



NY - GEO 2026
March 24-25, 2026 | Brooklyn, NY



North American Utility Thermal Energy Networks (UTENs)

Moderator: Laurie Kokkinides / *NYS Department of Public Service*

Panel: Liam Needham / *Eversource Energy*

Gregory Koumoullou / *Con Edison*

Holly Braun / *Northwest Natural*

Allison Considine / *Building Decarbonation Coalition*

NY Geo 2026

Liam Needham
Director, Thermal Solutions

March 24, 2026

Framingham Pilot Project

The Eversource Energy Networked Geothermal Pilot in Framingham, Massachusetts is the first of-its-kind in the nation.

The system delivers low-carbon heating and cooling to approximately 136 residential and commercial customers through a shared underground thermal energy network. The project will help determine if networked geothermal systems at-scale are a viable option to affordably heat and cool homes and businesses in New England.

This session will explore project design, construction, customer experience, and the broader implications for scaling networked geothermal as a pathway to decarbonizing building heat.



Monitoring, Data Collection and Research

Network (*Pump house controls and system monitoring*)

Continuous monitoring of **entire networked system performance and efficiency**

Customer side (*Frontier, third party evaluation & monitoring*)

Building data monitoring – consumption and usage from customer buildings

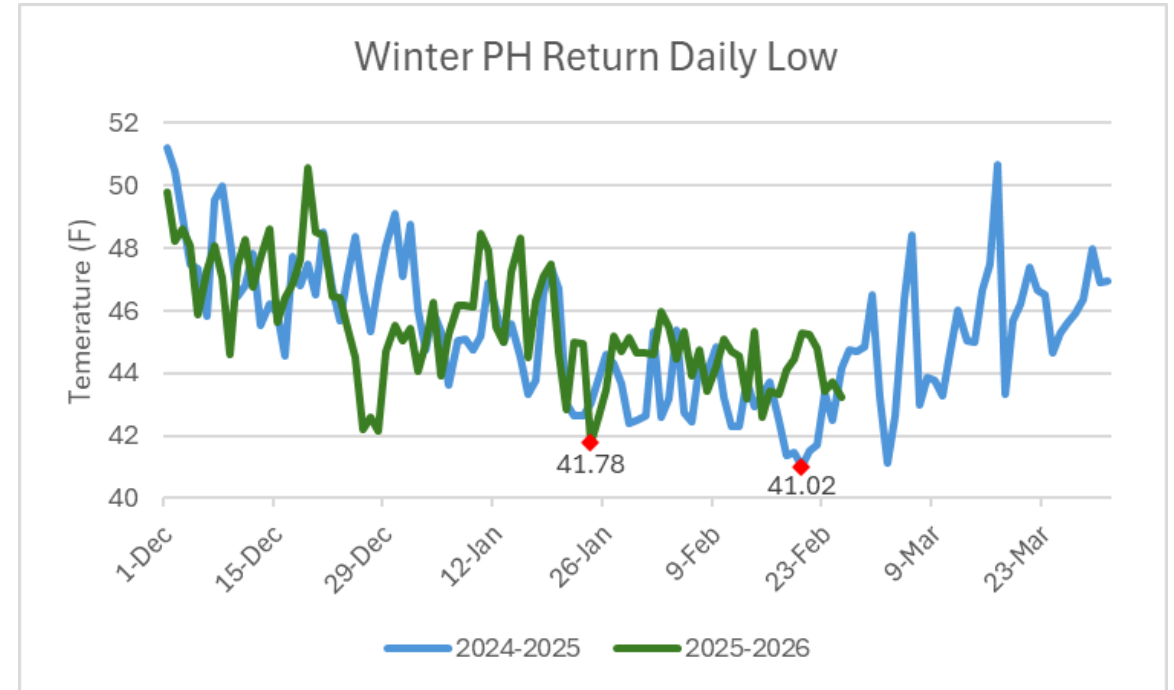
HEET (*Home Energy Efficiency Team, third party non-profit and Massachusetts Clean Energy Center partner*)

Studying British Thermal Unit (BTU) meter and **capacity of bore fields**



Winter Loop-side Performance

- Overall, ground loop operated smoothly despite consistent freezing temperature this past winter. Temperatures never dropped below the design minimum (39° F) and need did not arise to activate the back-up boiler.
- Winter 2025-2026 Low Temperature: 41.78° F (1/24/26), recorded when ambient temperature was 8.9 ° F.
- Winter 2024-2025 Low Temperature: 41.02° F (2/20/25), recorded when ambient temperature dropped to 13° F.
- Operational models should be considered.



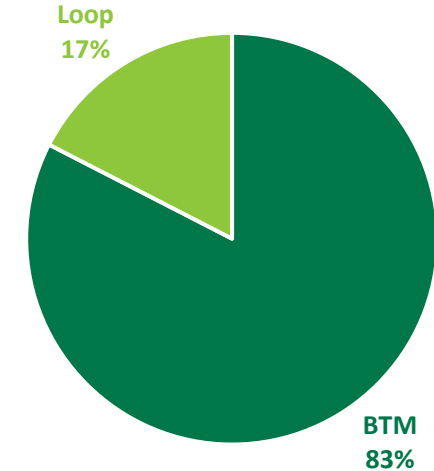
Occurrence Tracking

- We track all loop and behind-the-meter issues and alarms
- A majority (83% of occurrences) have been attributed to "behind the meter" (BTM)
- 17% of tracked occurrences are loop-side

