



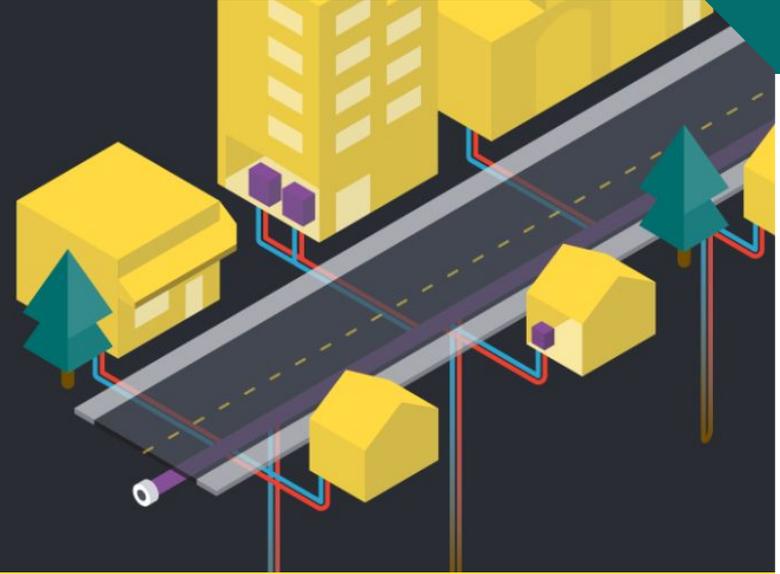
BUILDING  
DECARBONIZATION  
COALITION

**BDC PRESENTS**

Unlocking The Power of  
**Thermal Energy Networks (TENs)**

Thursday  
**Dec.14**

**10AM** PT  
**1PM** ET



# **BDC Presents: Unlocking the Power of Thermal Energy Networks**

**December 14, 2023**

# About the BDC

The Building Decarbonization Coalition (BDC) harnesses the power of coalition to forge paths to upgrade and power homes and buildings with clean electricity, using policy, research, market development and public engagement.

The BDC and its members are charting the course to eliminate fossil fuels in buildings to improve people's health, cut climate and air pollution, prioritize high-road jobs, and ensure that our communities are more resilient to the impacts of climate change.





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DECARBONIZATION  
COALITION**



# **Next up Neighborhood Scale: The Future of Building Decarbonization**

**January 25 at 10 am PT / 1 pm ET**



**BUILDING  
DECARBONIZATION  
COALITION**



# **Next up: California Policy Call**

**January 16 at 10 am PT**

# Webinar Logistics

- Everyone is muted
- Please ask your questions via chat and we will ask speakers to answer at the end of remarks
- This webinar is being recorded and will be placed in our website's Resource Library
- **Membership is free!** Join us! [buildingdecarb.org/join](https://buildingdecarb.org/join)
- **Sign up for our newsletter!**  
<https://buildingdecarb.org/newsletter>



