



Municipal Thermal Energy Network Accelerator



THANK YOU TO OUR FUNDER!

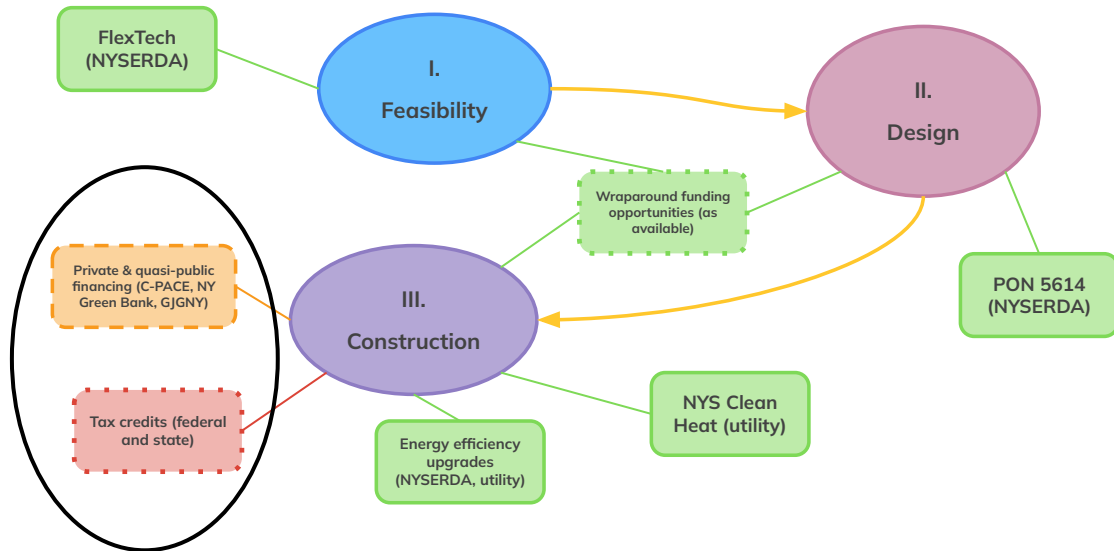
*The New York
Community Trust*
of Westchester

A COLLABORATION BETWEEN:



Financing pt. 2 – Session #5 Recap

- Federal Tax Credit changes
 - Relatively minor changes to ITC for GSHPs, Elective (Direct) Pay and Credit Transfer Rules
 - Bigger changes to residential, solar, and wind credits
 - Introducing third party ownership for GSHPs
- Financing Tools:
 - C-PACE
 - NY Green Bank
 - LDCs



Recalling Session #3: *interwoven relationship between TEN ownership model, financial capacities, and funding/financing opportunities to leverage*

Overview: Planning, Zoning, and Permitting

Today's Focus: Project Planning

- Site identification
- Stakeholder identification and early coalition building
- Coordination with solution providers



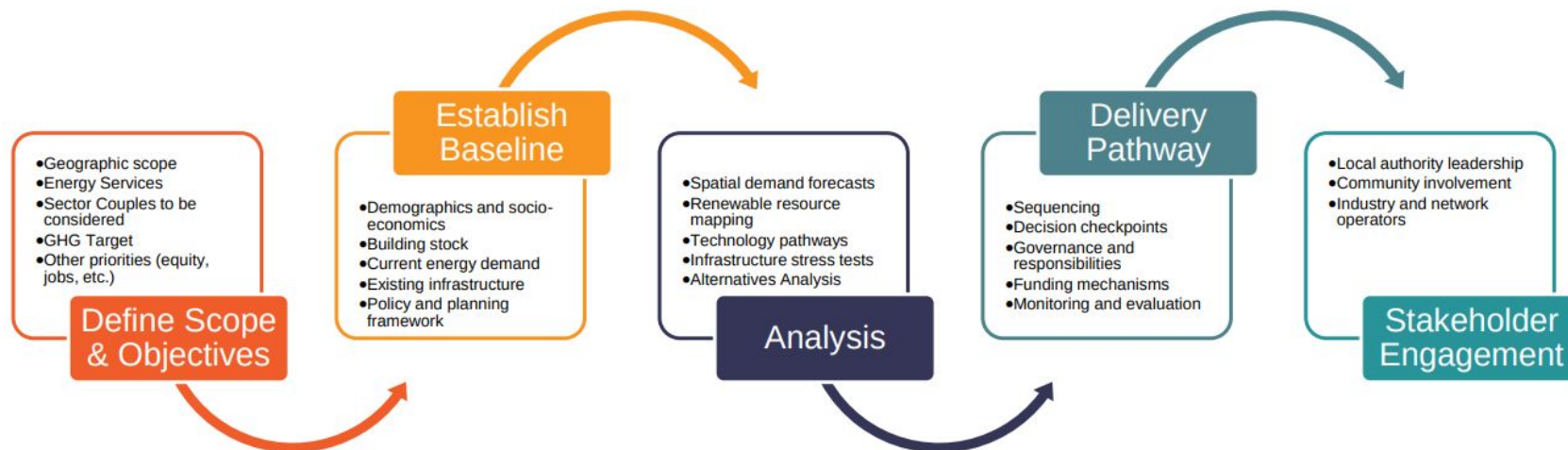
Source: National Grid - Syracuse UTEN Stage 2 Filing