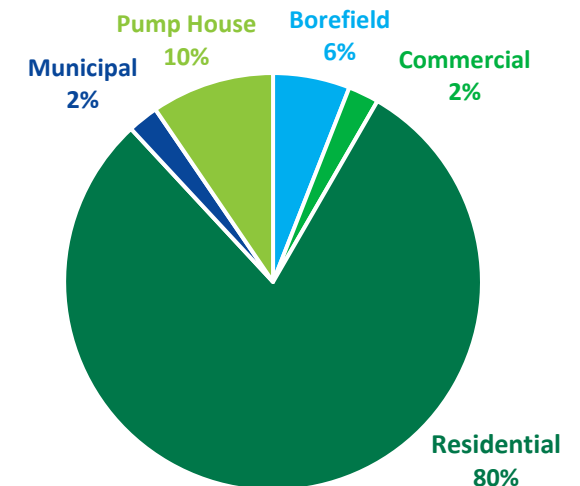
- 80% of occurrences have been residential, due to HVAC error codes and small leaks
- 10% are at the pump house, due to alarms and pump off
- 6% are borefield- related, e.g. due to sensor issues and alarms
- 2% are commercial, e.g. due to mechanical issues with certain units BTM
- 2% are municipal, largely due to Symphony error codes

*Roughly 8% of occurrences received were nuisance alarms

BTM vs Loop-side Occurrences



Occurrence Location



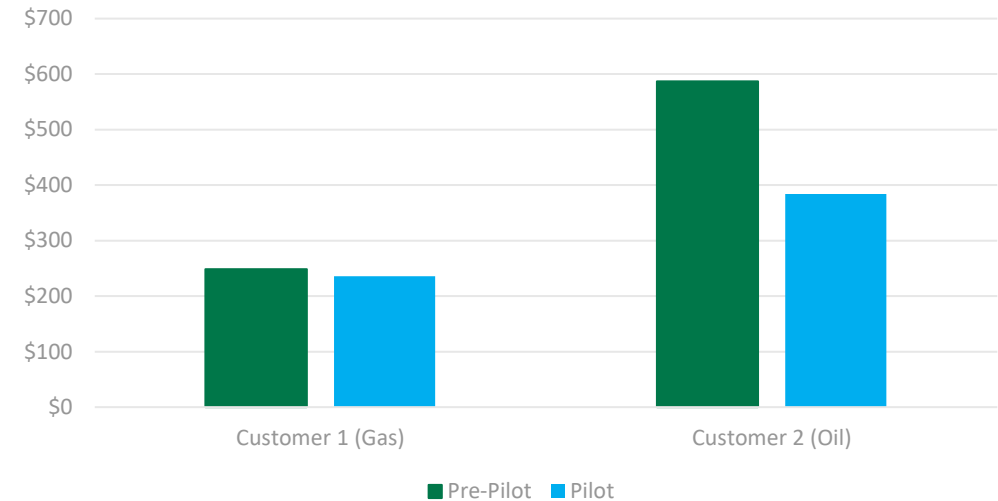
Residential Energy Bill Impacts – 'Sample' Customers




Average monthly energy bill comparison between Nov 23.- Feb.24 (pre-pilot) and Nov 25.- Feb.26 (during pilot) for sample customers whose transition, system function, and bills progressed as anticipated

- **Customer 1 saved an average of \$13/month on total energy bills by switching from natural gas to geothermal, despite record low temperatures this past winter.**

- **Customer 2 saved an average of \$202/month on total energy bills by switching from oil to geothermal, a total saving of more than \$800.**