# Today's Panelists



**Ania Camargo**

*BDC*

Thermal Networks Sr. Manager

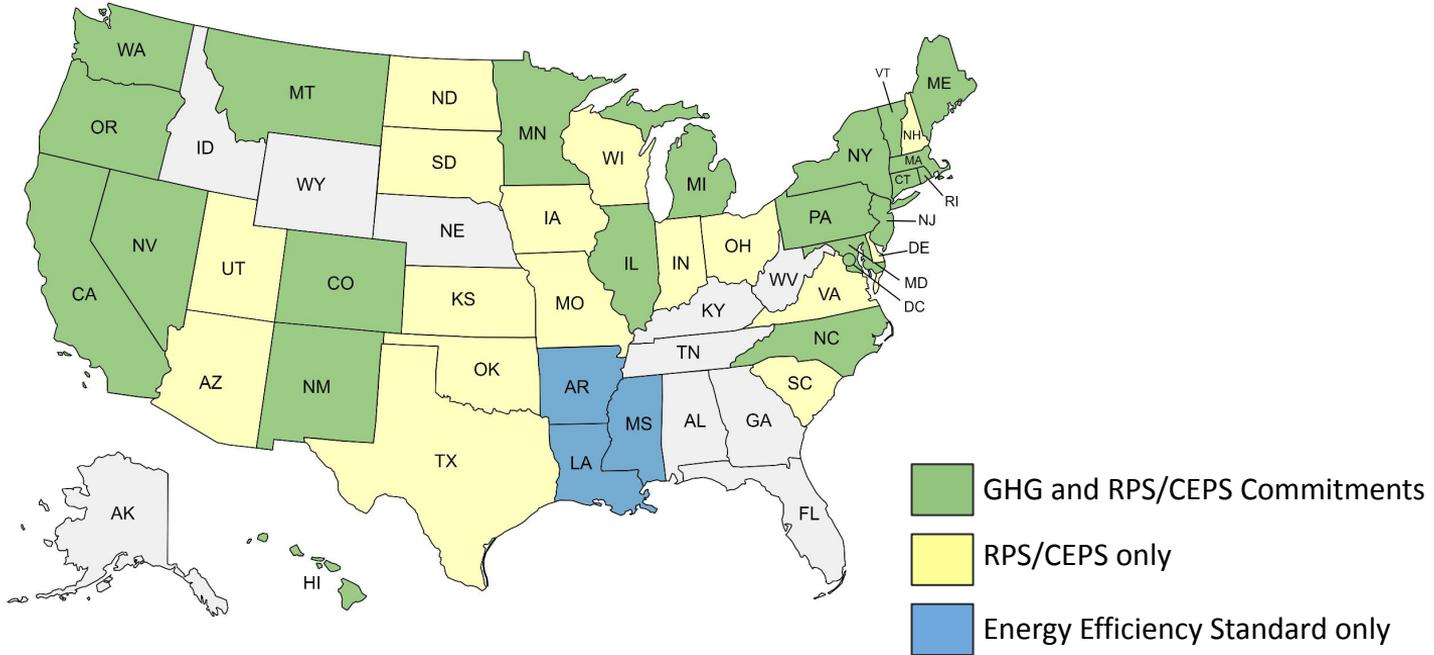


**Matt Rusteika**

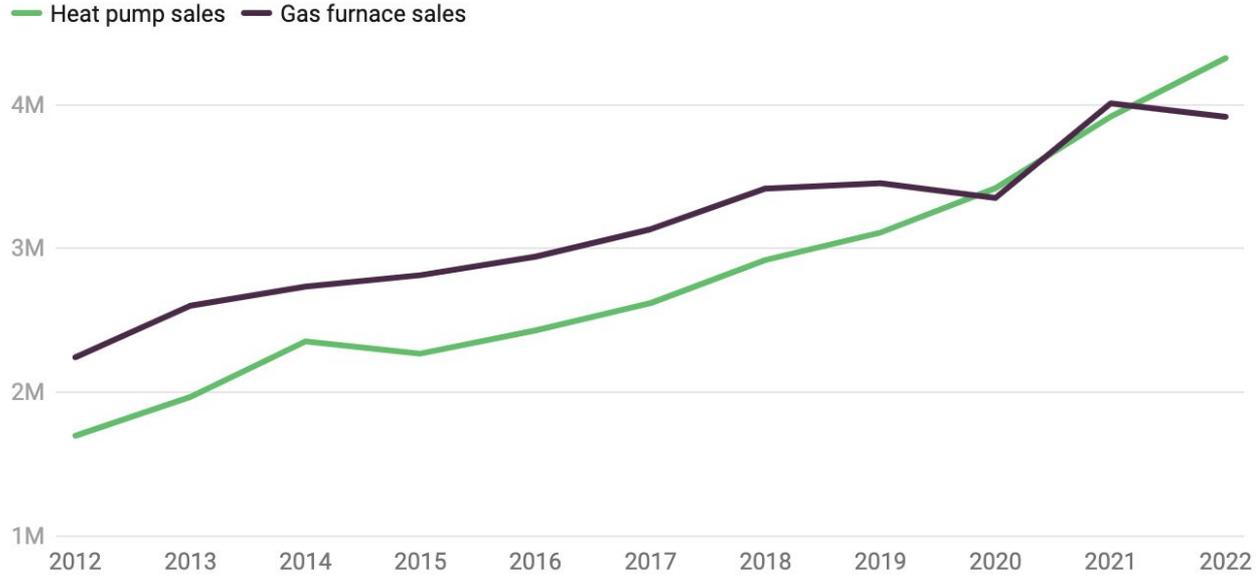
*BDC*

Director Market Transformation

# Emission Reduction Commitments



## 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

Common Dreams



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
- **Decreased emissions:** no on-site emissions
- **Costs:** state and federal incentives

