

## PROBLEM STATEMENT

Heating homes and buildings with fossil fuels is costly, inefficient, and bad for our health and the climate. Switching to zero-emission electric heat pumps is the solution. Thermal Energy Networks (TENs) are the most efficient systems available to deliver climate-friendly heating and cooling to homes and businesses. TENs work at a neighborhood and community scale, as described below. They are an alternative and complement to switching buildings to heat pumps one by one.

## BENEFITS OF TENs

- **Lower pollution:** Fossil fuel heating systems are responsible for 30% of Connecticut's greenhouse gas emissions and 23% of NOx emissions. Heat pumps are powered by electricity and have zero on-site emissions. Because heat pumps are incredibly efficient, their use of electricity produces fewer emissions than furnaces or boilers that burn fossil fuels. Emissions will continue to decrease as our grid achieves 100% zero-carbon electricity by 2040, as required under state law.
- **Cost savings:** TENs can stabilize and lower energy bills by providing highly efficient heating and cooling while ensuring communities avoid the volatility of fossil fuel price spikes, creating energy independence.
- **Local jobs:** TENs provide a pathway for gas utility workers to transition to clean energy jobs, using the skills they already have to install the networks.

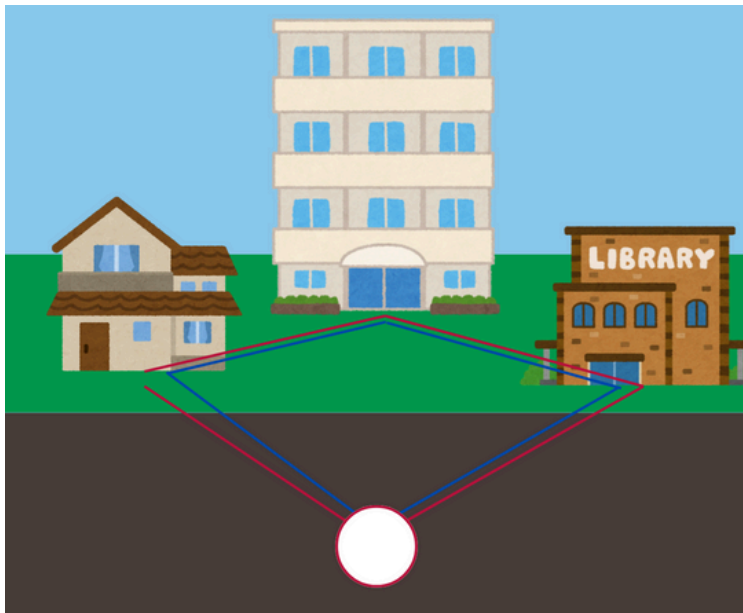
- **Cleaner air/improved health:** With TENs, nothing is burned inside, so indoor air is safer to breathe.
- **Equitable access:** Since TENs work at a neighborhood and community level, all buildings gain access to zero-emission heating and cooling, and renters and low and moderate income customers may not have to pay for the upfront costs of installations.
- **Cooling:** Heat is the deadliest extreme weather, and many vulnerable communities and individuals do not have access to cooling. Children and elderly people are especially at risk. Thermal Energy Networks address this problem by providing efficient cooling in addition to heating.

## HOW TENs WORK

Thermal energy can be drawn out of the earth, shared between buildings with different heating or cooling needs, and returned to the ground for storage. Thermal Energy Networks (TENs) can also capture existing waste heat from building ventilation or wastewater and put it to use to heat or cool buildings in the network. This [short video illustrates the idea](https://youtu.be/1JHQ2ToBW9c).



<sup>1</sup> <https://youtu.be/1JHQ2ToBW9c>



**Eight states have passed legislation either allowing or mandating that their gas utilities establish TENs. Massachusetts and New York are leading the way, with TENs being deployed in a range of communities. It's time for Connecticut to catch up.**

#### **NEIGHBORING STATES' PROGRESS**

- In 2024, Eversource completed the nation's first utility-developed TEN pilot project in Framingham, MA. Take a tour of the project with this short video.

[www.youtube.com/watch?v=CmSWZaPoRU0](https://www.youtube.com/watch?v=CmSWZaPoRU0)



- In 2022, New York became the first state to require its largest gas utility companies to develop thermal energy network projects, with 13 projects now in development.

[www.canarymedia.com/articles/carbon-free-buildings/new-york-will-repurpose-gas-pipelines-to-pump-clean-heat-into-buildings](https://www.canarymedia.com/articles/carbon-free-buildings/new-york-will-repurpose-gas-pipelines-to-pump-clean-heat-into-buildings)



#### **LEGISLATIVE SOLUTIONS**

- Require each gas utility to launch 5 TEN demonstration projects serving existing buildings between 2026 and 2030. Prioritize demonstration projects in disadvantaged communities.
- Identify financing mechanisms: existing pipe replacement funds, securitization, fee in gas or electric utility bill, or the creation of a thermal energy fund.
- Permit gas and electric utilities to sell thermal energy including but not limited to networked geothermal and heat pumps.
- Include labor transition, training, and recruiting plans for thermal energy network projects.

#### **COMMUNITY SOLUTIONS**

While most TEN projects will likely be developed and owned by gas utilities because of their experience with infrastructure, financing, and customer service, some projects may lend themselves to municipal ownership. Two projects in Connecticut, one in Manchester (under consideration) and the other in New Haven (under development), are good examples.

#### **MORE INFORMATION**

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