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Act 18: Affordable Heat Act – A Vermont Clean Heat Standard

Rep. Laura Sibilia

REV2024 CONFERENCE
October 16 & 17 | Burlington, VT

Section 8121 - Intent

Pursuant to 2 V.S.A. § 205(a), it is the intent of the General Assembly that the Clean Heat Standard be designed and implemented in a manner that

- achieves Vermont's thermal sector greenhouse gas emissions reductions necessary to meet the requirements of 10 V.S.A. § 578(a)(2) and (3),
- minimizes costs to customers,
- protects public health,
- and recognizes that affordable heating is essential for Vermonters.
- It shall enhance social equity by prioritizing customers with low income and moderate income and those households with the highest energy burdens.
- The Clean Heat Standard shall, to the greatest extent possible, maximize the use of available federal funds to deliver clean heat measures.

The House

The PV Panels

The Heat Pump-Mini Split

The Heat Pump Hot Water Heater

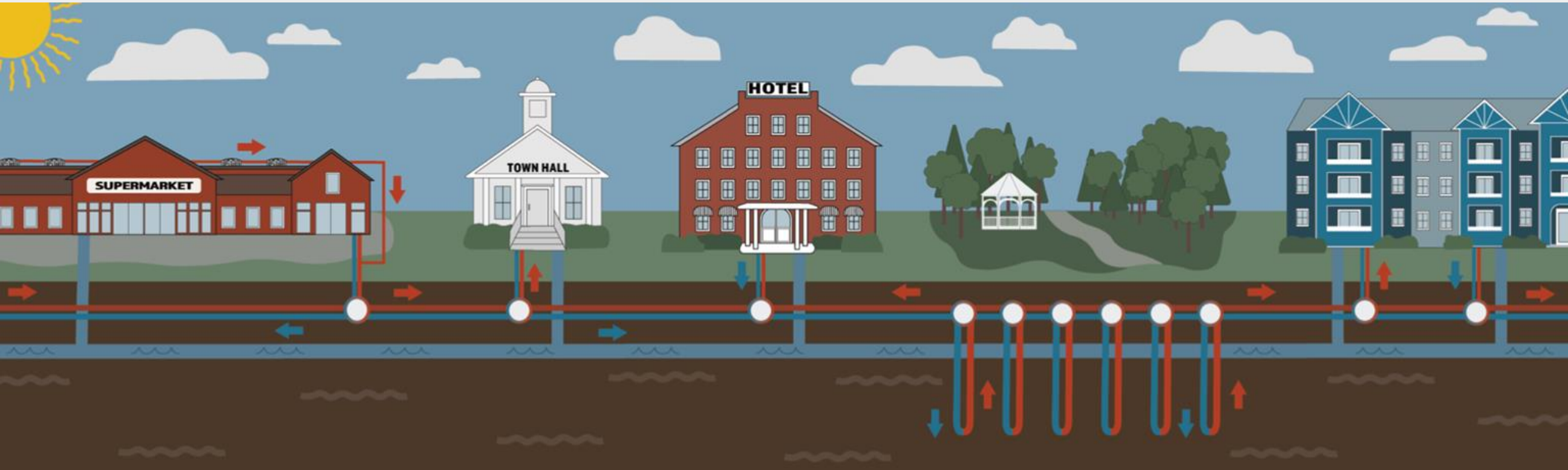
The Insulation-Basement

The House

VERMONT
COMMUNITY
THERMAL
NETWORKS

Community-Driven Thermal Energy Networks

Place-based **Local goals & needs** **Multiple pathways**

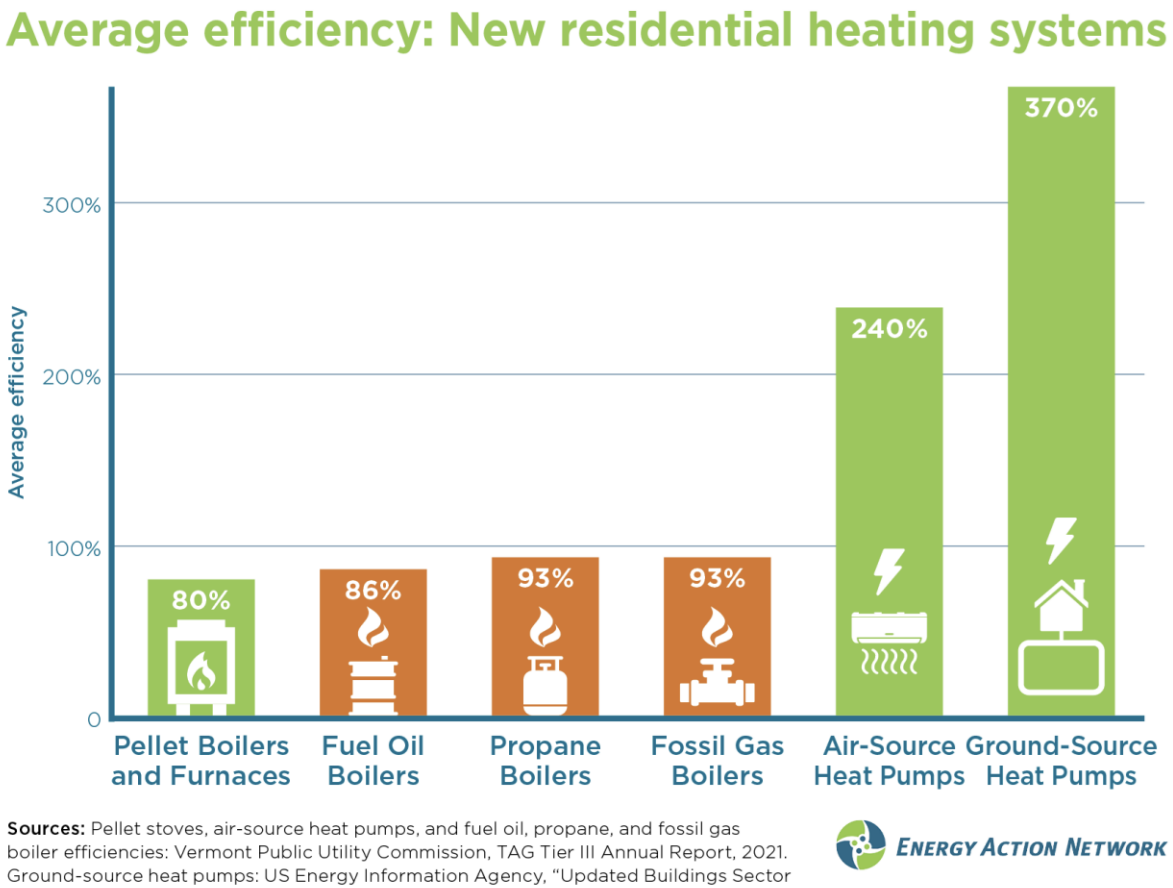


How to get off of fossil fuels

Key ingredients for the thermal sector:

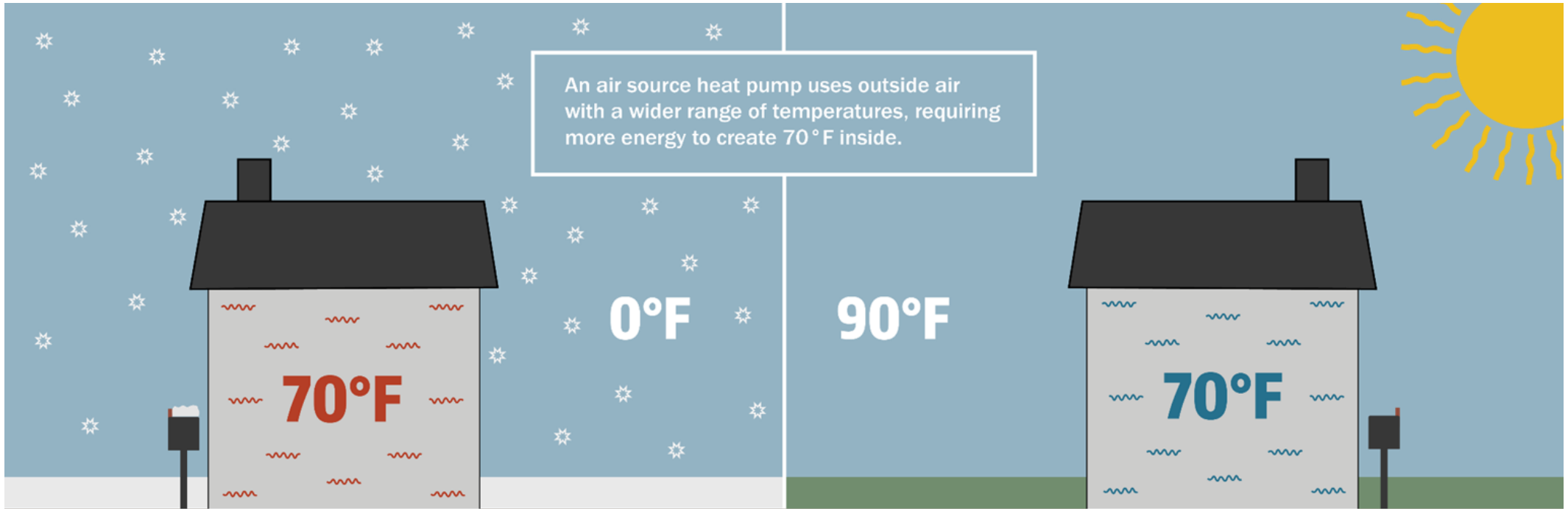
1. **High efficiency** equipment & systems
2. Deployed at **neighborhood-scale**
3. To yield **economic and social benefits**
4. Via a **community-driven approach**