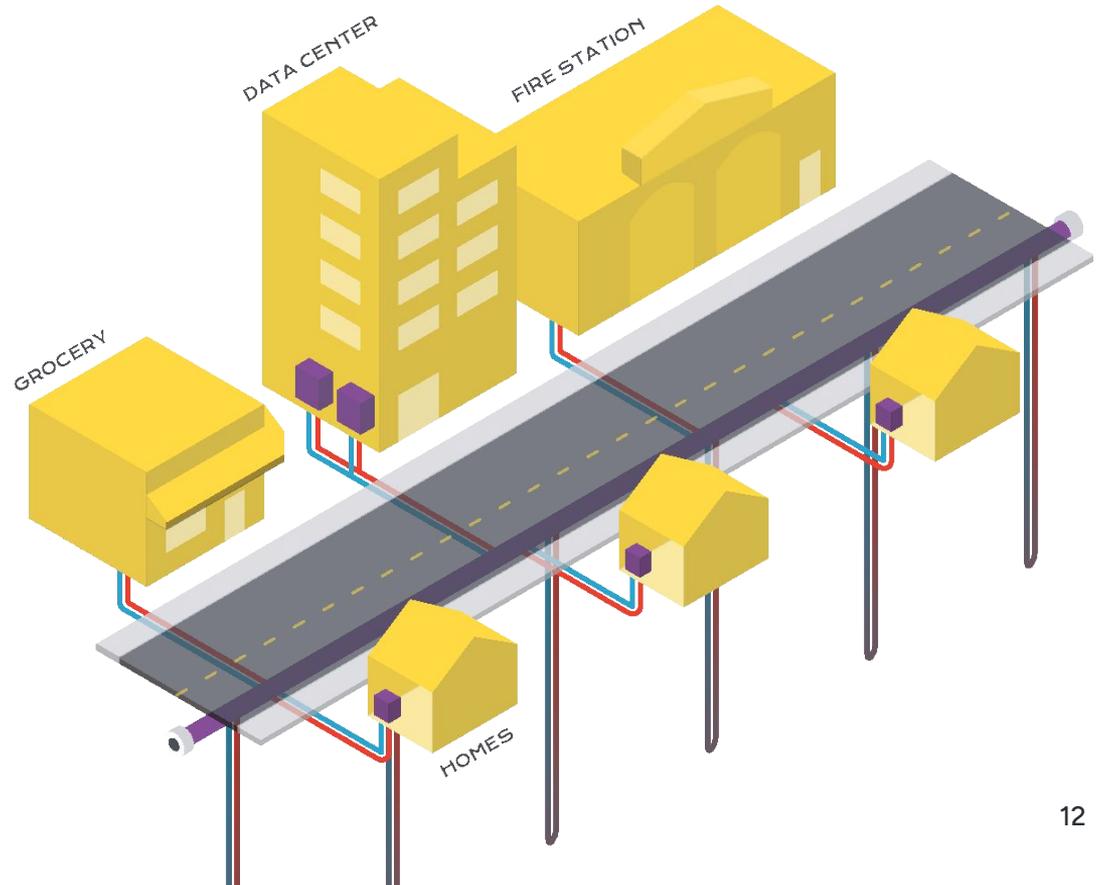


# Fleeing Customers, Increasing Gas Bills

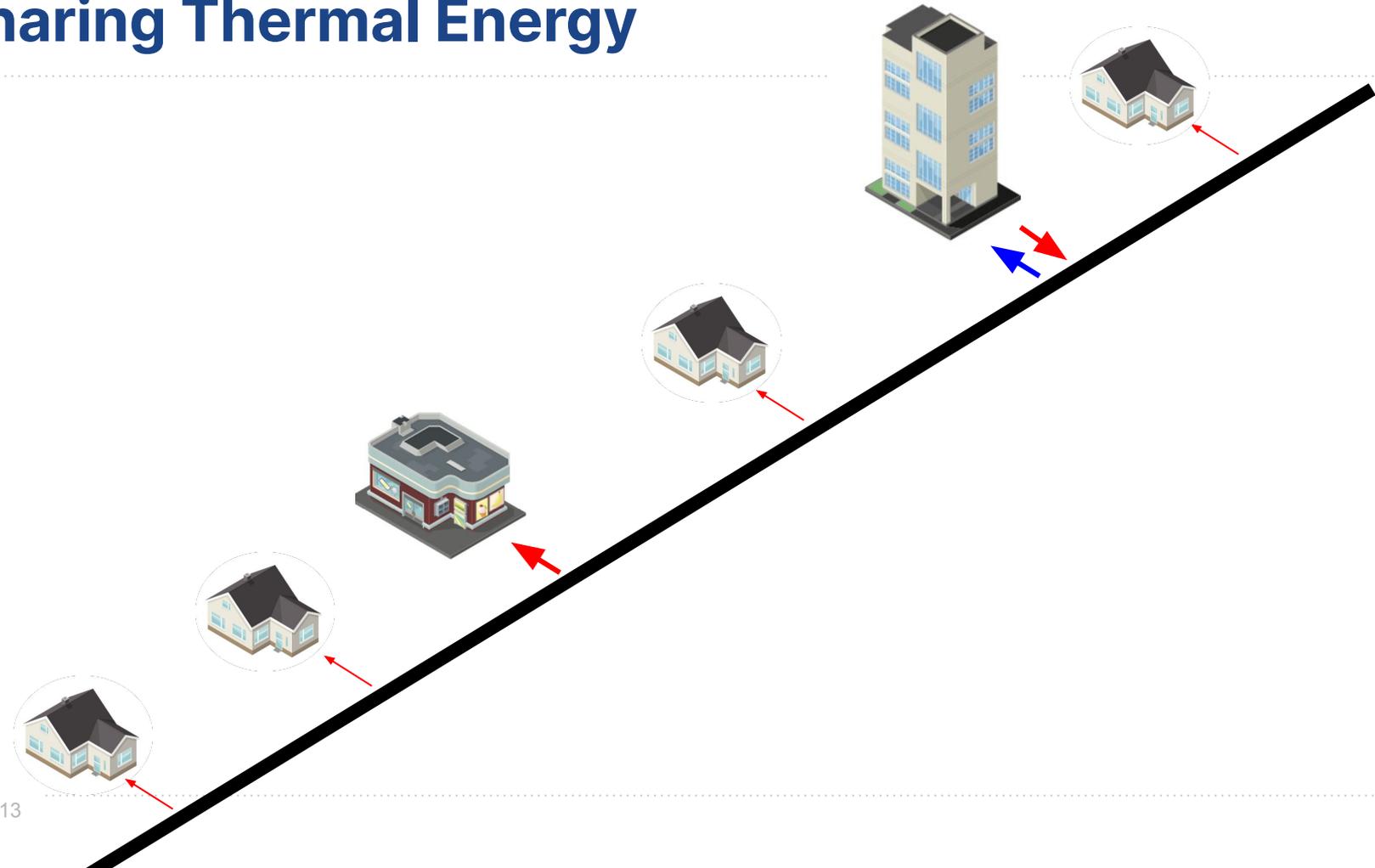


# Thermal Energy Networks: Networked Geothermal

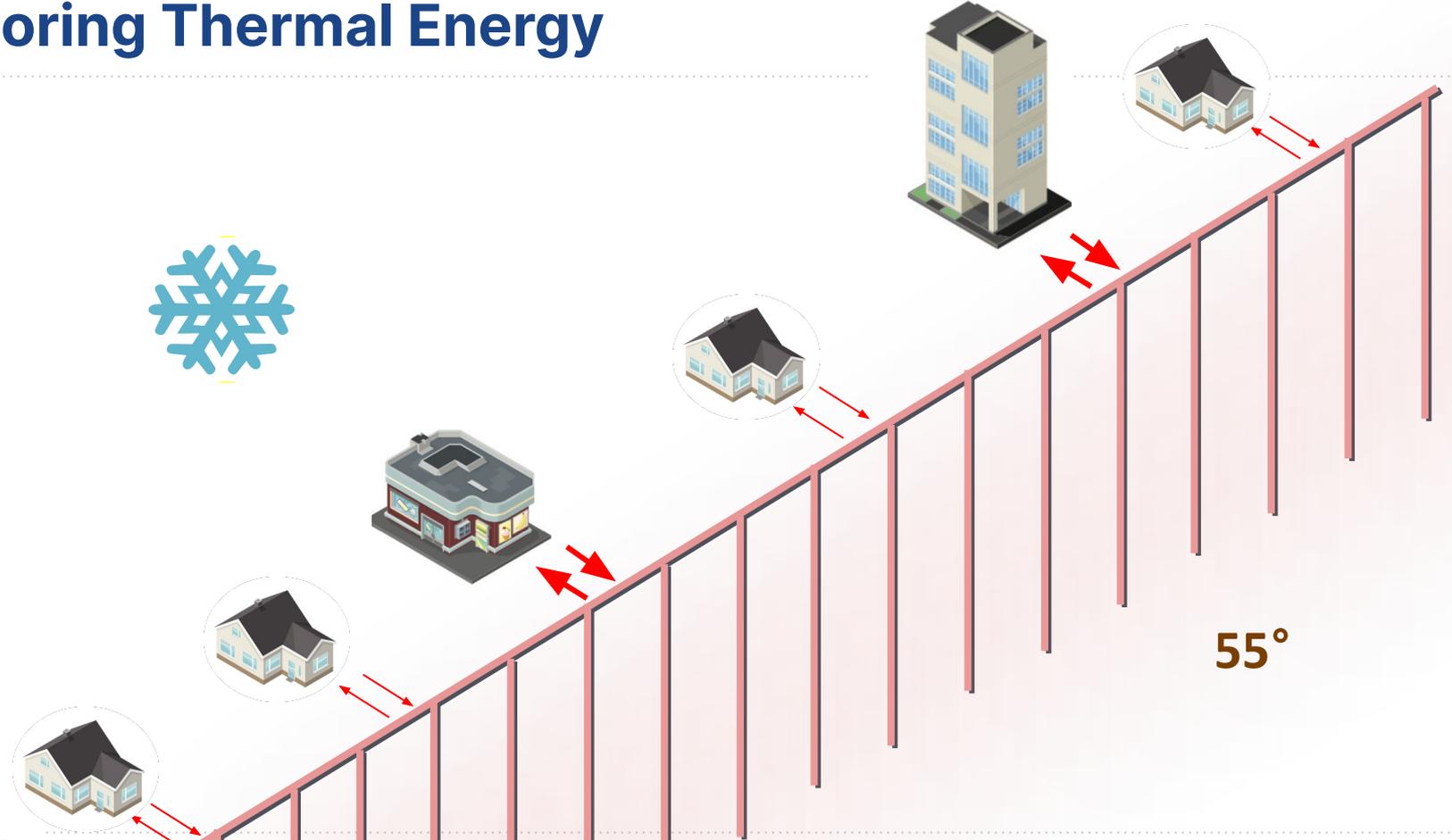
- Infrastructure in the street
- Heat pump in every building
- Single pipe
- Ambient temperature
- “Shallow” boreholes



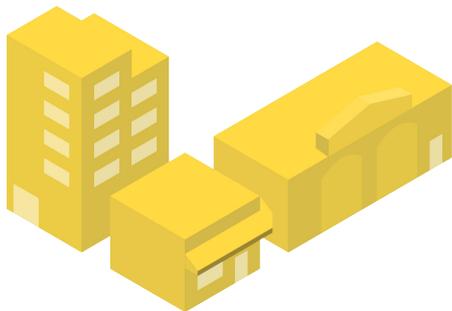
# Sharing Thermal Energy



# Storing Thermal Energy

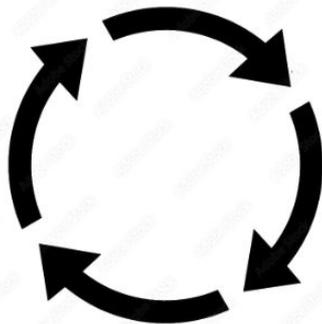


# Thermal Energy Network Flexibility



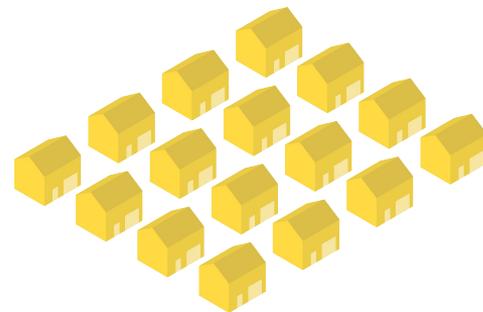
## Sources of heat

- Sewer water
- Data center
- Refrigerated Warehouse
- Ice rink
- Offices buildings