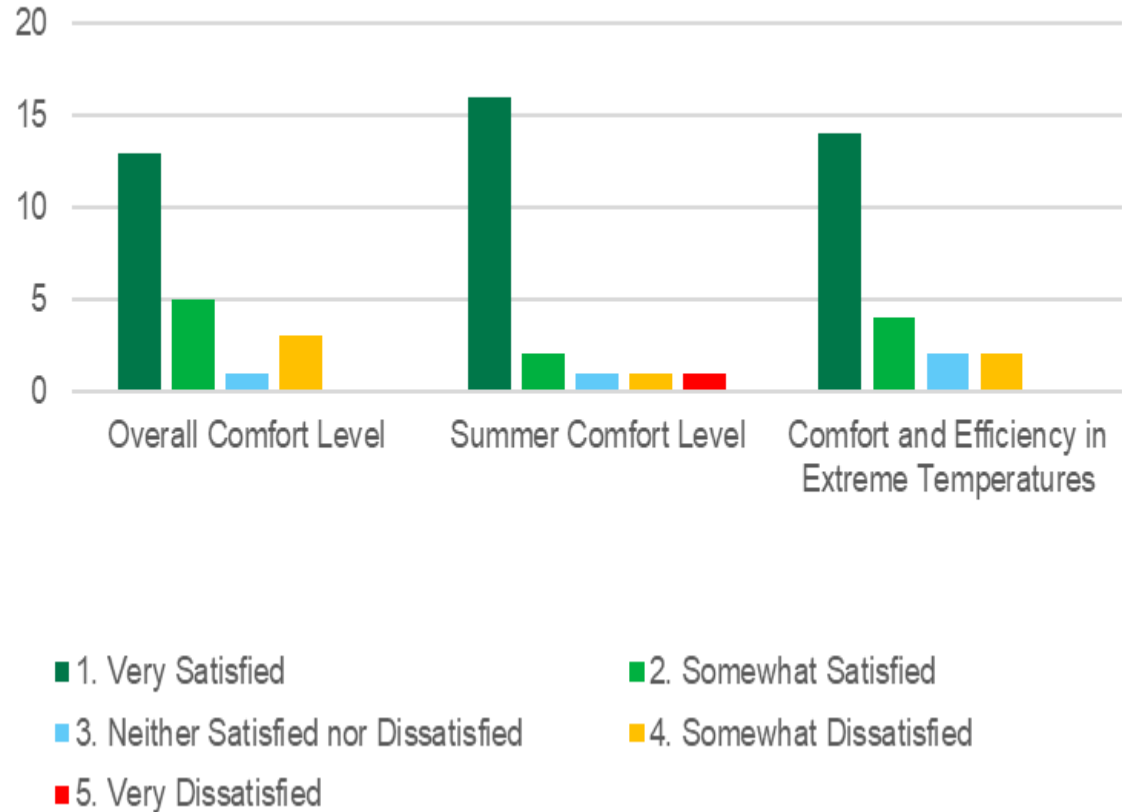
Sample Average Monthly Heating Bills



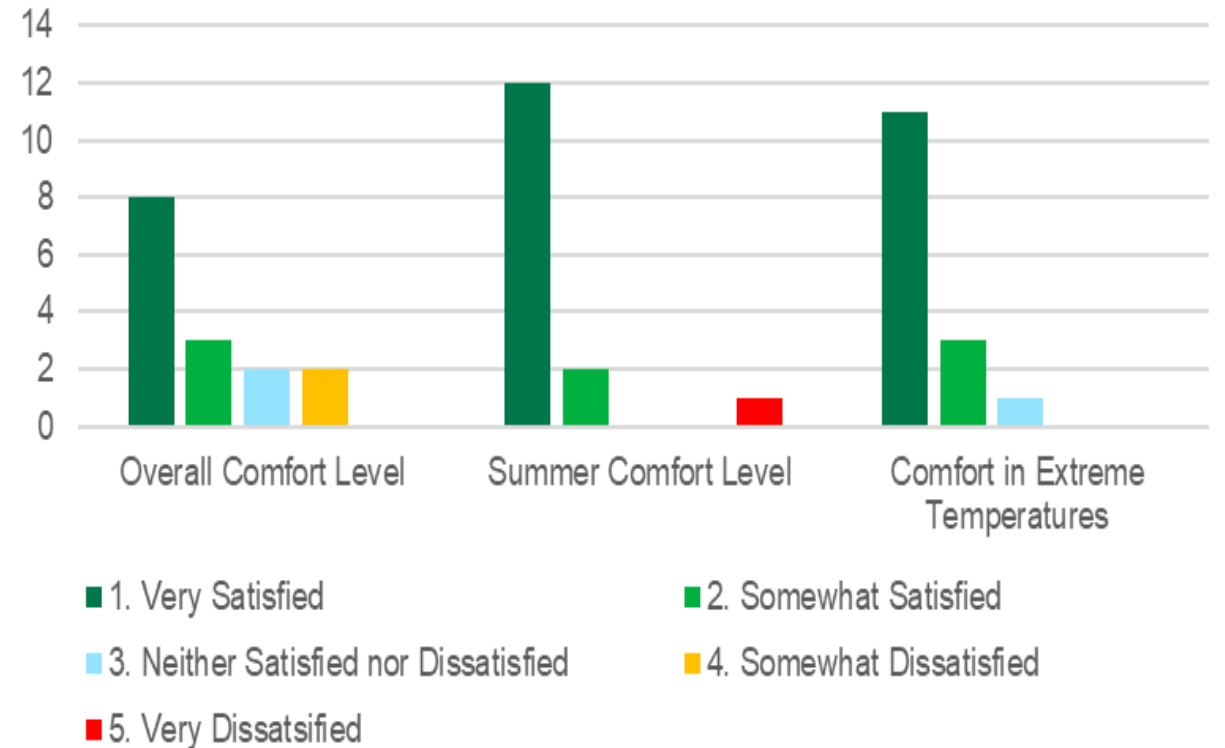
<h2>Technical Learnings</h2> 	<h2>Proactive Customer Education</h2> 	<h2>Challenges of Behind-the-Meter Work</h2> 
<ul style="list-style-type: none">▪ Need to adjust commissioning protocols based on site conditions – elevation change on site had caused air pocket accumulation.▪ Accordingly, new protocol was added for bore field flushing and air pocket removal.	<ul style="list-style-type: none">▪ Thermostat habits and settings education to ensure customers understand how their habits can impact:<ul style="list-style-type: none">▪ Energy consumption▪ Optimal temperature management▪ Bill impacts	<ul style="list-style-type: none">▪ Aging building stock▪ Asbestos and mold▪ Ductwork installation, in-home maintenance, site remediation▪ Coordinating logistics and schedules with homeowners, HVAC contractors

Customer Survey

Post Conversion Survey Results
Framingham Housing Authority



Post Conversion Geothermal Survey
Residential



What Our Customers Are Saying - Post Installation Survey

“The system is amazing - we were very fortunate and grateful to have been part of this program.”

"The management team has been great with communication – Jeanne and Cindy were fantastic, and I would like to give them a shout out."

We had access to Cindy and Joel...They went above and beyond to meet our concerns and to answer our questions.

"Very much better, both heating in the winter and cooling in summer."

"After installation, my home is very bright because I don't need to install a window air conditioner in the summer."

“Significantly lower than I expected.” (Energy costs)

“Central air was so nice.”

“Good experience; would participate again; would recommend.”

“Very satisfied – only minor issues experienced or none at all.”



Eversource Manager Joel Rayberg with Geothermal Pilot customer Carol Canova at her home in Framingham.

Networked Geothermal Pilot

Determining if networked geothermal systems are a viable option to affordably heat and cool homes and businesses in New England



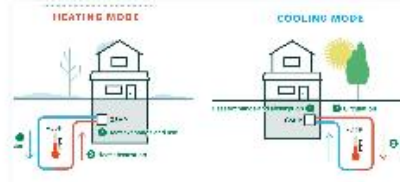
How It Works and What Customers Get

The pilot is intended to run through two heating and cooling seasons in Framingham with 36 buildings, 24 of which are residential homes.



Construction and Community Updates

Get updates on construction, the route and community involvement that keeps participants and neighbors informed and engaged.



Reference Guide

Answers to questions about geothermal technology, choosing Framingham, the project and more.



Introduce a Girl to Engineering and Science

We partnered with the Fuller Middle School in Framingham to host a program designed to encourage girls to explore the areas of engineering and science.