November: Community Planning, Permitting, and Zoning

- Community-level & comprehensive planning
 - Alignment with concurrent infrastructure and land use projects
- Local permitting and zoning considerations
- Prep for December 1-on-1s

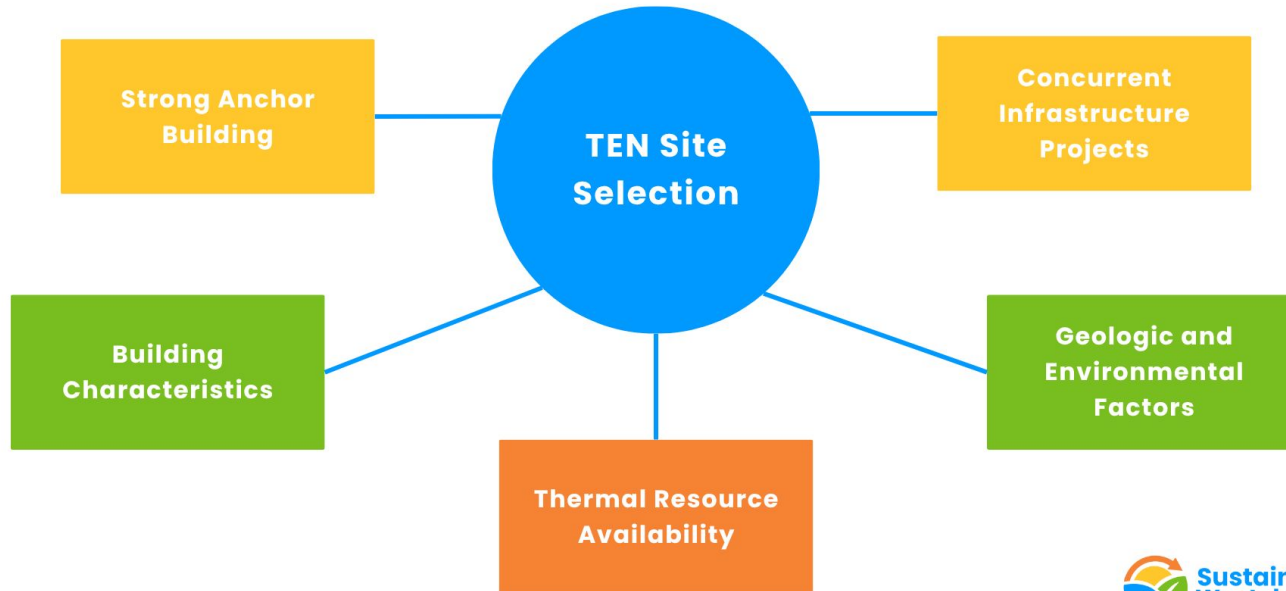
Initial Project Planning Considerations

ONE MODEL FOR AREA-BASED THERMAL PLAN



Source: Reshape Strategies, IDEA TENs Webinar Series - *TENs and Area Based Planning* (10/1/25)

Site Identification for TENs



Importance of a Strong Anchor

Anchor Building(s): a large building – or set of buildings – that could serve as a starting point for a thermal energy network project and enable future system expansion

- Helps to demonstrate project buy-in – and benefits
- Opportunity to focus on buildings with more pressing infrastructure needs
- Enables a phased project timeline
- Can align with climate, job, and equity goals