## Thermal Reservoir

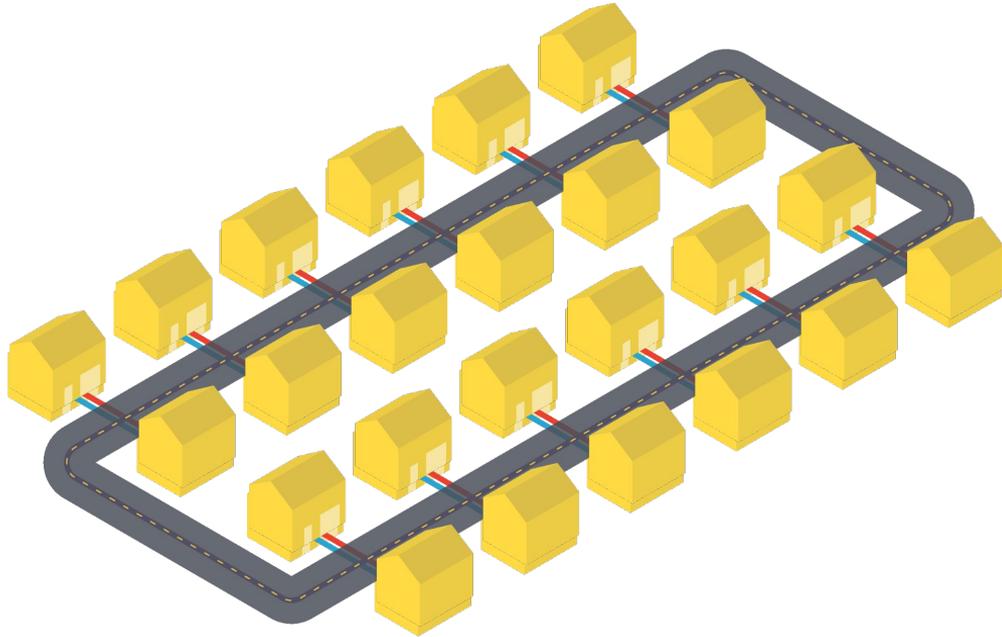
- Bedrock (boreholes)
- Ocean
- Big lakes & rivers
- Water tank



## Sinks for heat

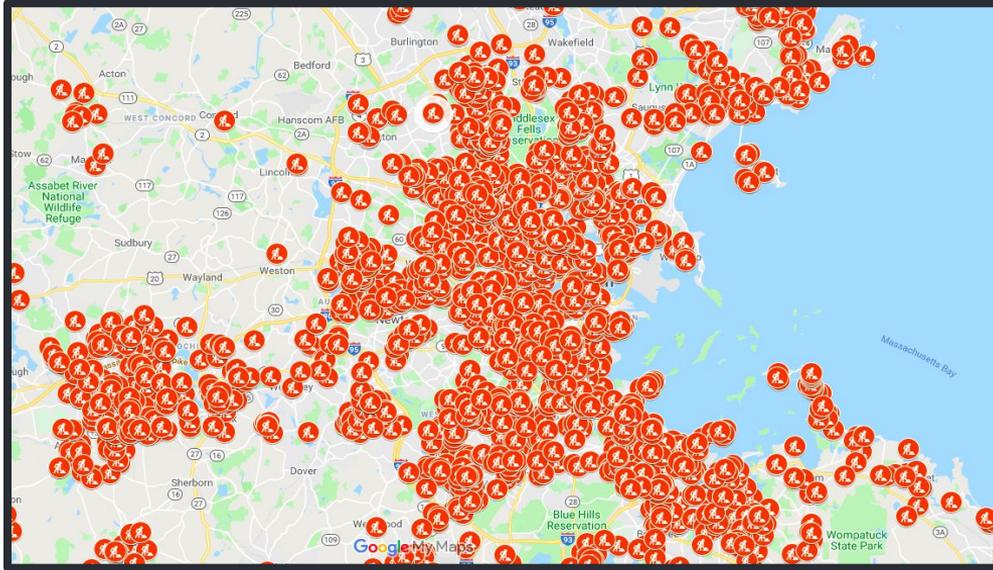
- Homes during winter
- Domestic hot water
- Irrigation water
- Sidewalks during winter (melts snow)
- Greenhouse

# Neighborhood Scale Transition



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

# Path for Gas Utilities

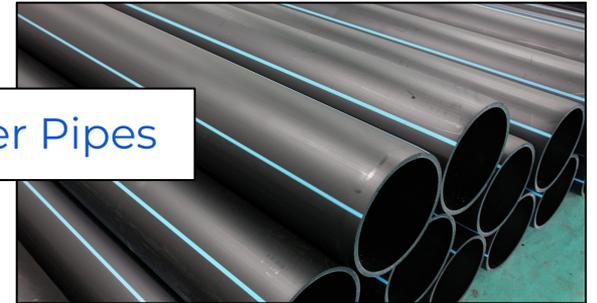


- Safe and systematic decommissioning the existing infrastructure
- Speed and scale needed to meet mandates