Watch a Video Tour of the Route

See on YouTube where in Framingham the pilot will take place.

Our Website Resources

www.eversource.com/geothermal

- *Project background*
- *Pilot customer information*
- *Construction and community updates*
- *Resource Guide (comprehensive Q&A)*
- *Videos:*
 - *Recordings of all past webinars*
 - *Animated video explaining geo. technology and how we're networking it in Framingham*
 - *Pilot neighborhood tour video*

For questions or to sign up for our project digital newsletter:

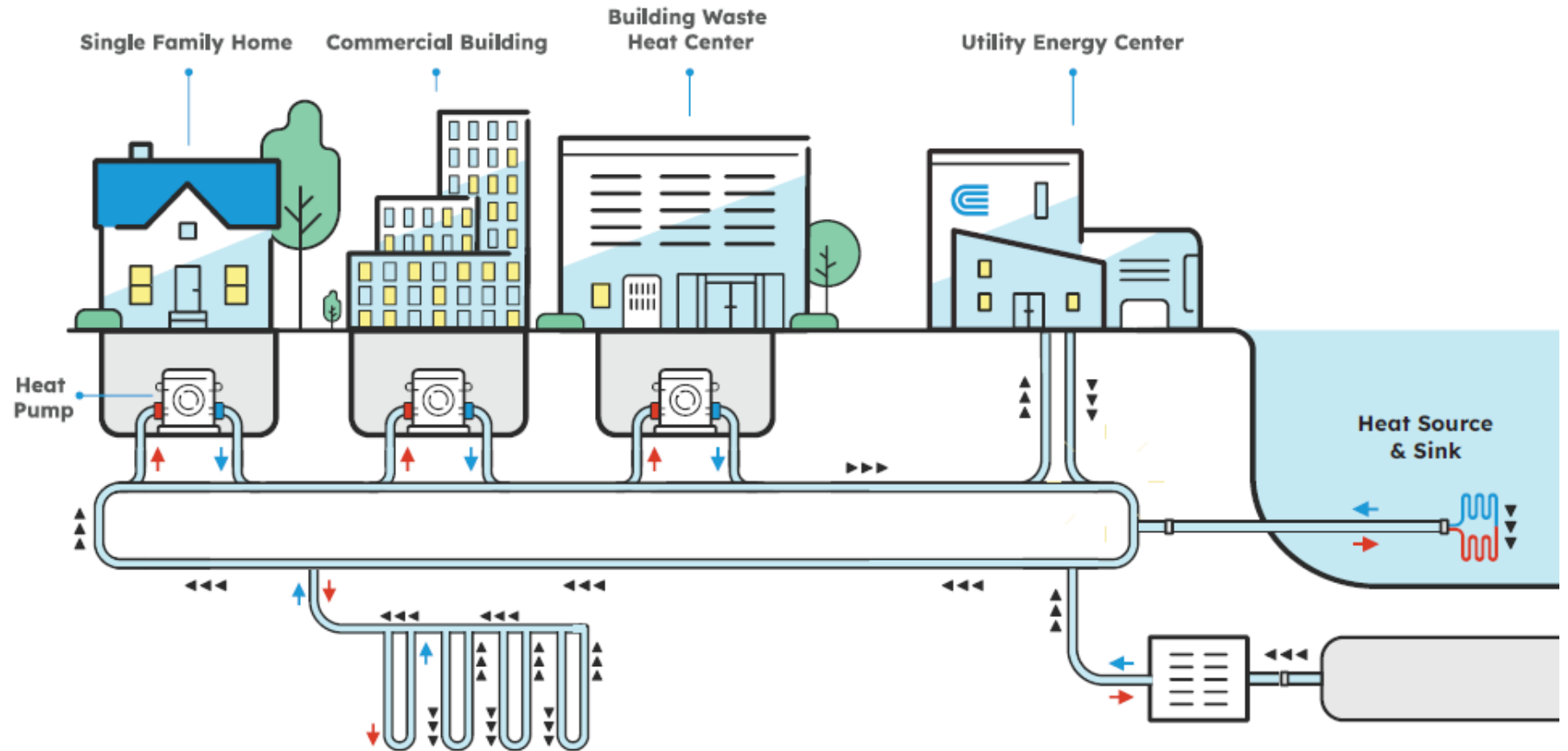
geothermal@eversource.com

Thank You!





Development of Utility Thermal Energy Networks



Lessons
Learned:

March 2026

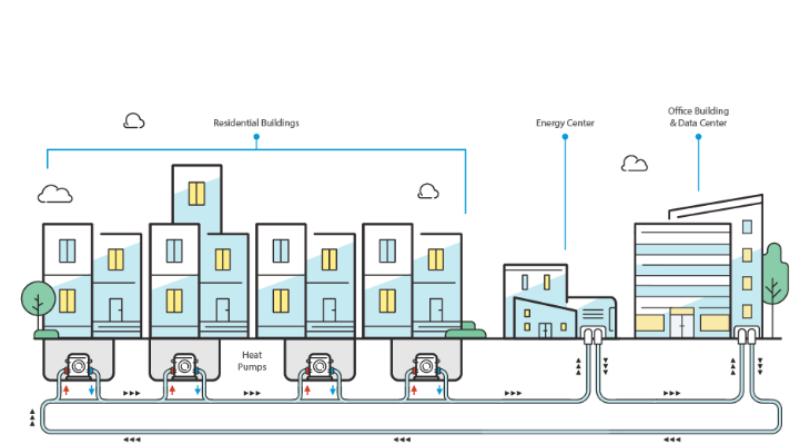
Evolution of Thermal Energy Networks



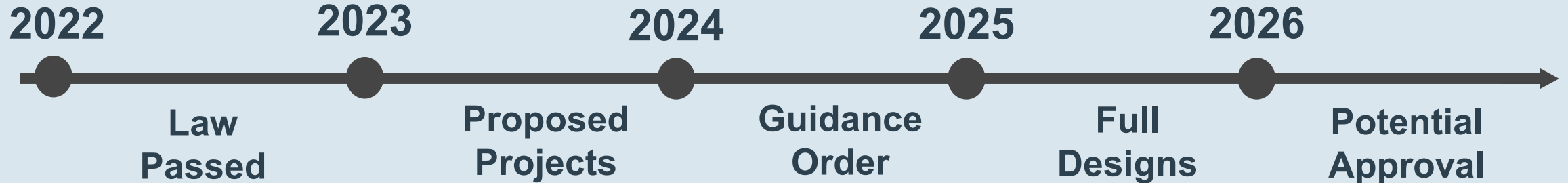
Mount Vernon



Rockefeller Center



Chelsea



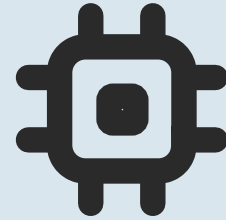
Project & Site Selection



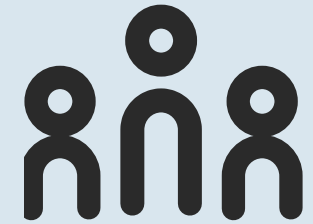
**High Quality
Sites**



**Innovative
Solutions**

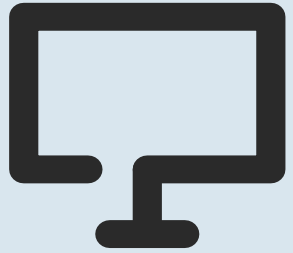


**Balanced
Portfolio**

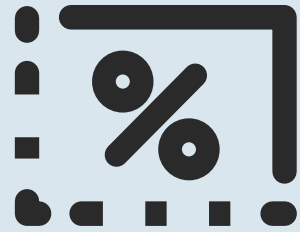


**Committed
Customers**

Early Energy & Financial Modeling



**Advanced
Design
Benefits**



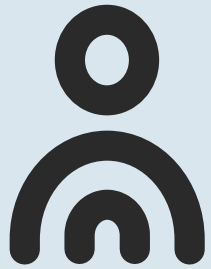
**Refined
Energy
Models**



**Early
Financial
Modeling**



Customer & Stakeholder Engagement



Engage



Build Trust



**Incorporate
Feedback**



Coordinate

Rates & Customer Agreements



**Customer
Agreements**



Rate Design



**Bill
Protections**



**Valuation of
Thermal
Resource**



www.coned.com/thermalenergy



NY-Geo: UTENs

Lessons learned, applied and/or shared

Holly Braun, Decarbonization Program Manager
March 24, 2026



NW Natural Gas business and Service Territory context

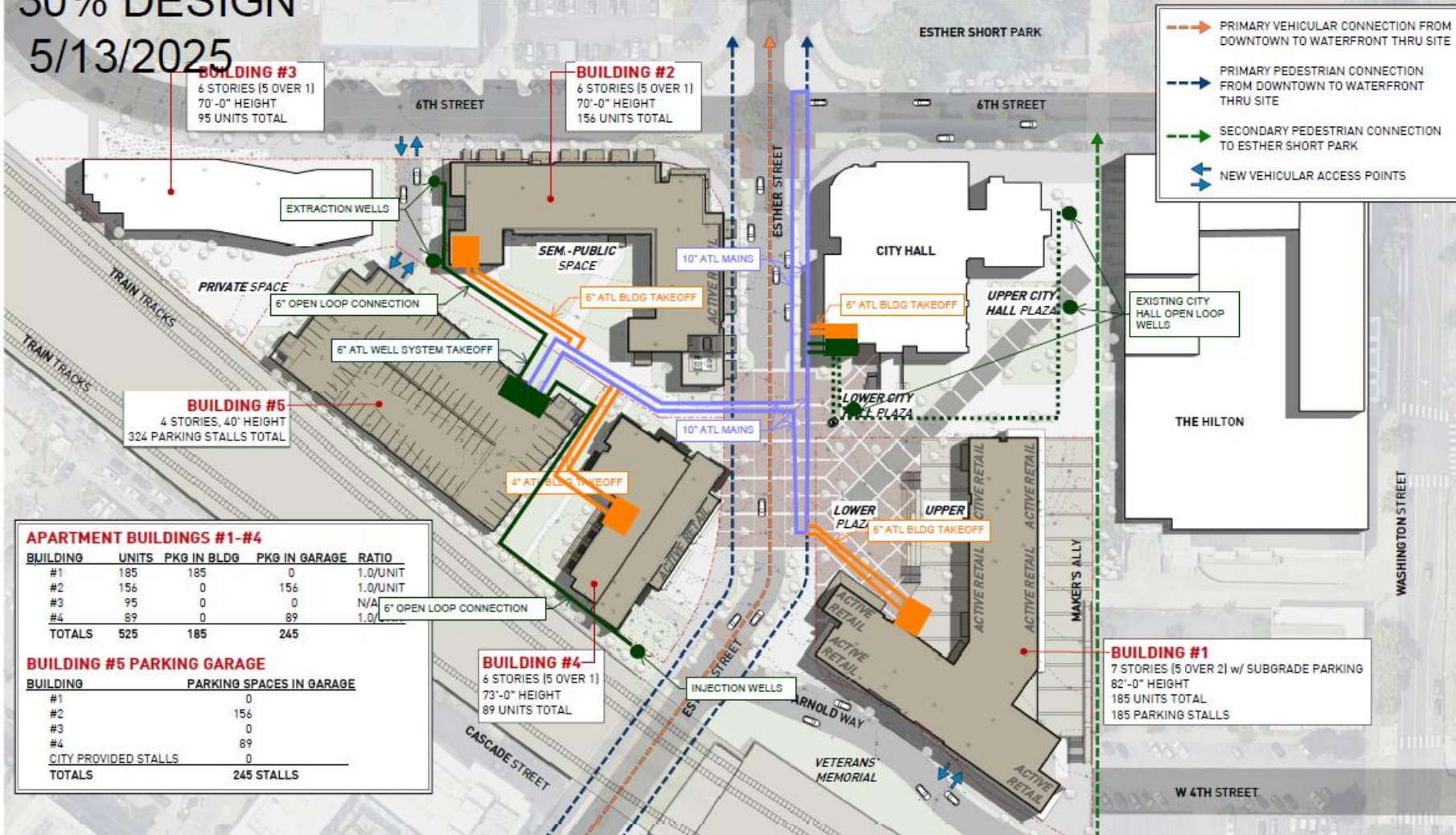
- Stand alone gas utility HQ in Portland, OR
- 1290 Employees
- 800,000 meters, 2.5M customers
- 14,000 miles of pipeline – fully modernized
- Mild climate (4C Marine)
- Soils high conductivity for geo
- Carbon Reduction mandates in WA and OR
- TENs-specific legislation in WA in 2024