Anchor Buildings for a Thermal Energy Network Project



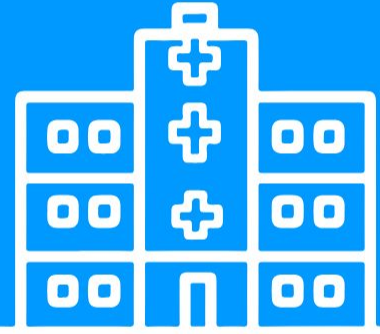
Municipal &
Community Centers



Schools &
Universities



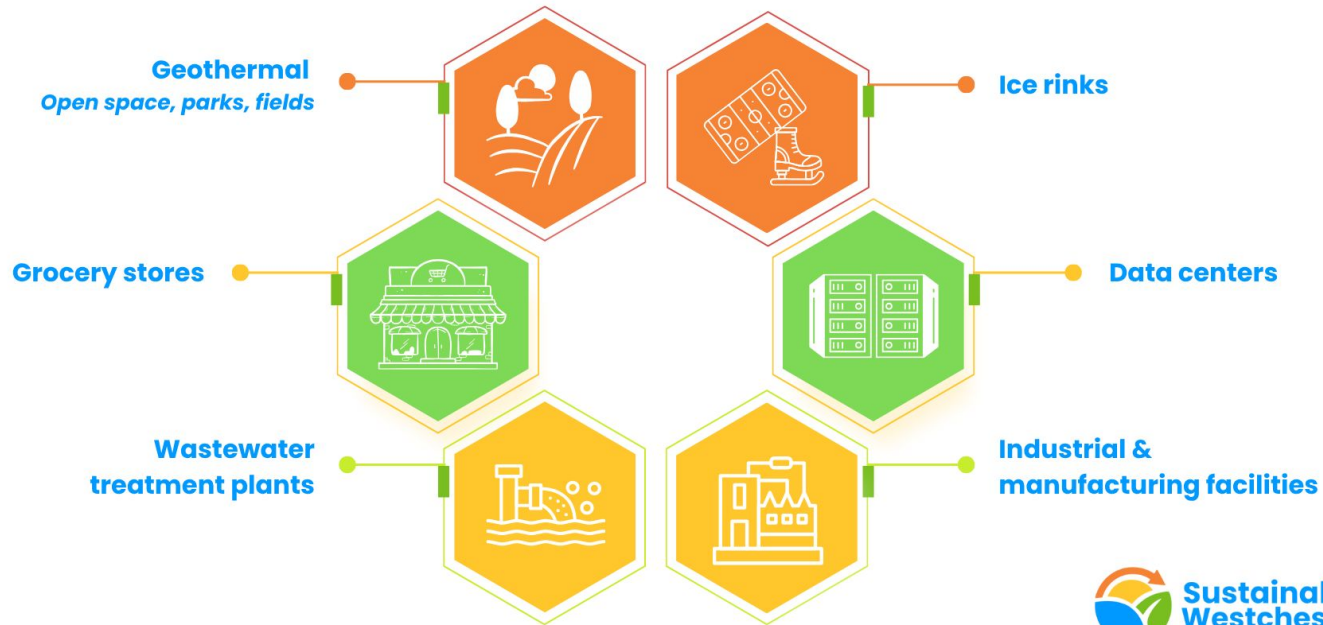
Multifamily Housing
Complexes



Hospitals &
Healthcare Facilities

Thermal Resource Availability

Types of Thermal Resources



Project Planning Considerations: *What's in a TEN Feasibility Study?*

Baseline Conditions:

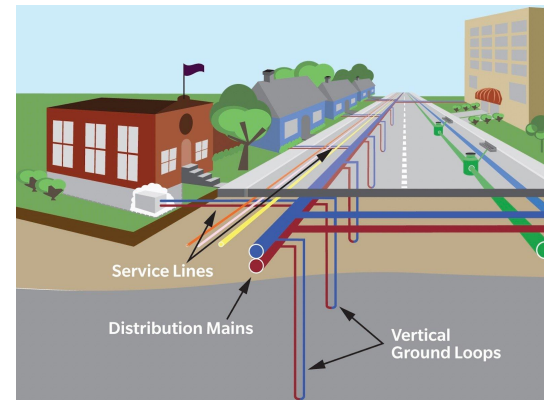
- Assessment and overview of existing infrastructure and equipment
 - Current demand / consumption, thermal and energy profiles
- Evaluation of load diversity and thermal balance

Evaluation of Technology Options:

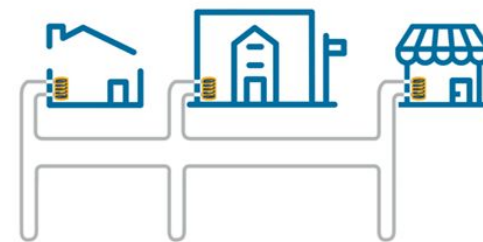
- Potential system configuration
 - Centralized vs. decentralized
- Provider may compare a variety of systems:
 - Business As Usual (BAU), air source heat pumps (ASHPs,) geothermal, other modes of heat exchange (i.e. sewer/wastewater)
- Thermal resource integration

Economic and Financial Analyses

- Life-cycle & construction cost comparisons
- Appropriate business models and billing structures



Source: Canary Media / Eversource



Source: NYSERDA

Feasibility Study Examples: Pratt Landing (New Rochelle)

Provider: Endurant Energy

Building Type: largely new construction, mixed-use complex (eight buildings)

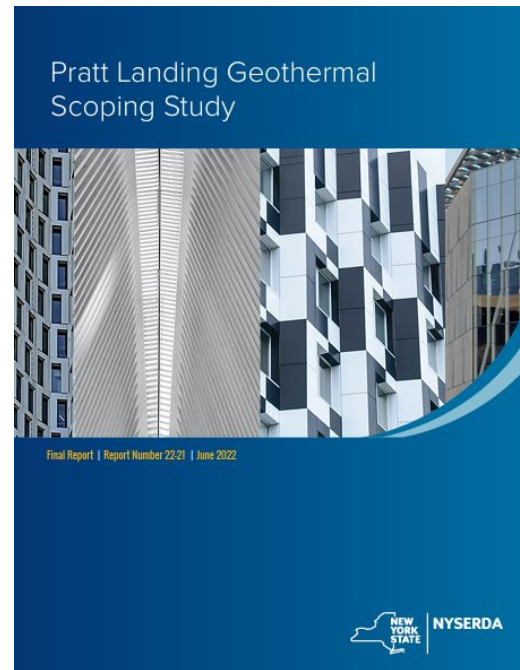
Technologies Assessed: wastewater heat recovery, GSHPs, ASHPs, solar and battery storage