# Path for Utility Workers

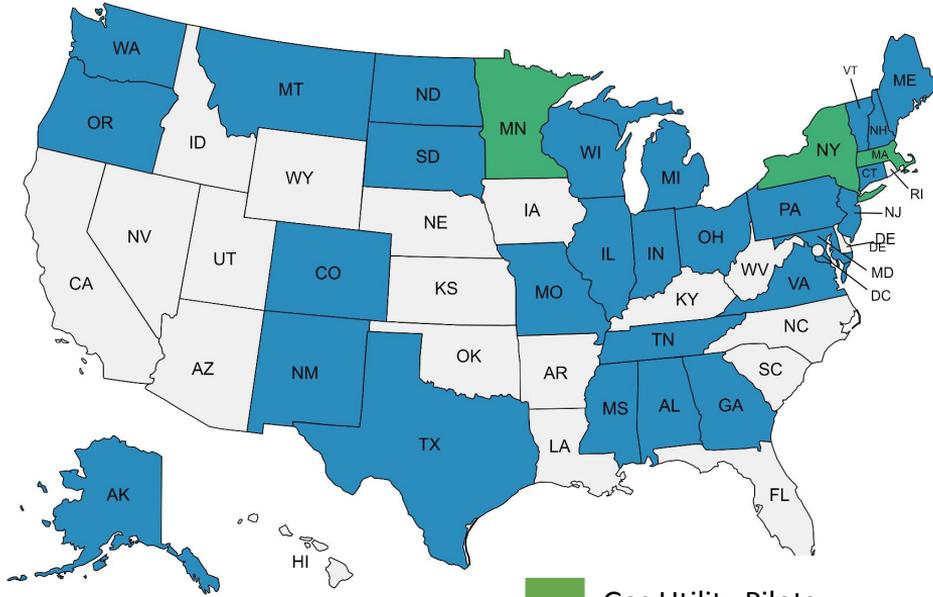


Gas Pipes



Water Pipes

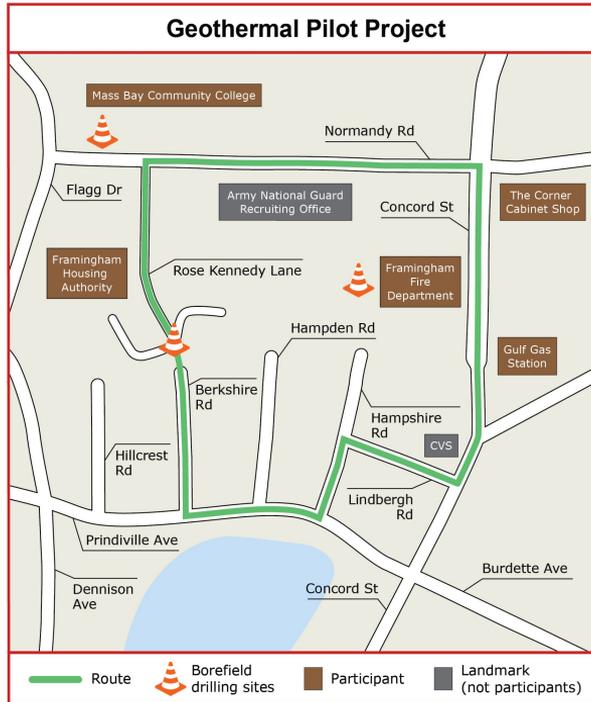
# Utility Interest



Gas Utility Pilots  
 Utility NetGeo Coalition



# Equitable & Affordable Transition



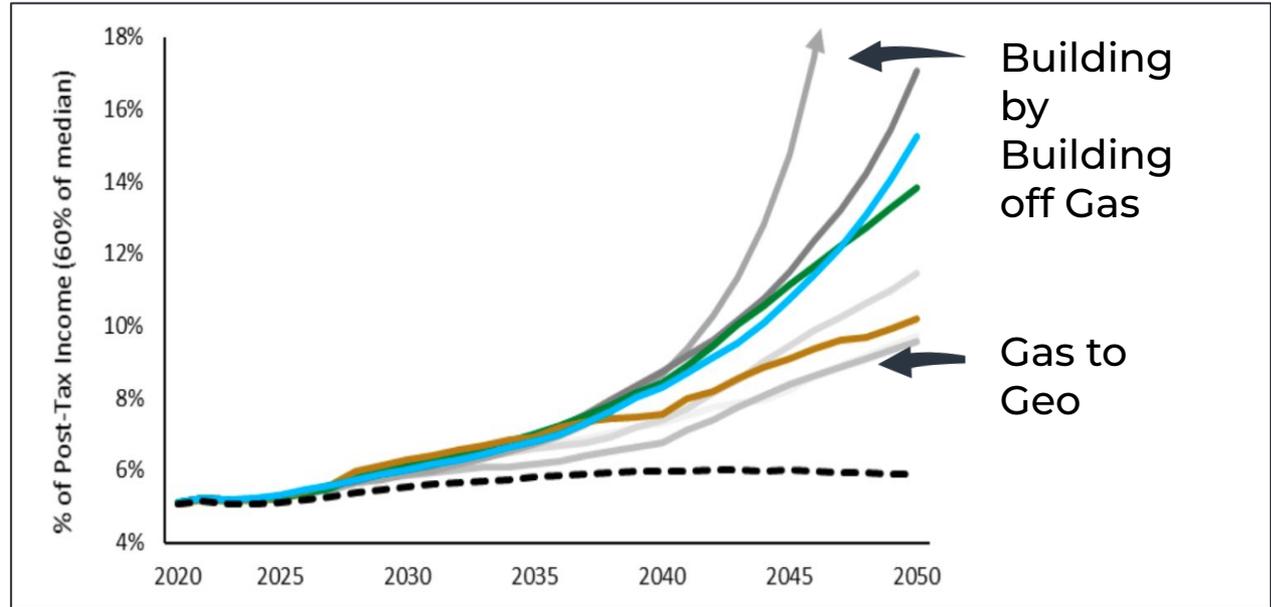
## Eversource pilot in MA:

- EJ community
- 37 Buildings, 140 customers
- Converting gas, oil and resistance electric
- Includes offices, businesses, households
- Cost of installation spread over all customers and time

# Projected Lower Energy Burden

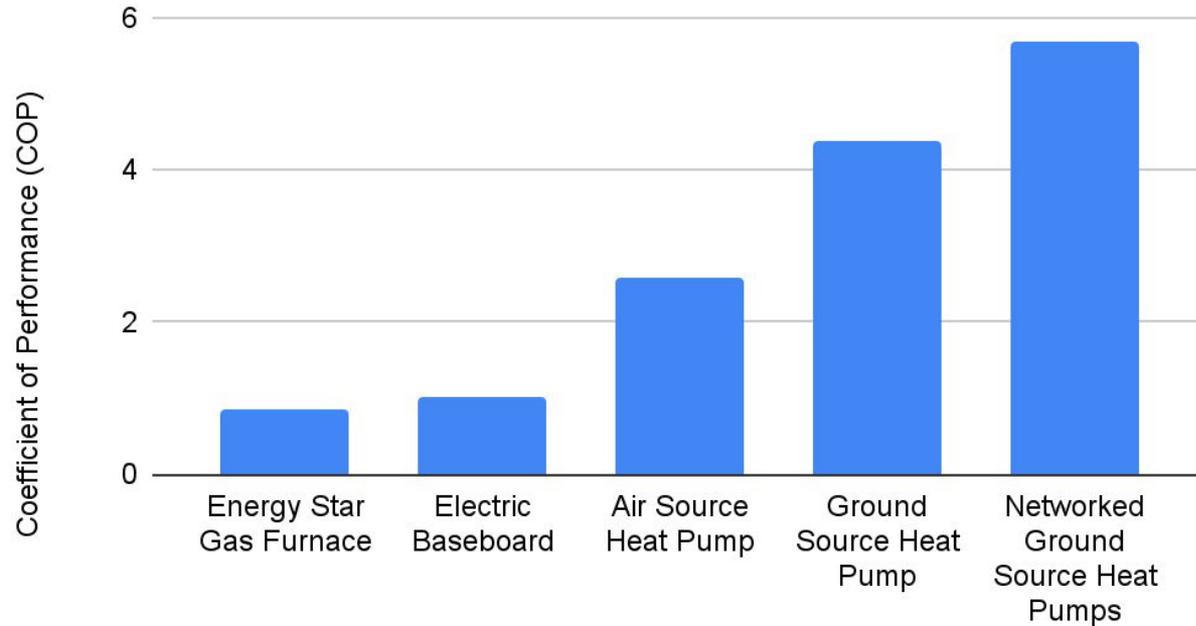
Lower bill due to:

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

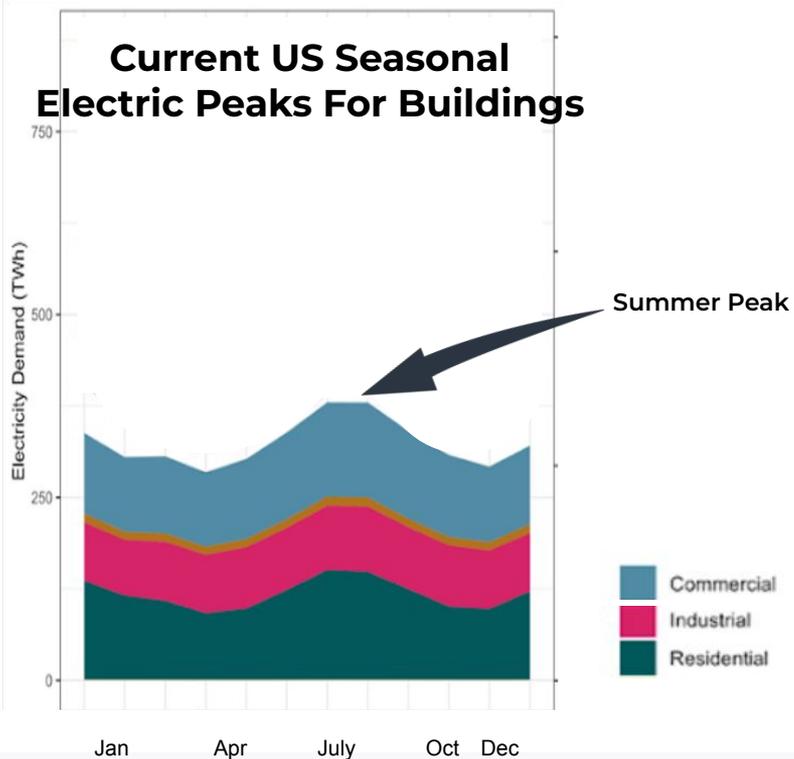


Source: E3, Report for Massachusetts Gas Utilities, 2022

# System Energy Efficiency

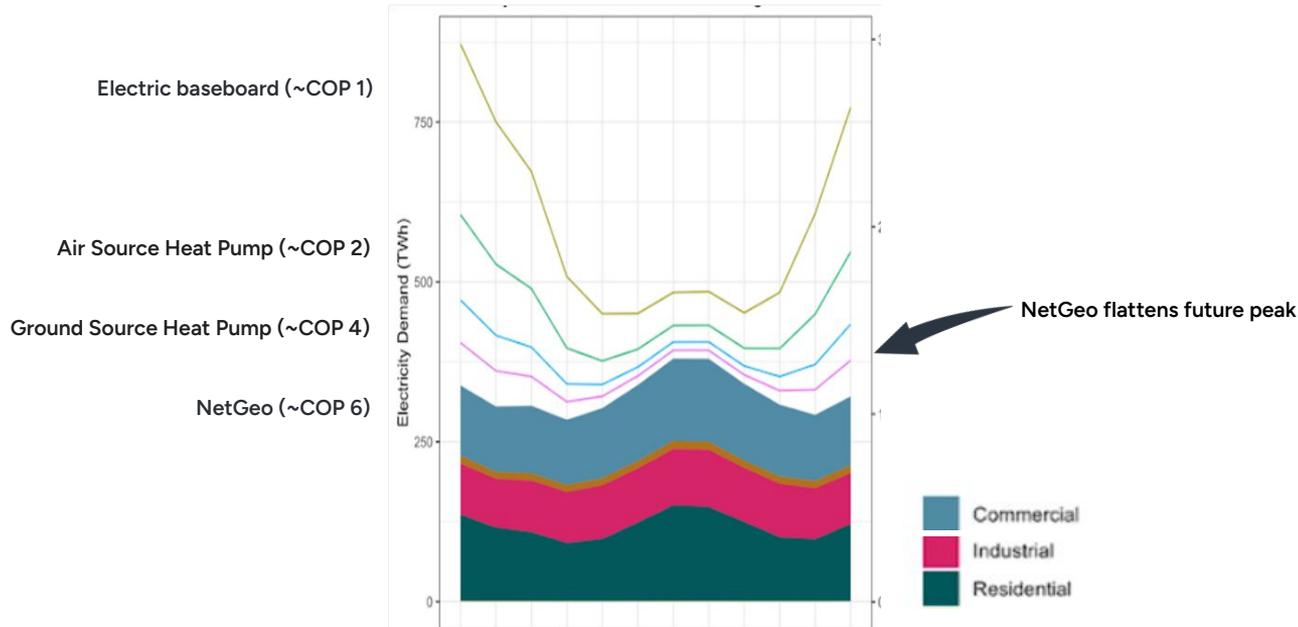


# Impact on the Electric Grid

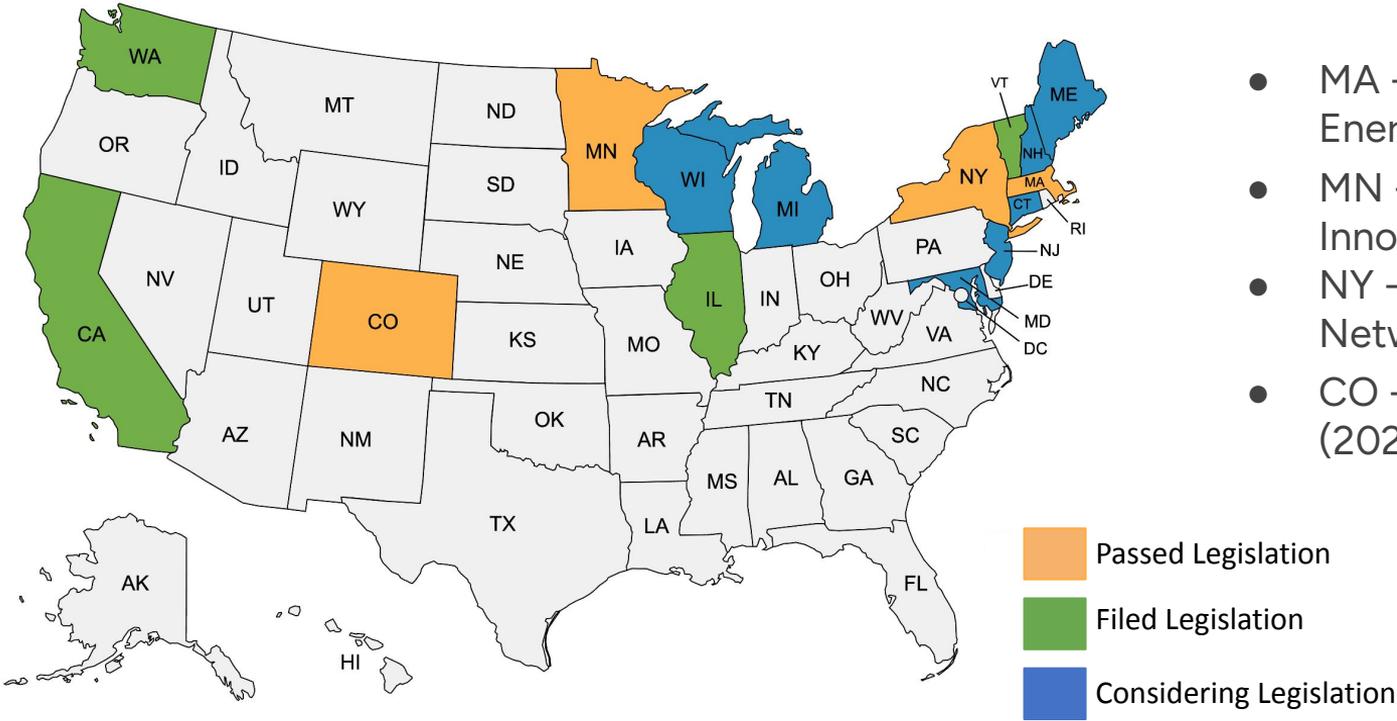


# Impact on the Electric Grid

Future US Seasonal Electric Peaks (as we electrify)