1. High Efficiency



Ground-Source Heat Pump

- Water
- Moderate temperature
- Less electricity
- Longer-lasting
- Less maintenance
- Lower customer costs
- Greater resilience
- Quieter


An air source heat pump uses outside air with a wider range of temperatures, requiring more energy to create 70°F inside.
0°F
70°F
90°F
70°F

1. High Efficiency

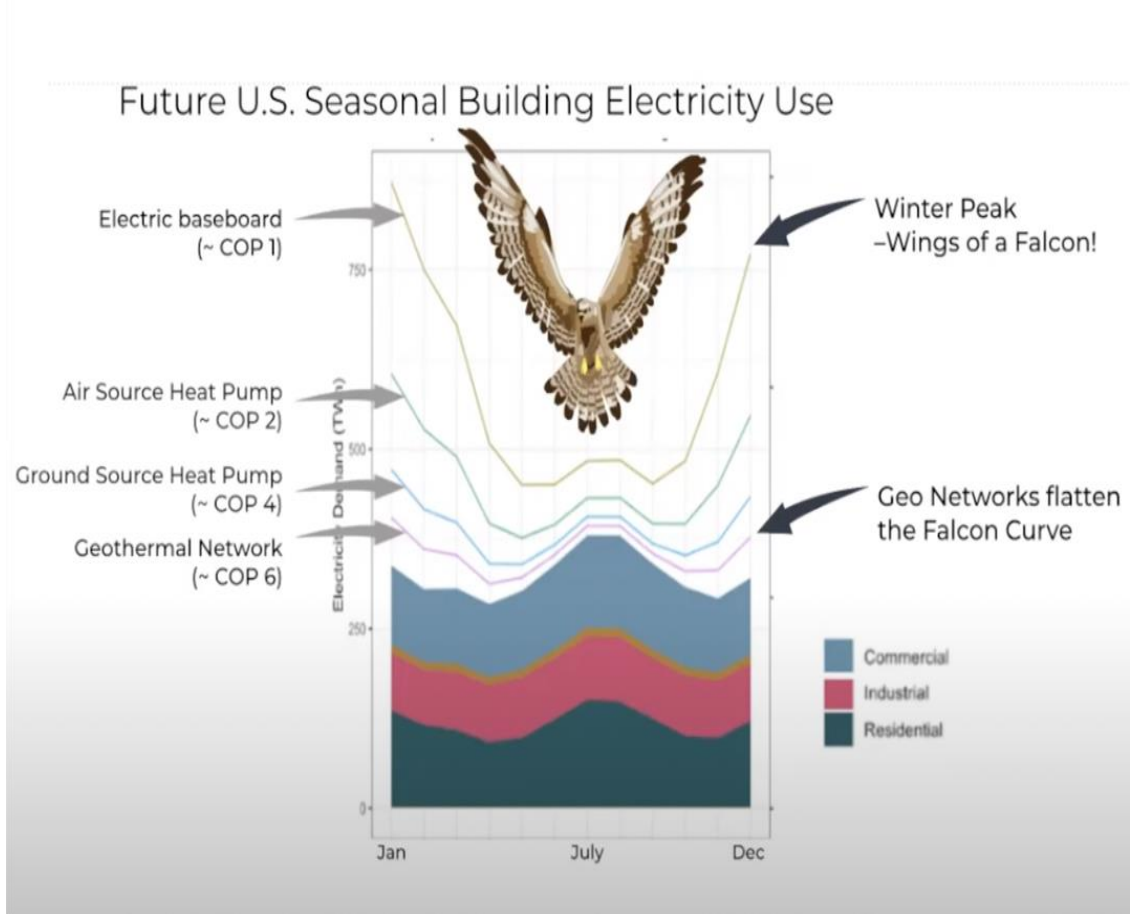
National reports: U.S. and Canada

GSHPs dramatically lower peak load impacts & electricity costs, especially in colder climates

Potential to:

- Decrease grid expansion by 38%
- Avoid 43,500 additional miles of transmission lines
- Create 12% reduction in wholesale price of electricity