Other Topics:

- Legal and regulatory review
 - Submetering (for rental units)
- Finance and funding opportunities

Table ES-1. Lifecycle Cost Comparison

	BAU	SHX Centralized	SHX Decentr.	Geo Centralized	Geo Decentr.
Annual Elec Use (kWh)	6,216,321	2,240,456	2,250,572	3,105,783	3,105,829
Installed Cost	\$21,808,000	\$33,578,000	\$26,582,000	\$32,229,000	\$27,702,000
Year 1 Utility Cost	\$1,550,000	\$481,000	\$665,000	\$723,000	\$859,000
Year 1 Maint. Cost	\$105,000	\$65,000	\$65,000	\$48,000	\$48,000
30-year LCC	\$71,071,000	\$49,540,000	\$49,744,000	\$56,233,000	\$57,114,000



[Report Link](#)



Identifying Stakeholders & Coalition-Building

The Importance of Early Coalition Building

Purpose: Successful TENs depend on trust, coordination, and early buy-in across technical, policy, regulator, and community spheres

Key Principles

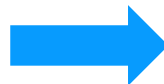
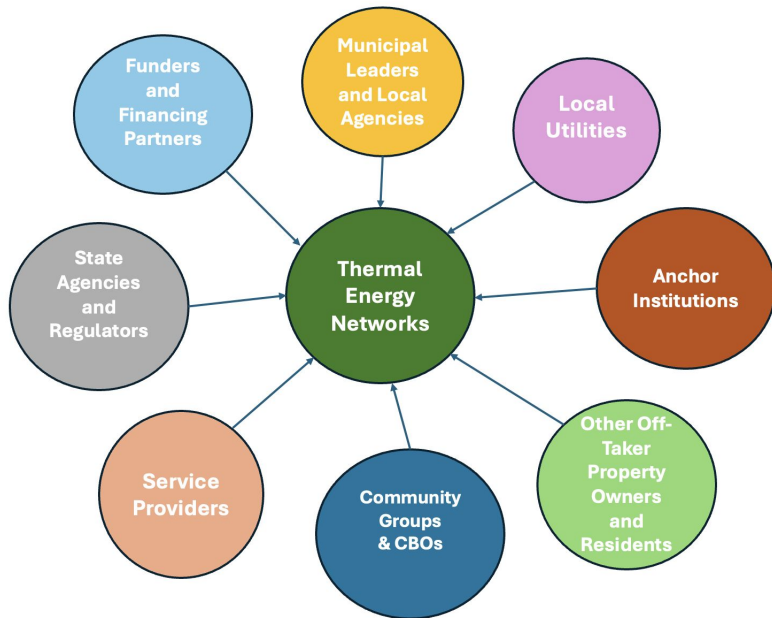
- **Internal Coalition** (Early Stage)
 - Identify and coordinate early with technical experts, municipal leaders, utilities, and state agencies to establish shared goals
 - Build internal alignment first — define responsibilities and decision-making processes before system design
 - Frame objectives around community value (cost savings, resilience, equity) to guide both technical and financial planning
- **External Coalition** (Community & Engagement Stage):
 - Once internal coalition is aligned, engage anchor institutions, property owners, residents, CBOs, and funders
 - Communicate with non-expert stakeholders in accessible, non-technical language that emphasizes benefits
 - Use inclusive outreach methods, such as multilingual plain-language materials and compensation for participants from LMI households



**COALITION
BUILDING**



Move from Identification to Action



- Engage Early and Often
- Mutual Education & Transparency
- Feedback Loops & Community

Engagement Tactics:

- Community Ambassadors
- Public Information Hubs
- Community Benefit

Agreements (UTEN model)

- Utilize Key Negotiation Tools
- Patience & Flexibility are Essential

Lessons Learned & A Case Study Example

Cornell University AgriTech Campus

- Anchored by institutional leadership and transparent community updates
- Early planning integrated campus growth and TEN design to university-wide Campus Action Plan goals
- Key stakeholders in the partnership include University officials, faculty, and staff; state agencies; service providers; municipal officials from the City of Geneva; and community groups



New York Power Authority (NYPA)