NW Natural also has a water division, and a few other gas utilities throughout the country





30% DESIGN
5/13/2025



CUSTOMERS
City Hall (Existing)
2 Mixed-Use MF buildings = 315 (new) affordable units + 9000 ft² Commercial

THERMAL RESOURCE
Open loop wells
Geo-exchange
In-unit GSHPs

FUNDING
WA Grant
anticipated
Investment Tax Credit
TENs customers
Gas Ratepayers

Lessons learned, applied, and/or shared

1. Engage pre-legislation: don't resist and ask for what you need
2. Target new construction:
 - Significantly lower cost
 - Fewer decision makers
3. Prioritize sites with internal champion
4. Put yourselves in the regulator's shoes
 - Coordinate with affected utilities: unified approach and message
 - No one wants to regulate something they don't understand -equip them for success, make their job more efficient and easier



Staff testimony to Commissioners

Re: NWN TEN in Rate Case

*The net result is a challenging scenario and set of priorities that compete with one another. The Commission is left to choose between those competing priorities and associated costs. **To paraphrase the late, all-time great Mister Rogers, “Today’s word for the Commission is ‘tradeoff’.”***



The background of the slide is a photograph. The top half shows a close-up of green leaves with sunlight filtering through, creating a bright, starburst effect. The bottom half shows a blurred view of a city street with a brick building and a modern glass skyscraper in the background.