The Falcon Curve

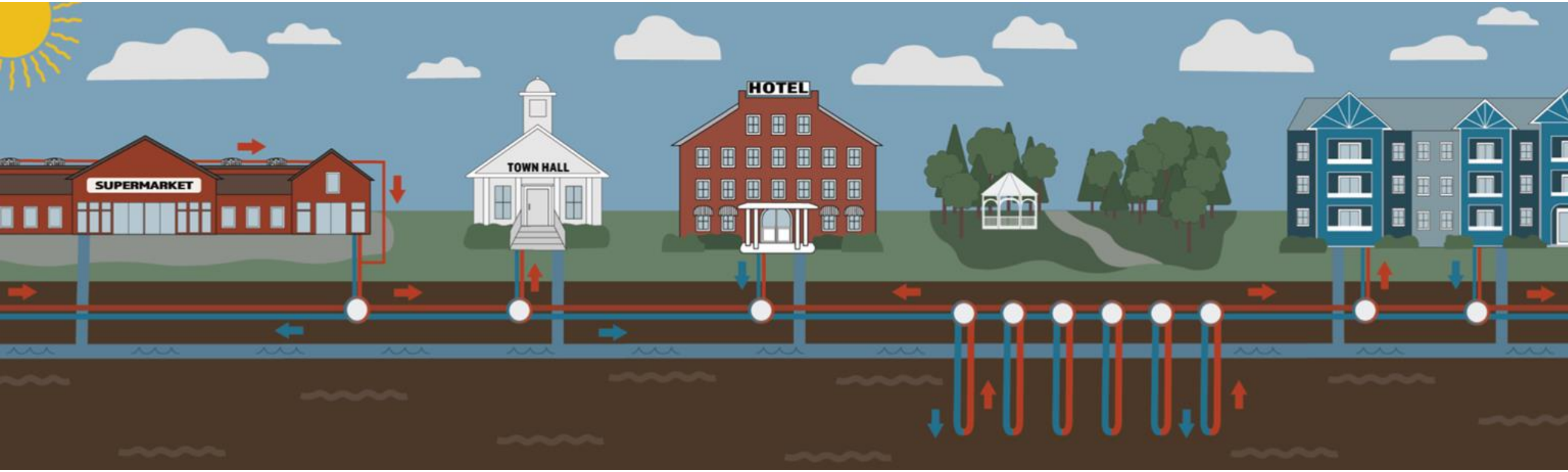


2. Neighborhood-scale

Shared infrastructure

- Water
- Wastewater

2. Neighborhood-scale

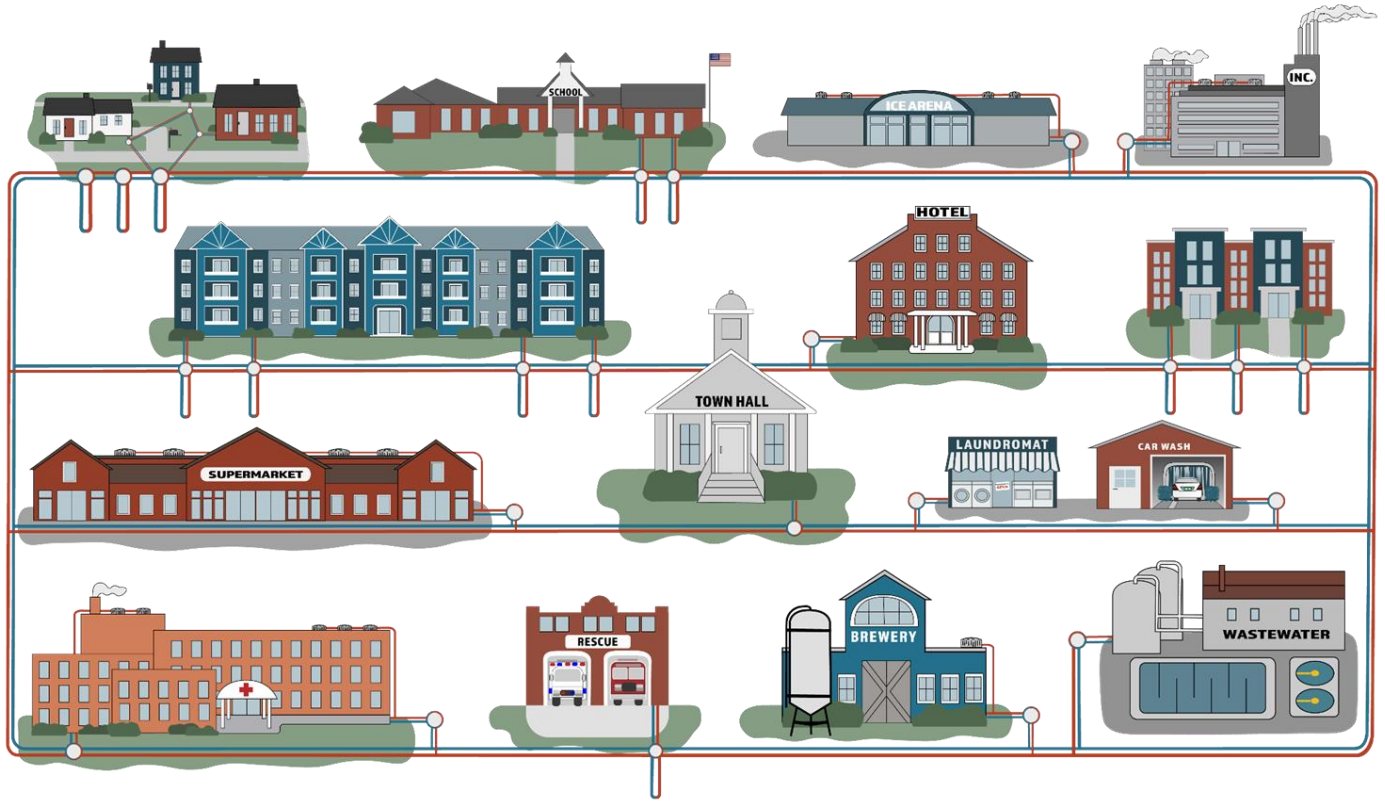


Thermal Energy Network

2. Neighborhood-scale

Thermal Energy Networks

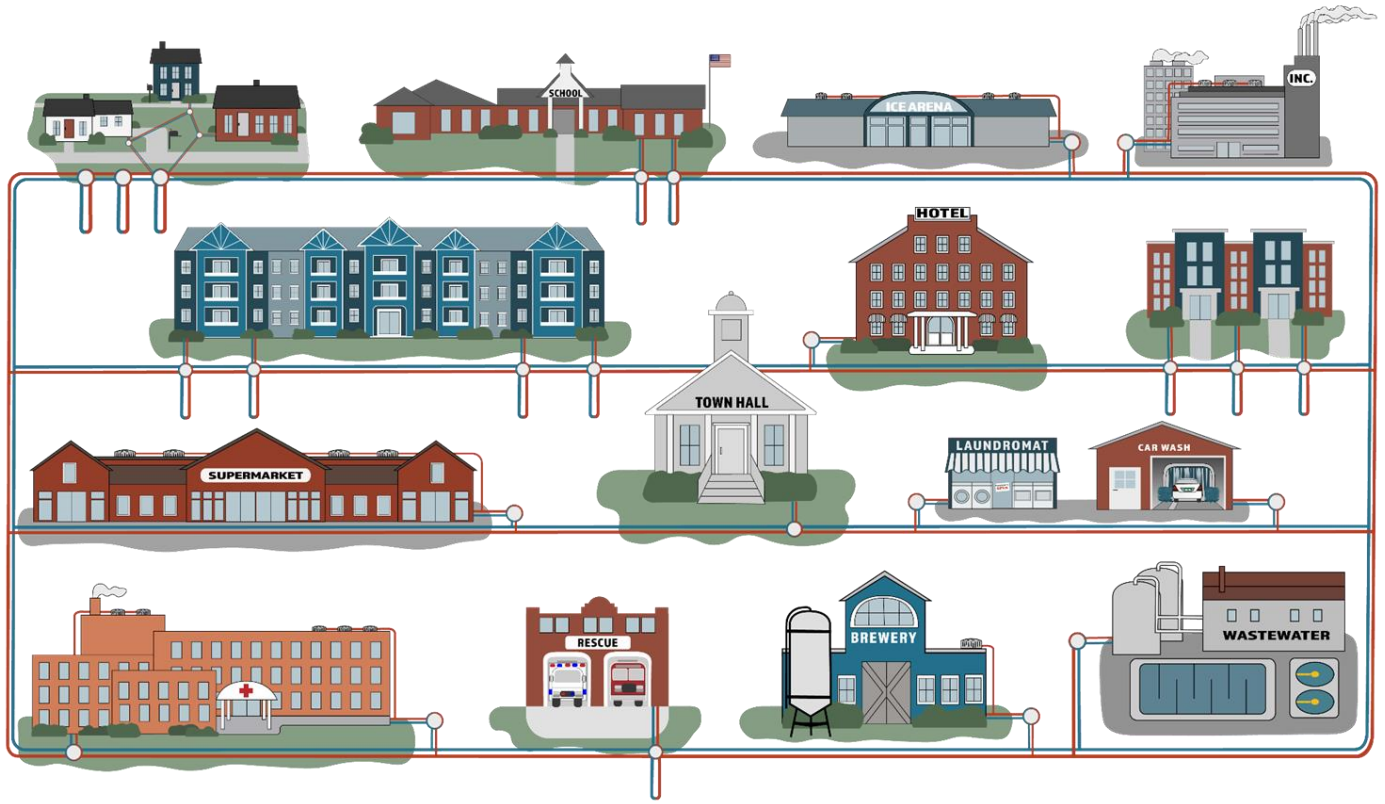
- Use ground source heat pumps & underground pipes
- Connect multiple buildings
- Circulate low temperature water from multiple sources
- Provide heating, cooling, hot water, thermal storage



2. Neighborhood-scale

Thermal Energy Networks use heat that:

- Already exists across a community
- Has already been paid for
- Would otherwise be discarded
- Can be shared efficiently



3. Economic & Social Benefits

ENERGY SAVINGS

- No fossil fuels
- High efficiency
- Less electric use
- Less demand on the electric grid