Energy Services

October 27th, 2025

Municipal Thermal Energy Network Accelerator

NYPA Customers



State Agencies

45

NYPA has big 6

**Approximate customer count*



Local Governments & K-12

450 Local governments
20 K-12 School Districts

*SENY + Non-SENY
Expanded authority opens
new opportunities*



Higher Education, Hospitals & Not-for-Profits

50 Higher Ed
40 hospitals

*SUNY, CUNY, Private
NFP, Community
Colleges*



Businesses

~900+

*Power Programs
Customers*



Munis / Co-ops

51

Wholesale Power

NYPA offers a full range of customer solutions



Planning

Clean Energy
Master Planning
Decarbonization
Planning



Energy Efficiency

Interior LED Lighting
LED Street Lighting
HVAC
Boilers
Chiller
Wastewater Treatment



DER Advisory

Solar + Storage
Remote Crediting
Community Distributed
Generation



eMobility

Electric Vehicle
Advisory
Level 2 Charging
DCFC



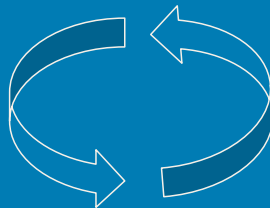
Electrification

Heat Pumps
Geothermal
Thermal Network

Thermal Energy Networks

What is a Thermal Energy Network (TEN)?

- Shared networked loop of underground water pipes that distributes thermal energy for heating and cooling
- Buildings connected to networks can add or extract heat, depending on needs
- The network minimizes waste and operates with greater overall efficiency rather than traditional systems, by sharing thermal energy
- Uses range between neighborhoods, university campuses and urban environments



How Does it Work?

- **Heat Exchange:** Buildings are connected to the network via heat exchanger and a heat pump
- **Source Diversity:** Many options for thermal energy....
 - * Geothermal Boreholes
 - * Waste Heat
 - * Surface Water
 - * Solar Thermal
- *****BALANCING ACT***** - network can achieve high degree of efficiency when one building rejects heat and it gets used for another building

Benefits of Thermal Energy Networks

Environmental Sustainability – TENs help decarbonize heating and cooling by reducing reliance on fossil fuels like natural gas.

Cost-Effectiveness – lower energy bills for customers (lower fuel costs, higher efficiency.)

Energy Resilience – reduction of the grid strain, heating & cooling demand.

Local Case Study

Local Customers & Vendor

- Campus/Fire Districts/Neighborhood Clusters
- Desktop Audit
- Face to Face Meetings

NEXT STEPS!



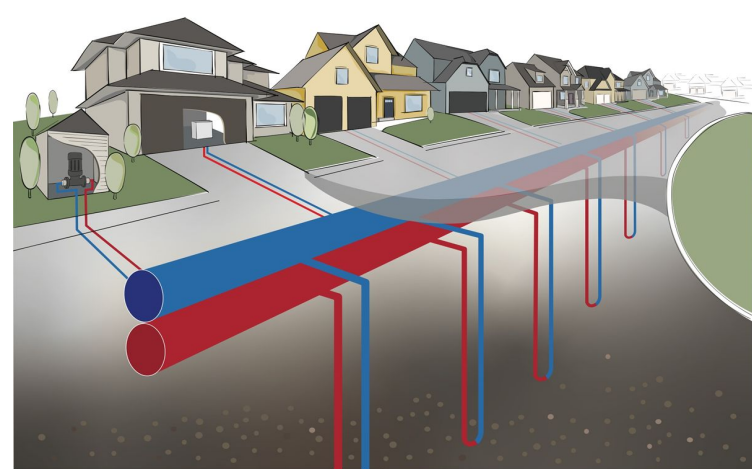
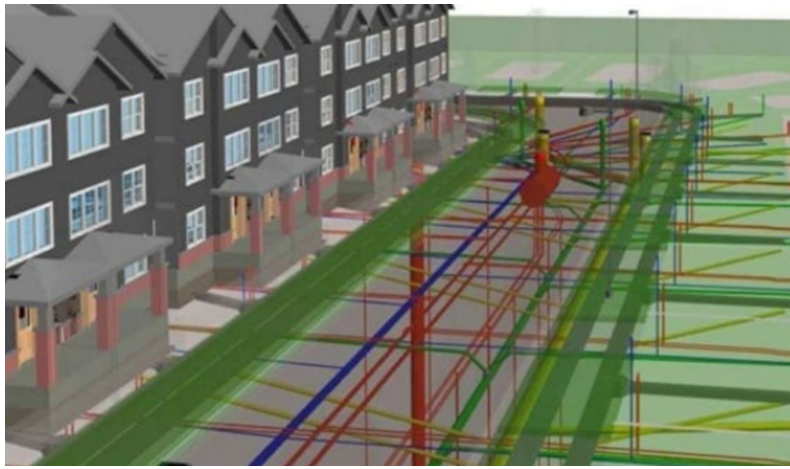
NY Power
Authority

Thank YOU!