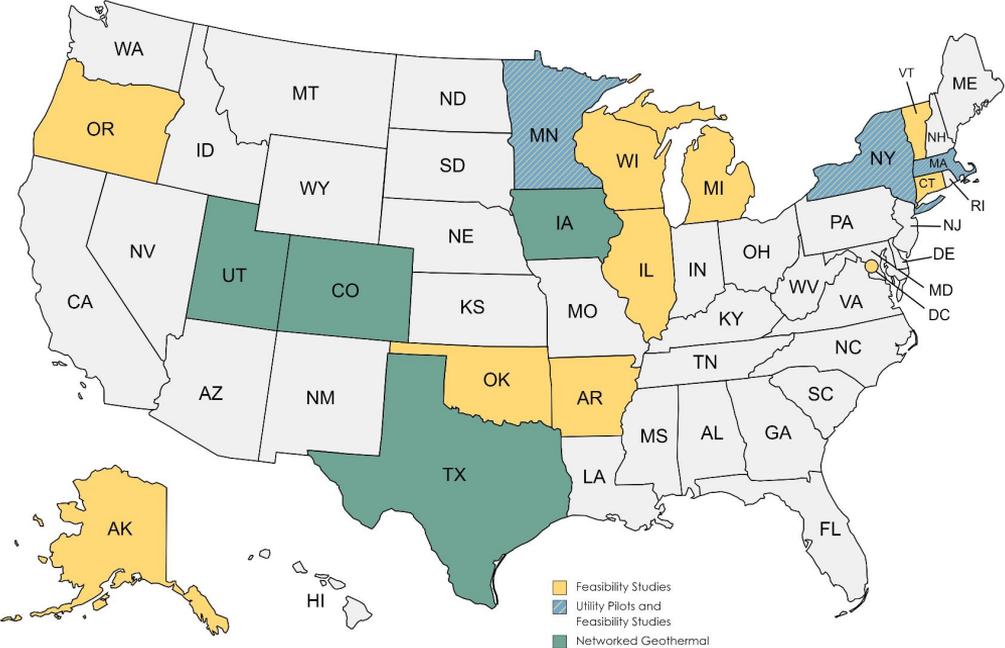


# Thermal Energy Network Legislation



- MA - An Act Driving Clean Energy (2021-2022)
- MN - Natural Gas Innovation Act (2021)
- NY - Utility Thermal Network & Jobs Act (2022)
- CO - Thermal Energy Act (2023)

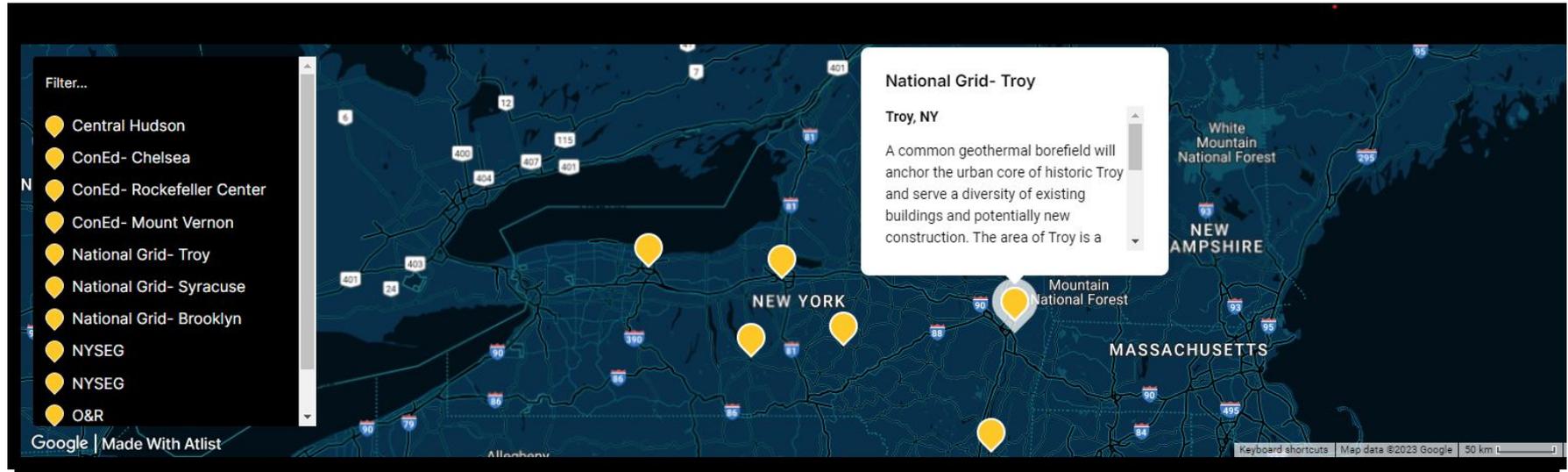
# Thermal Energy Network Sites



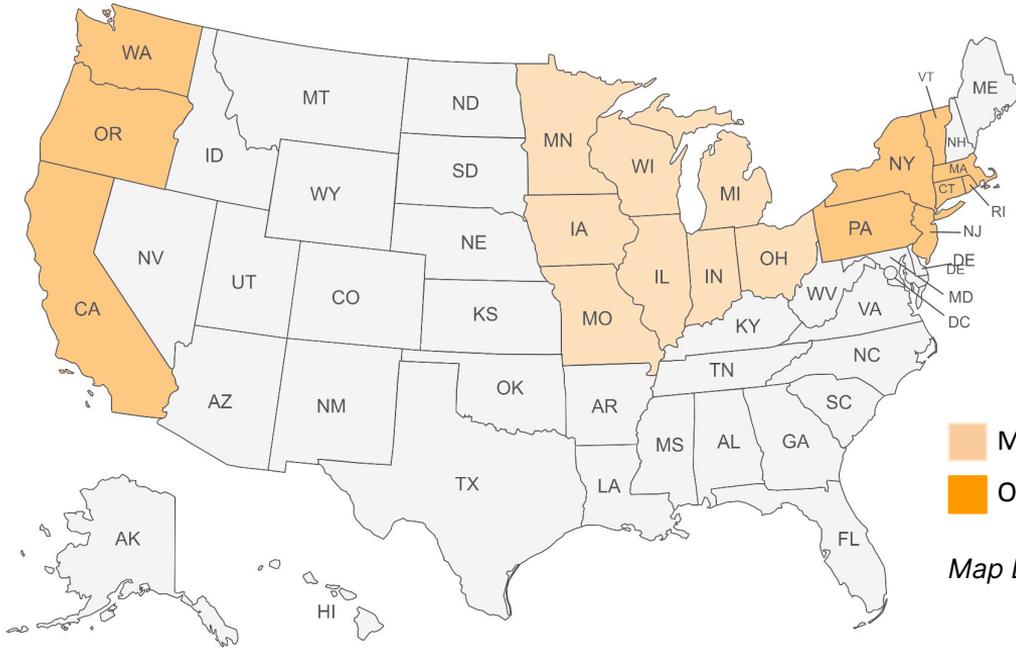
■ Feasibility Studies  
■ Utility Pilots and Feasibility Studies  
■ Networked Geothermal