COST SAVINGS

➔ Cost stability

➔ Lower operation & maintenance costs

➔ Long-lasting equipment

➔ Electric bill savings

COMMUNITY ASSETS

★ Economic development

★ Downtown revitalization

★ Affordable housing

★ Resilience

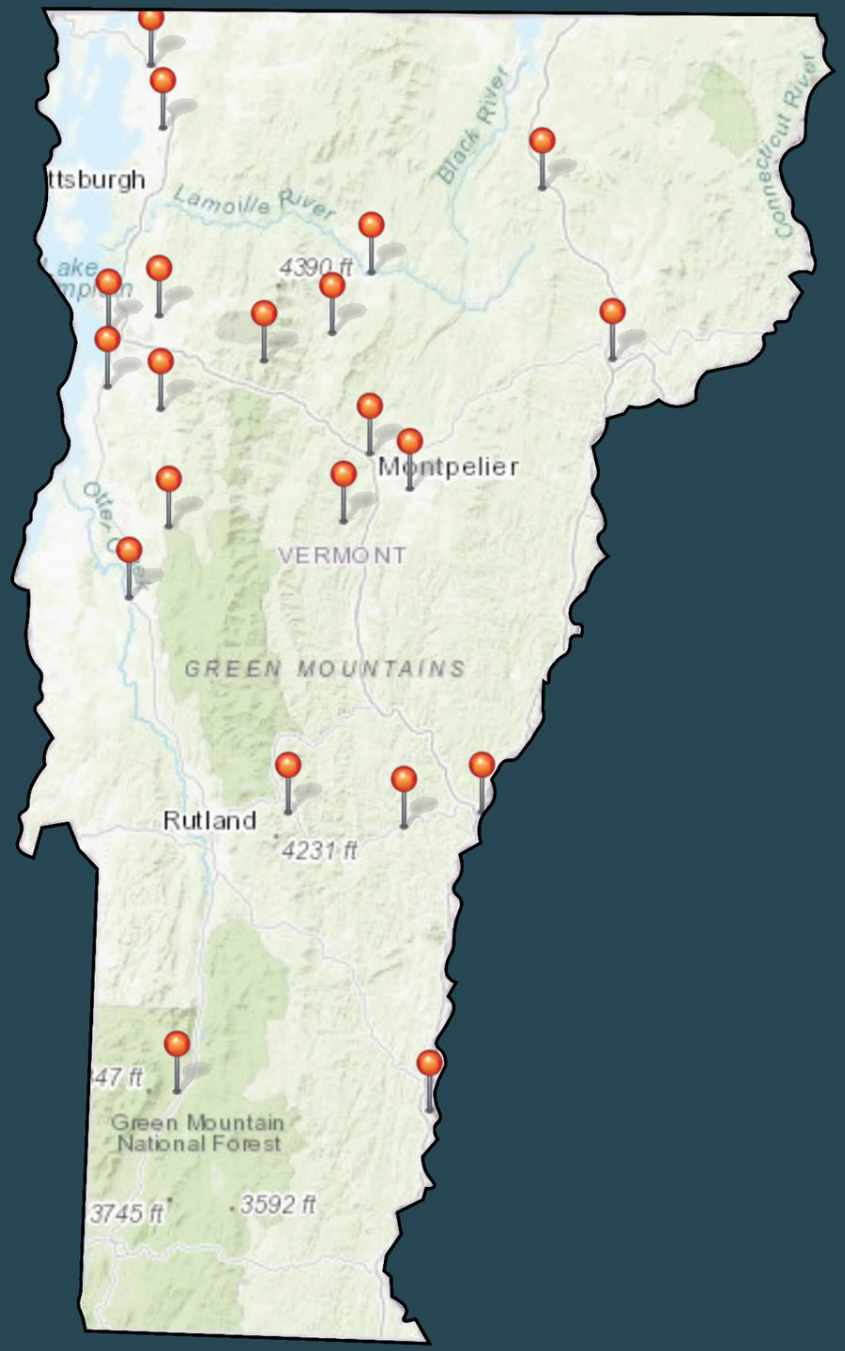
★ Quality jobs

4. Community-Driven Approach

Thermal Energy Networks are *actionable.*

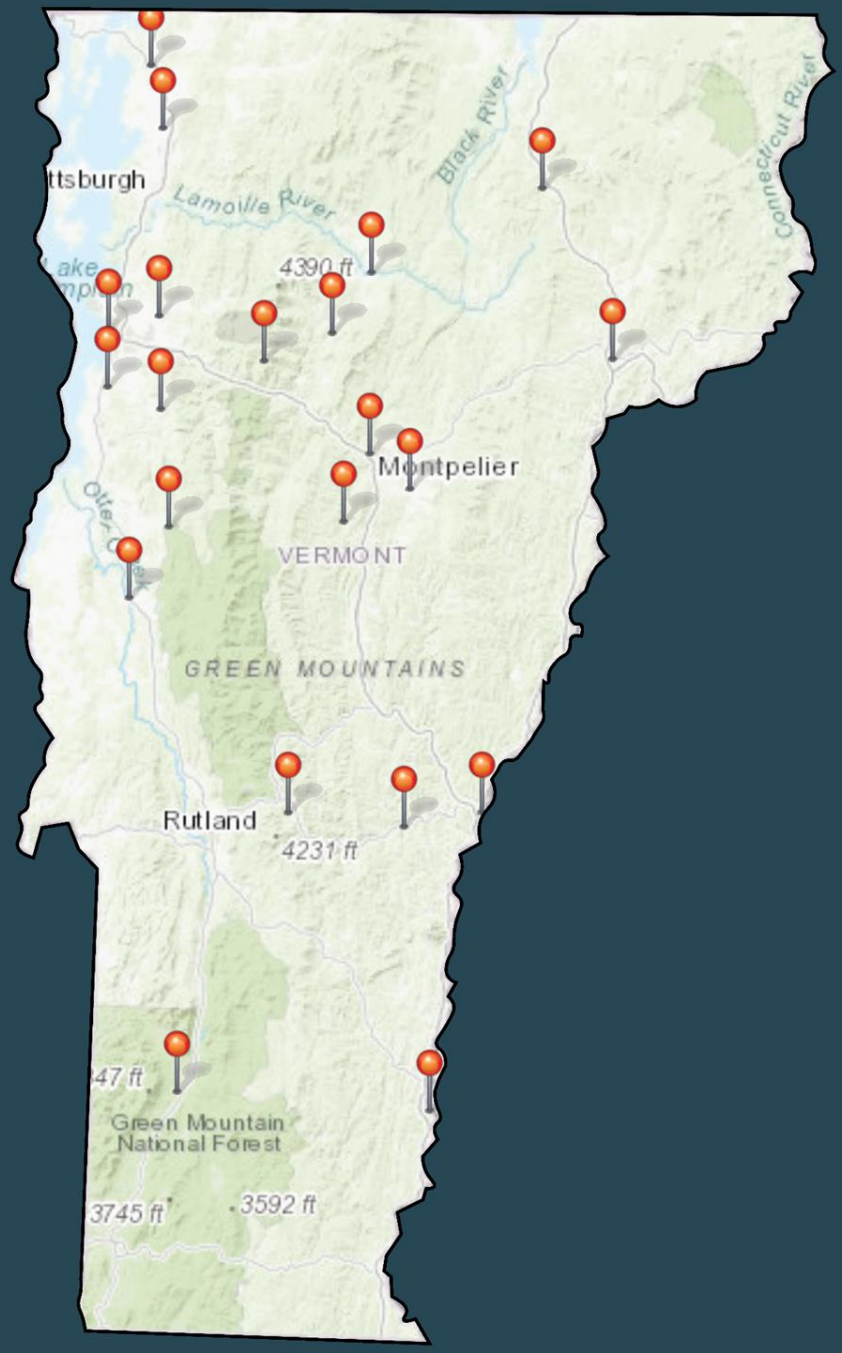
"The technology is straightforward and well-established. Small groups of people can actually do this. *It's achievable*."