October 27th, 2025

Salas O'Brien



Thermal Energy Networks (TEN): Considerations and Planning for Municipalities

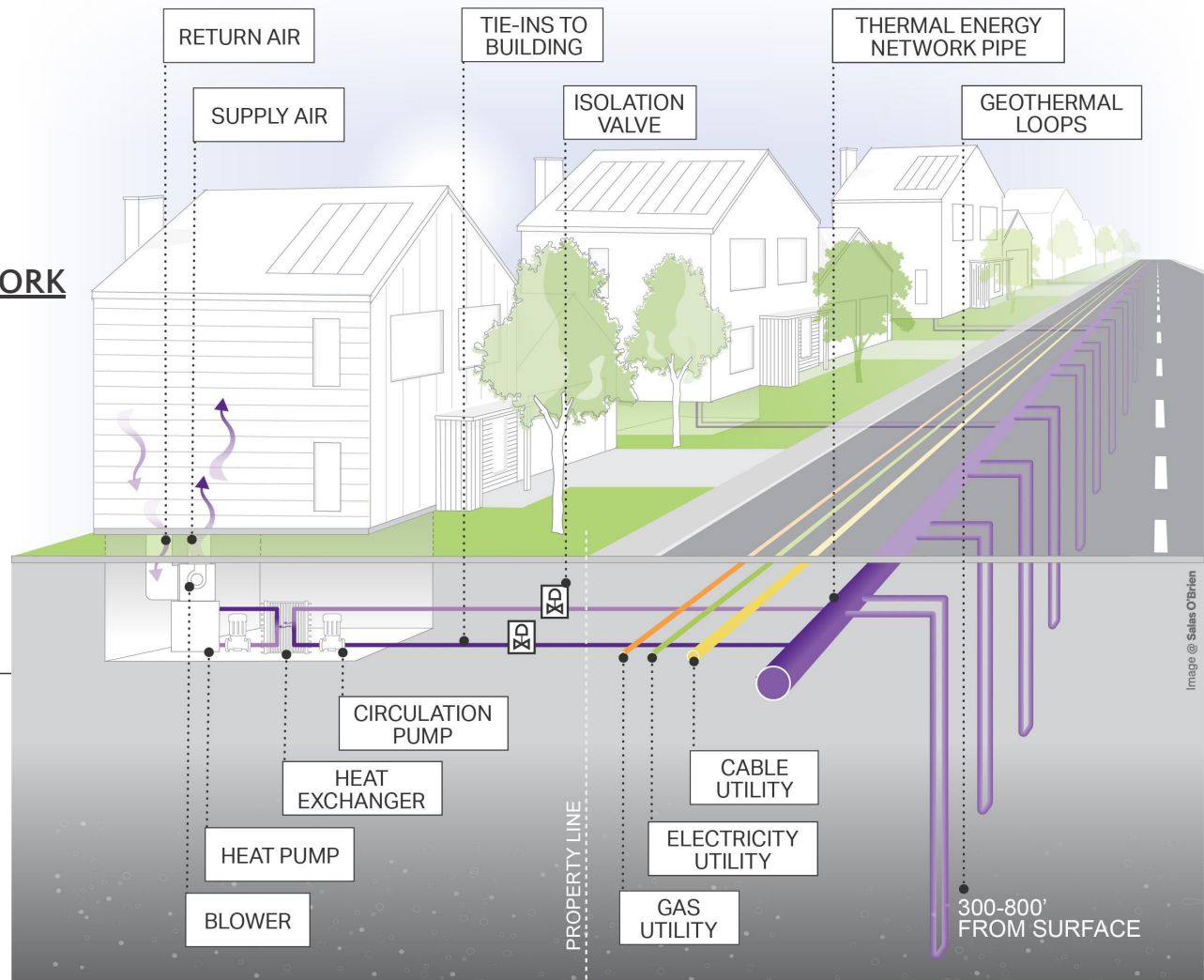
PRESENTED BY
Brian Urlaub
Director of Geothermal Operations
Brian.Urlaub@salasobrien.com

What should municipalities who are considering a TEN system consider - and steps for feasibility.

WHAT IS A THERMAL ENERGY NETWORK

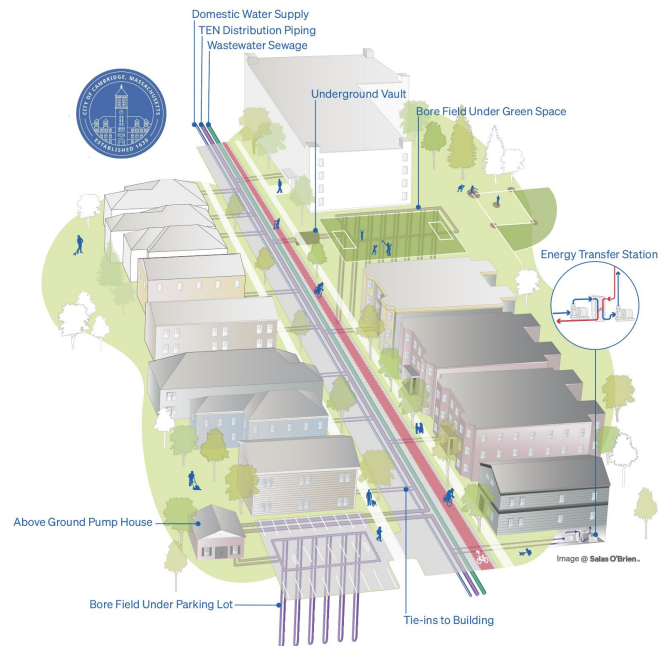
Single Pipe Ambient Loop with distributed thermal resources (geothermal) and distributed heat pump systems.

