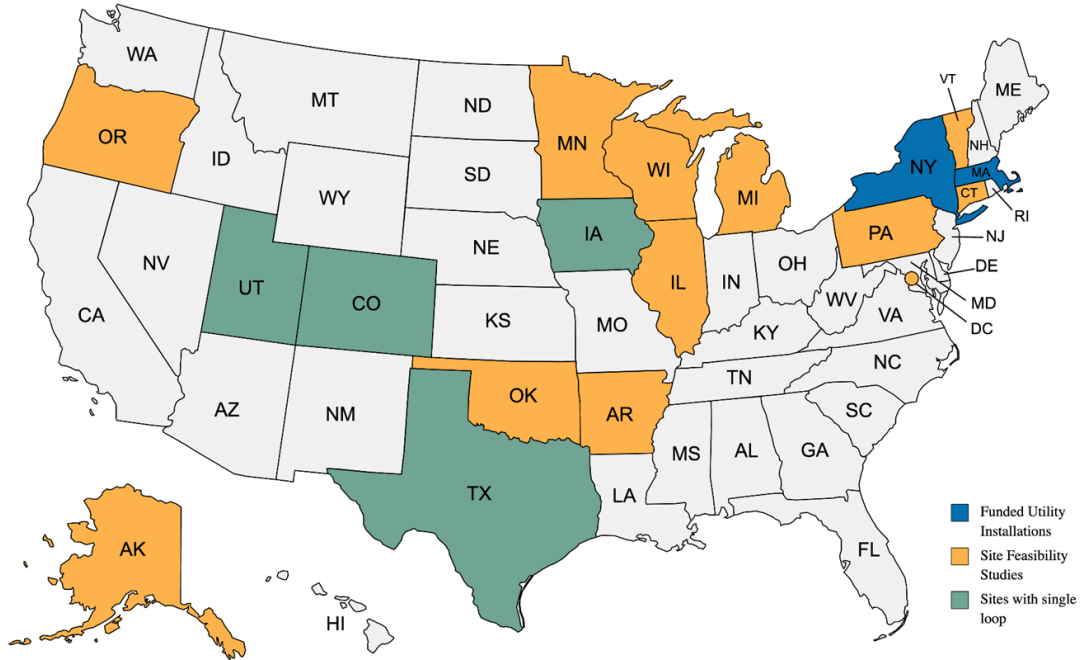
Legislation



- NY - Utility Thermal Network & Jobs Act
- MN - Natural Gas Innovation Act
- CO - Thermal Energy Act
- MA - An Act Driving Clean Energy

- Passed Legislation
- Filed Legislation
- Considering Legislation

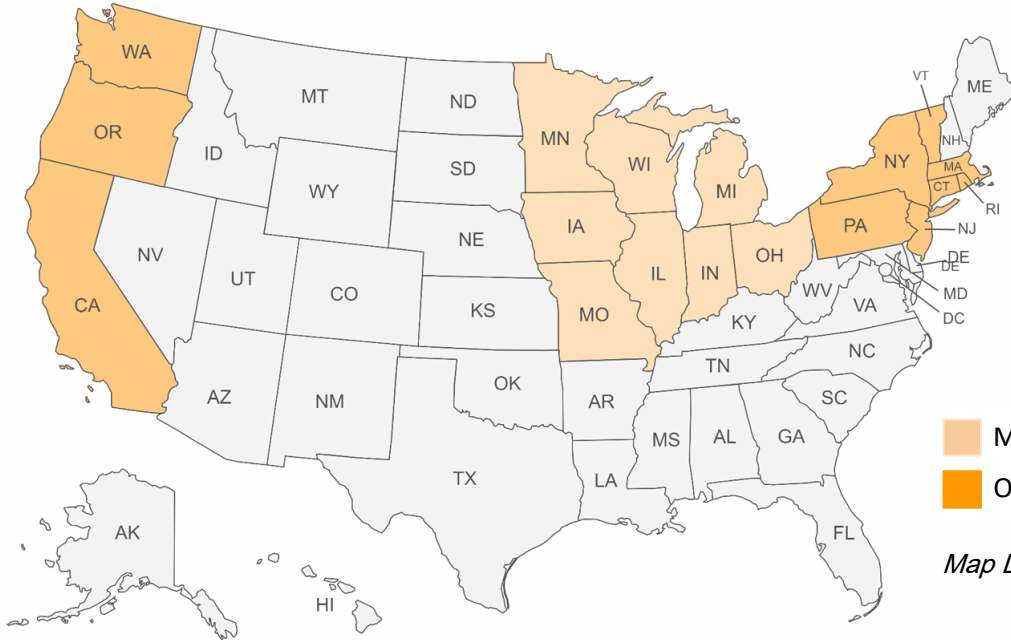
Sites



- >35 NY
- Framingham & Lowell, MA
- Washington, DC
- Philadelphia, PA
- Ann Arbor, MI
- Milwaukee, WI
- Marquette U., WI
- Chicago, IL
- Duluth, MN
- Wallingford, CT
- Carbondale, CO
- Middlebury, VT
- Seward, AR
- Shawnee, OK
- Nome, AK

Created with mapchart.net

TENs Advocate Coalition



- Midwest BDC
- Other Coalition Members

Map Date: 11/11/23



Texas: Whisper Valley