"I like that we're not replicating something pre-packaged. We're asking questions, learning, and implementing it ourselves, so people are more willing, more receptive. *Our town has agency*."



Why a community-driven approach?

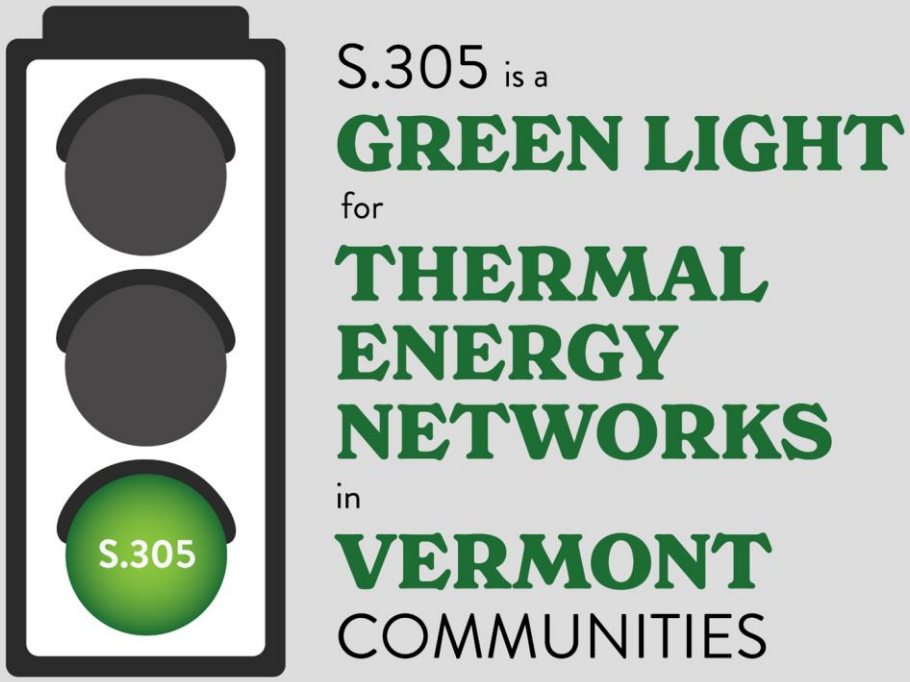
- → Leverage existing local thermal resources
- → Create accessibility and affordability through shared infrastructure
- → Keep energy dollars invested locally
- → Support local priorities and sustainable economic development
- → Take advantage of other infrastructure work
  to enhance resilience and cut costs