- Energy flows in two directions (sharing)
- Thermal energy can come from many sources



#1: Review public land for thermal asset use

- Determine what city or municipal-owned land is available for thermal asset use (geothermal heat exchangers).
- Research to see if there are any state or local rules/statutes that would make it difficult to use things like parks or other public properties.
 - Does this take a vote by city council or even state government?
- Think about where potential TEN infrastructure, like pump houses, could be located within the site.
- Work with city planning on locating city streets that have planned improvements coming up. Any streets that will be repaved, or upgrading utilities, or adding larger sidewalks, etc.



#2: Review infrastructure constraints and logistics

- Work with gas and electric utilities to determine if any areas within the community have gas or electric constraints that could benefit from a TEN system.
- Evaluate if any environmental studies have been done to determine presence of any soil contaminations. Review state information on contaminated areas.
- Evaluate street utility congestion and determine if any areas are a no-go with relation to new infrastructure.



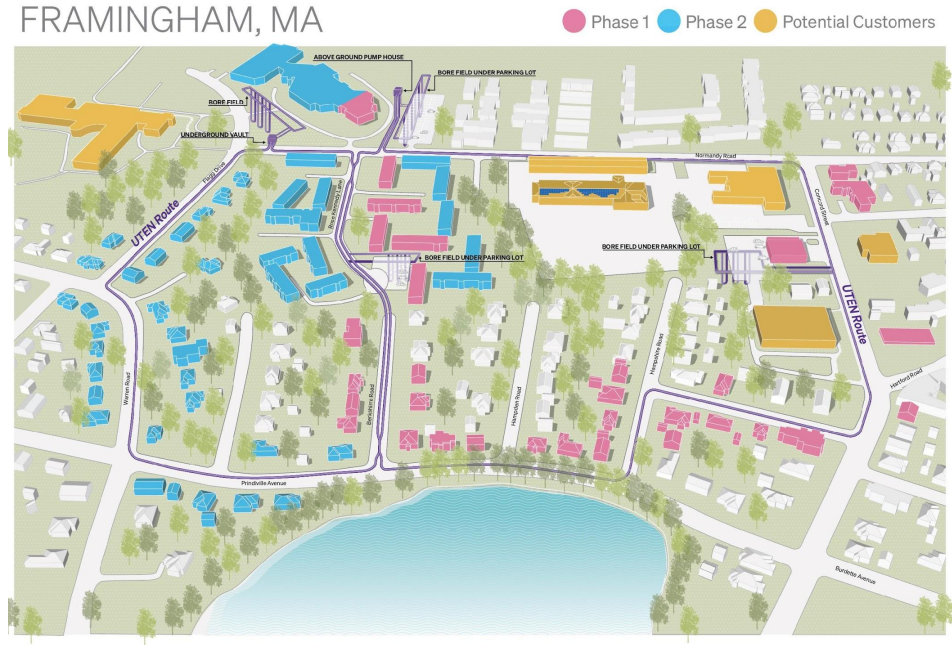
#3: Review Building Stock within Sites

- Building stock in older neighborhoods tend to be the most expensive to retrofit to a geothermal heat pump system.
 - Determine if buildings have forced air AC systems if possible.
 - Try to eliminate buildings that are still using steam heating.
- Work with city planning on new developments. These are the low hanging fruit that are much easier to implement and then won't be a stranded building set for years to come.
- Mix of buildings is ideal, commercial and residential customers, also with a potential larger heat producing customer (data center, ice rink, etc.)



#4: Understand the Permitting Requirements

- Research and develop permitting matrix to understand all permitting that would be required for a TEN project
- If any surface water or wastewater thermal assets are being discussed as a potential, permitting can be very challenging so engage those regulatory bodies early.



#5: Determine Potential Ownership Model Structures

- Develop ownership model structures and options
- Determine funding mechanisms and opportunities
- Research incentive opportunities that can offset CAPEX.
- Start thinking about operating the system options
 - 3rd party operators
 - City staff for operators



#6: Early Community Engagement

- Once you have narrowed down a few sites it's important to start talking to potential customers/users.
- Find out who in the community, especially potential anchor customers, and their level of interest in participating in a TEN system.
- Get an expert in community engagement and outreach on board early to develop the outreach plan and program.
- This will be needed throughout the project.