NY GEO 2026 Conference

Allison Considine
New York Director, Building Decarbonization Coalition

Utility Thermal Energy Network and Jobs Act

A.10493/S.9422

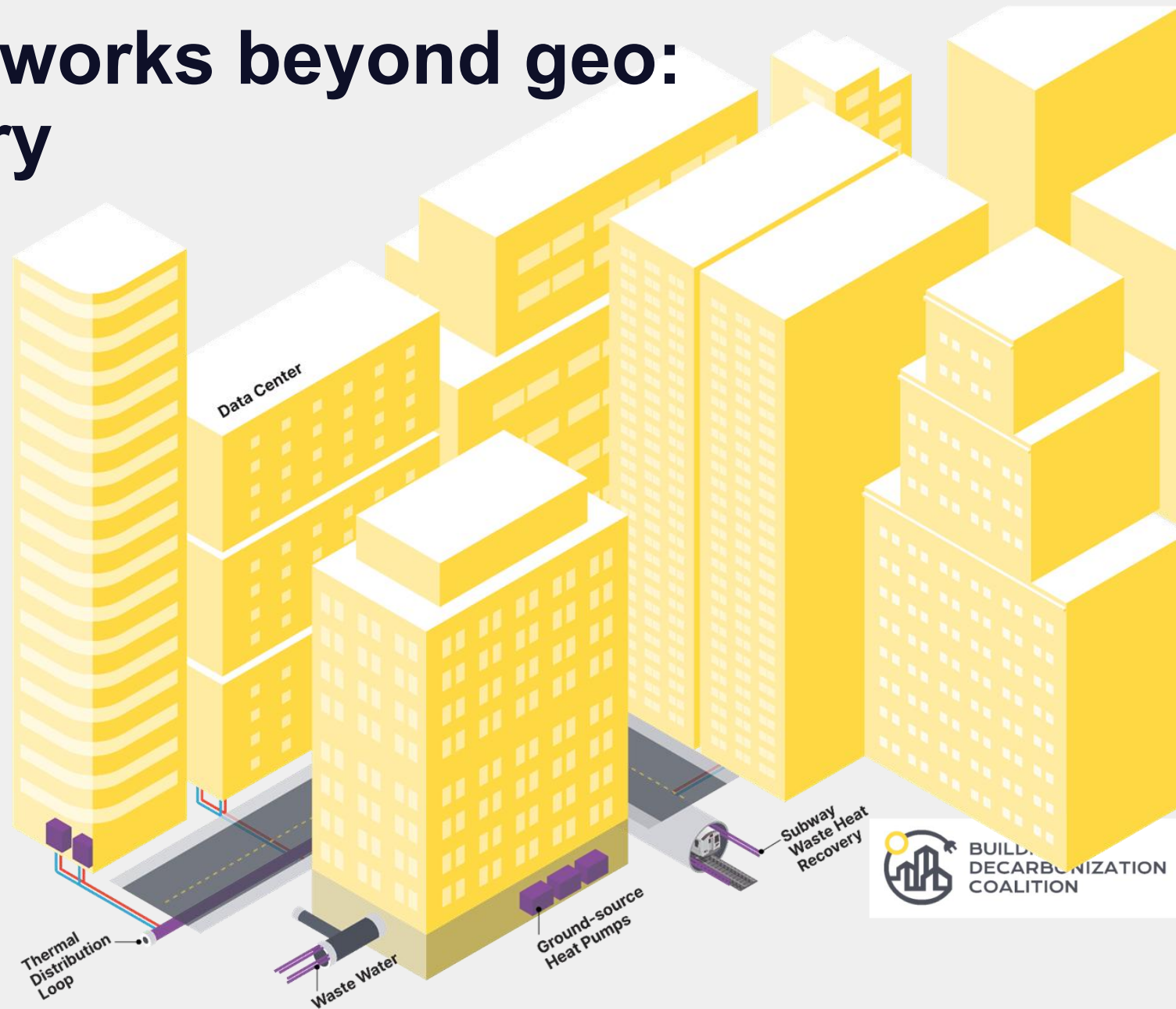
**Signed on July 5,
2022**





Thermal Energy Networks beyond geo: Waste Heat Recovery

- Infrastructure in the street
- Single pipe
- Ambient temperature water
- Heat pump in every building
- No boreholes
- Waste heat sources: subway, waste water



Proposed or in-progress new TEN projects in New York

UTENJA Projects

- | | |
|----------------------|------------|
| 1 Haverstraw | 5 Syracuse |
| 2 Mount Vernon | 6 Brooklyn |
| 3 Rockefeller Center | 7 Troy |
| 4 Chelsea | 8 Ithaca |

Public Campus Projects

- | | |
|-----------------------------|-------------------|
| 1 Farmingdale State College | 6 SUNY Purchase |
| 2 SUNY Potsdam | 7 SUNY Oswego |
| 3 University at Buffalo | 8 SUNY Binghamton |
| 4 Stony Brook University | |
| 5 University at Albany | |



Name: Colorado Mesa University

Location: Grand Junction, Colorado

Size:

- 2.5 miles of central loop pipe
- 450 boreholes drilled 500 feet deep
- 1.2 million square feet of building space
- 16 connected buildings

Unique Features:

- One of the largest geothermal heat pump systems in North America
- The campus's Olympic-sized swimming pool and irrigation system serve as heat sinks for extra heat generated by the geothermal heat pump

Energy Use:

- 10 kilowatt-hours per square foot per year
- Saves 14.86 million electric kWh per year
- Saves 705,986 therms per year

Cost Savings:

- \$1.5 million in energy costs each year
- \$15.9 million since 2008

Funding Sources:

- State of Colorado
- University capital construction

Non-utility TENs

Stony Brook Receives \$22M for Cutting-Edge Thermal Energy Systems on Campus

October 13, 2025 3 min read

The State University of New York at Stony Brook, as part of New York's \$1 billion Sustainable Future Program, will receive \$22 million to



UB moves to decarbonize the North Campus



The university conducted its first geothermal well test drill near the Baker Chilled Water Plant in May 2025. Photo: Douglas Levere

UAlbany Launches \$30M Decarbonization Project



Major Geothermal Project Slated for Purchase

October 15, 2025

Purchase receives \$50 million for a major geothermal project, funded by Governor Hochul's \$1 billion Sustainable Future Program.

Governor Hochul recently announced the next steps in her landmark \$1 billion Sustainable Future Program to accelerate capital projects in New York, the largest climate investment in New York's history.

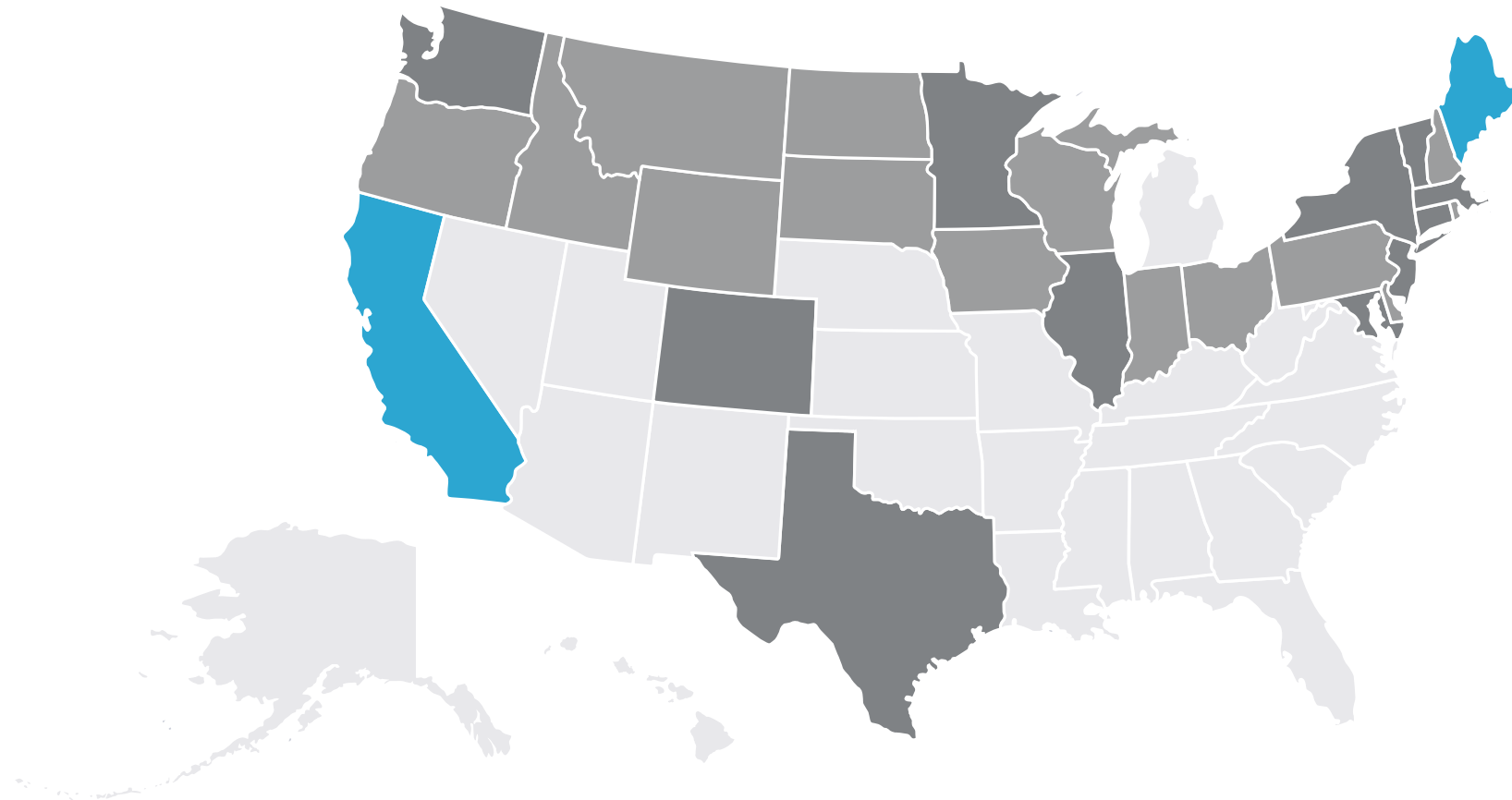
Specifically, she announced dedicating \$200 million to expand thermal energy networks at municipal and State-owned buildings, supporting several projects within the State University of New York (SUNY) system.