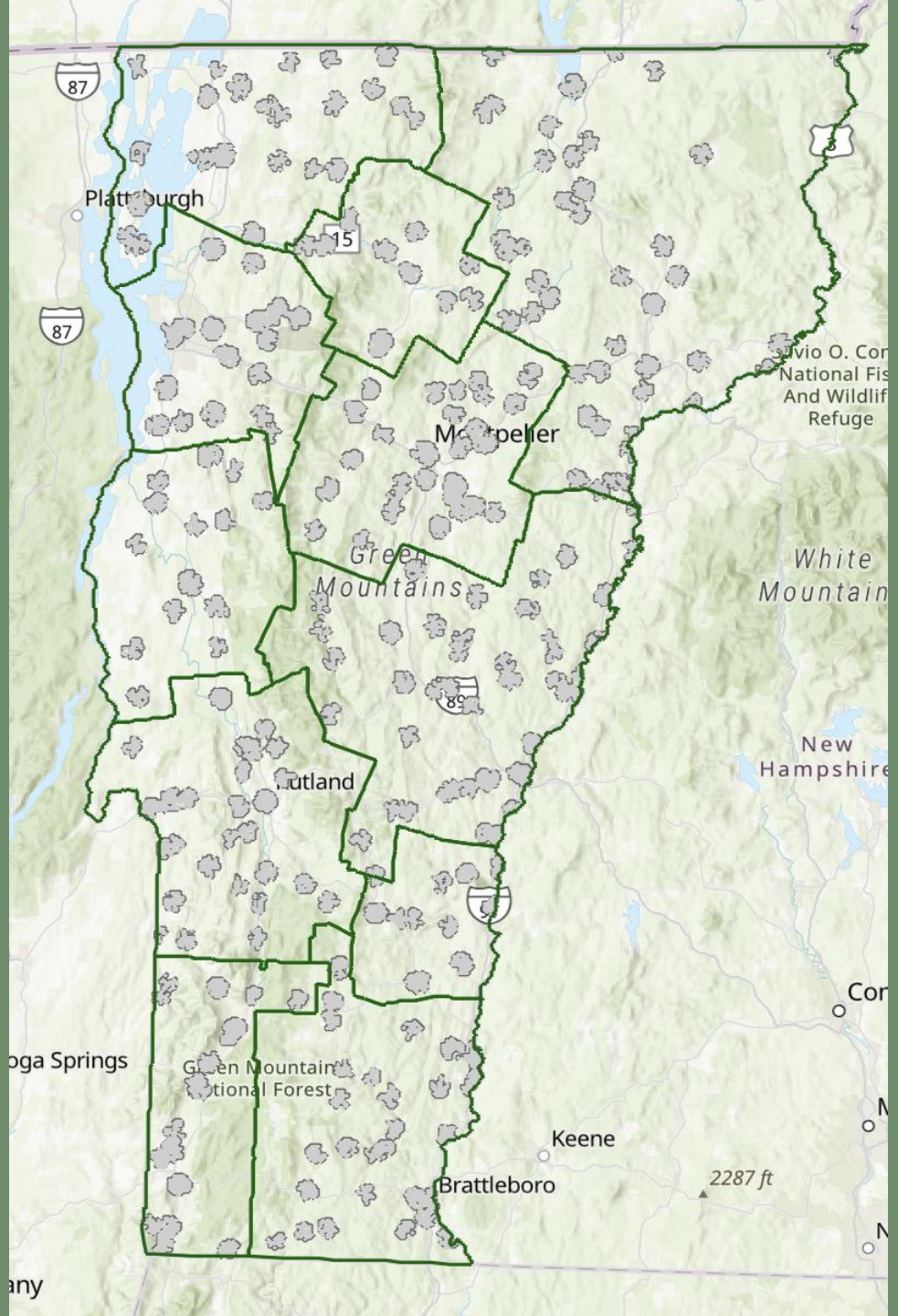
4. Community-Driven Approach

MAY 30, 2024

Vermont's Thermal Energy Networks Law



Authorizes all municipalities to build Thermal Energy Networks and establish thermal energy utilities without Public Utility Commission approval or regulation, just as municipal water and sewer utilities operate under local control.



Thermal Energy Network Potential in Vermont

- Designated Centers
- Intentional Growth Areas
- Industrial Parks

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