■ Utility Pilots & Feasibility Studies  
■ Networked Geothermal  
■ TENS Feasibility Studies

# New York Utility TEN Proposals



# Thermal Energy Network Coalition

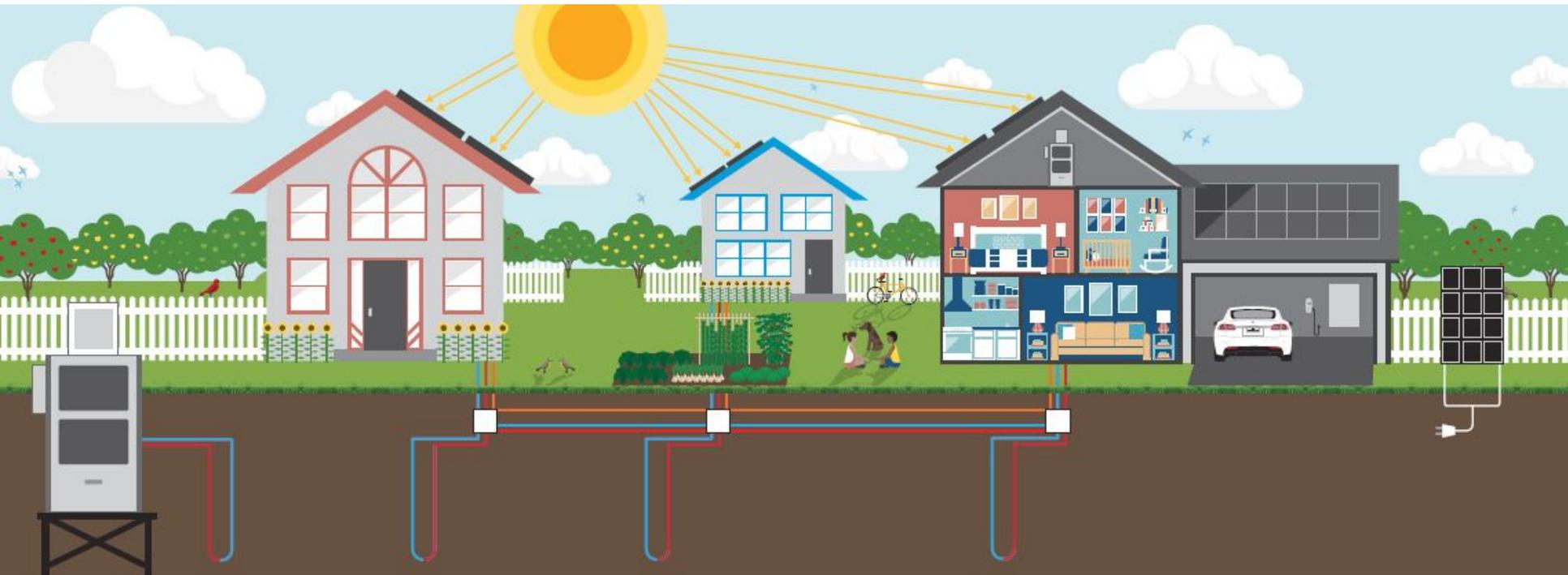


- Midwest BDC
- Other Coalition Members

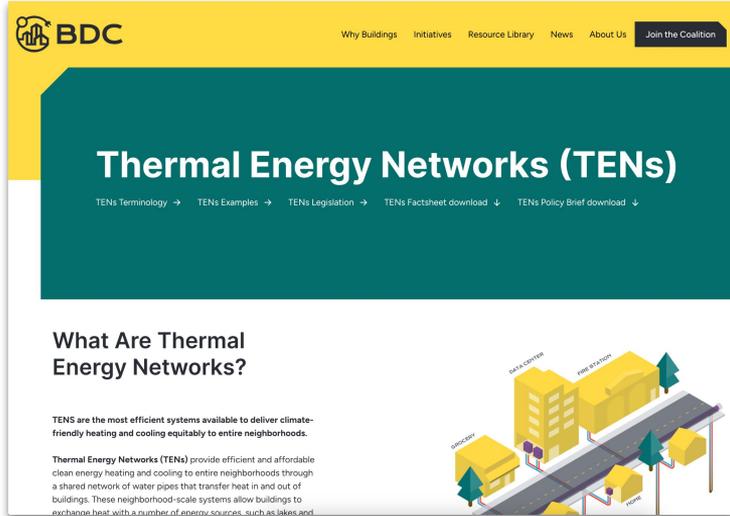
Map Date: 11/11/23



# Case Study: Whisper Valley, Texas



# For more information:



**BDC Website:** [buildingdecarb.org/resource-library/tens](https://buildingdecarb.org/resource-library/tens)

**Ania Camargo:** [ACamargo@buildingdecarb.org](mailto:ACamargo@buildingdecarb.org)

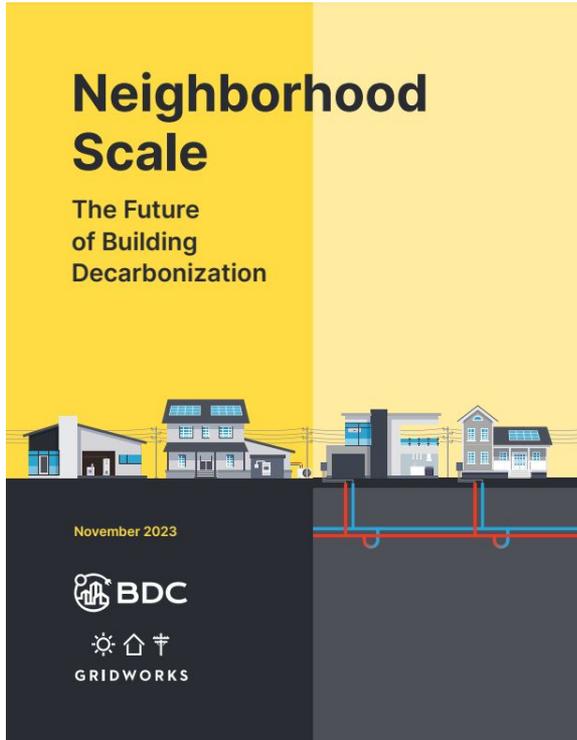
## Upgrade New York

- [Utility TENs proposals](#)
- [TENs and labor video](#)

**HEET:** [Gas to Geo Wiki](#)

# QUESTIONS?

# January BDC Presents on Neighborhood Scale: The Future of Building Decarbonization



Interested in learning more about neighborhood decarbonization?

Join us **Thursday, January 25th 10am PT / 1pm ET** for BDC Presents on Neighborhood Scale: The Future of Building Decarbonization.

[Register today.](#)

# Neighborhood Scale Transition