Purchase College proudly announces that we will receive \$50 million for a major thermal energy project, which uses a system of pipes to share heating and cooling resources among multiple buildings.



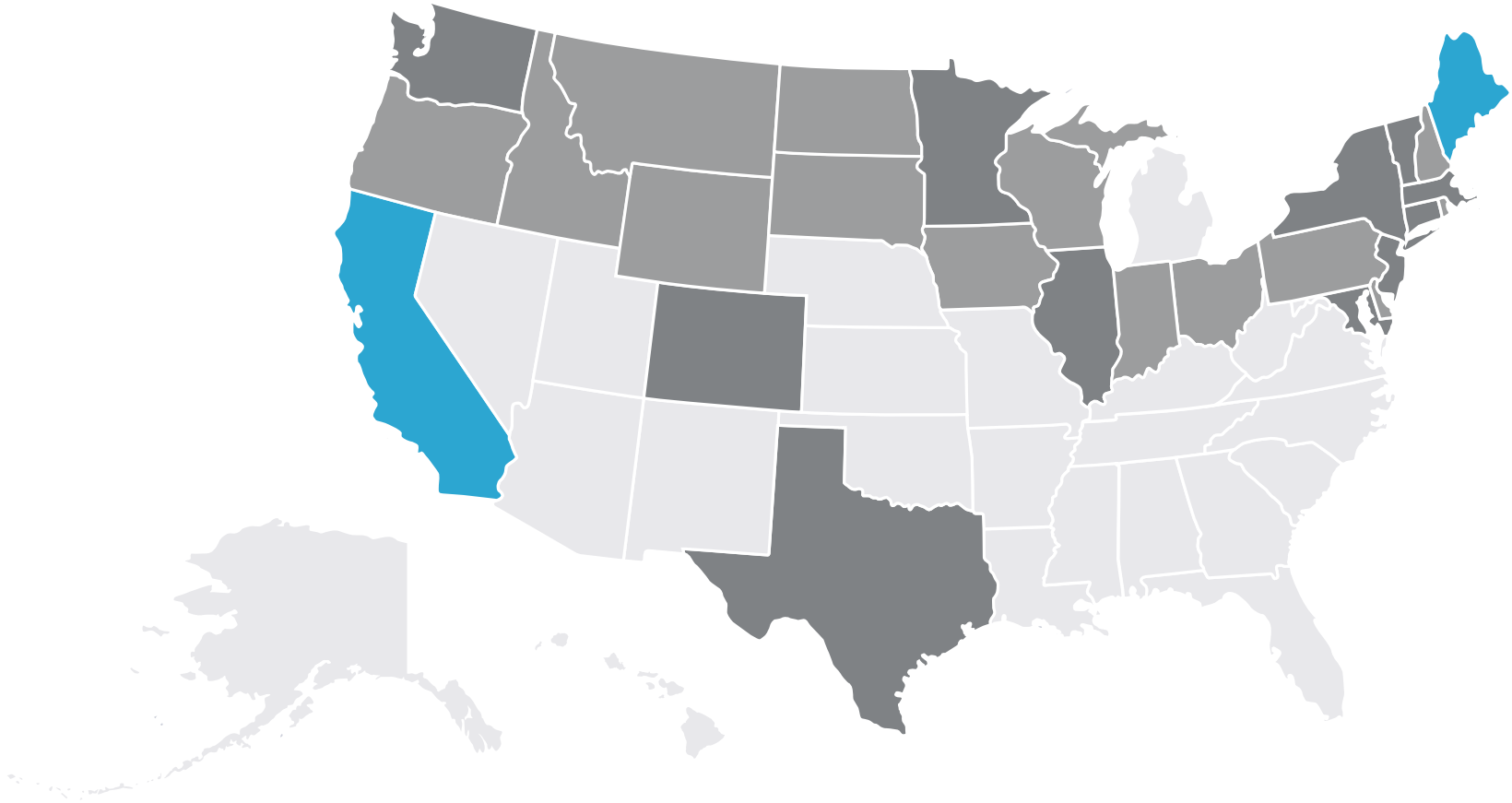
SUNY Purchase campus from above.

Thermal Energy Network Legislation



- MA: 2021, 2022, 2024
- MN: 2021, 2024
- NY: 2022
- CO: 2023, 2024
- WA: 2024, 2025
- MD: 2024
- VT: 2024
- CA: 2024
- NJ: 2024 (study)
- ME: 2025 (study)
- CT: 2025 (grant program)
- TX: 2025
- IL: 2025

TENs Legislation - Link to Info





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