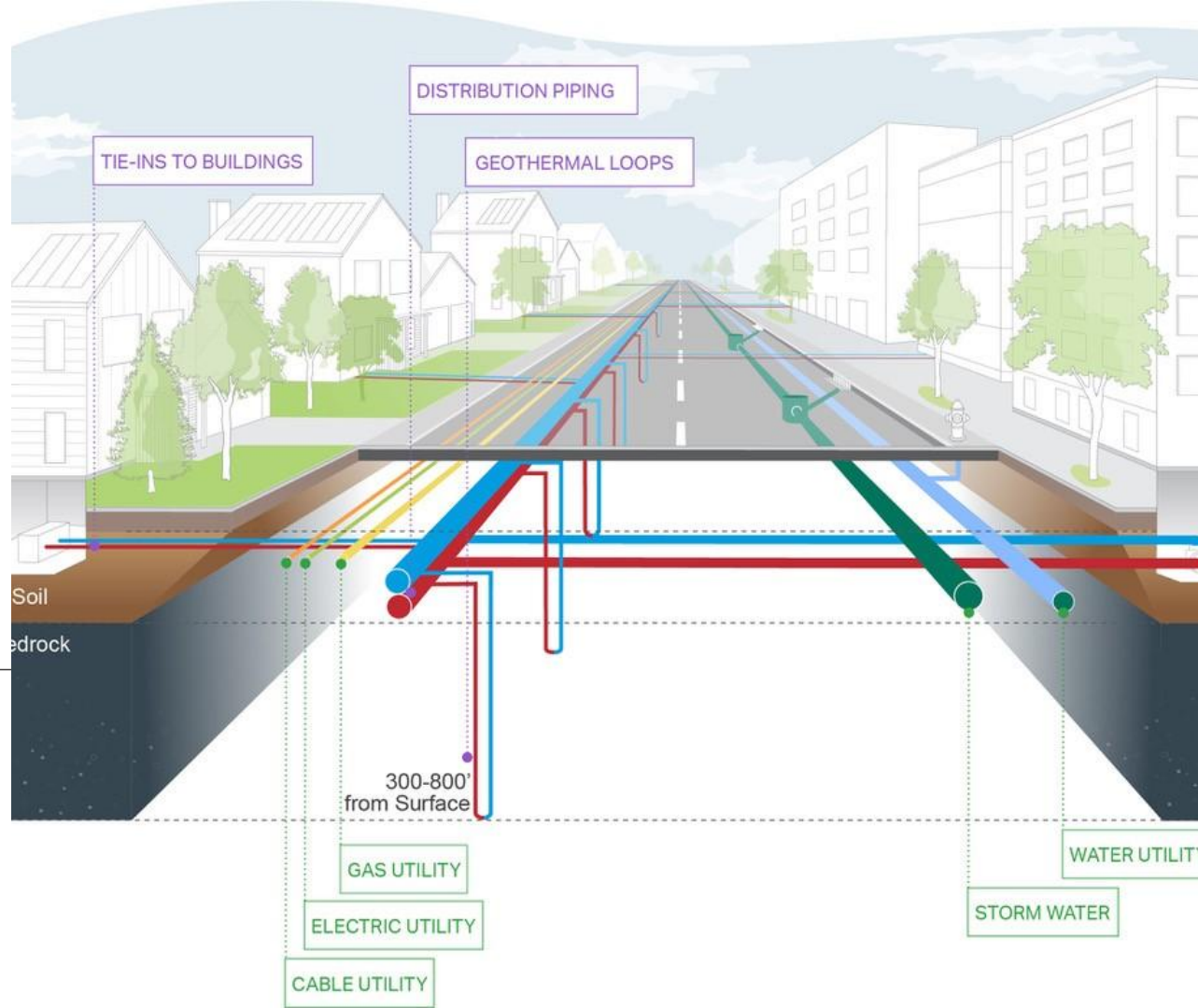
Questions??

CONTACT INFO:

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Pause for Questions



Early Project Planning / Site Selection “Cheat Sheet”

Building Characteristics:

- Older buildings with deferred maintenance
 - May (or may not) align with project timelines – be aware of project cost contributors
- Economies of scale: broader mix of building types w/ diverse heating and cooling loads
 - Map heat demand intensity, building density
- Electrical capacity and wiring

Concurrent Infrastructure Projects:

- Repaving or underground work – “dig once”
 - Leak-prone pipes and/or line replacement
- In-development capital improvement projects
 - Downtown cores
- New construction
 - All Electric Buildings Act

Thermal Resource Availability:

- Open space for borefields
- Buildings with large refrigeration/cooling systems
- Industrial or manufacturing facilities
- Wastewater treatment plants
 - Sewer mains

Geologic and Environmental Considerations:

- Gather existing information:
 - Shallow bedrock - can reduce drilling costs
 - Surface or groundwater resources
 - Test boreholes, thermal conductivity tests can come later
- Ecologically and/or environmentally sensitive areas
 - Wetlands, coastal and river areas

Additional Project Planning Resources

Building Decarbonization Coalition

- [Thermal Energy Networks - FAQs](#)

Vermont Community Thermal Networks

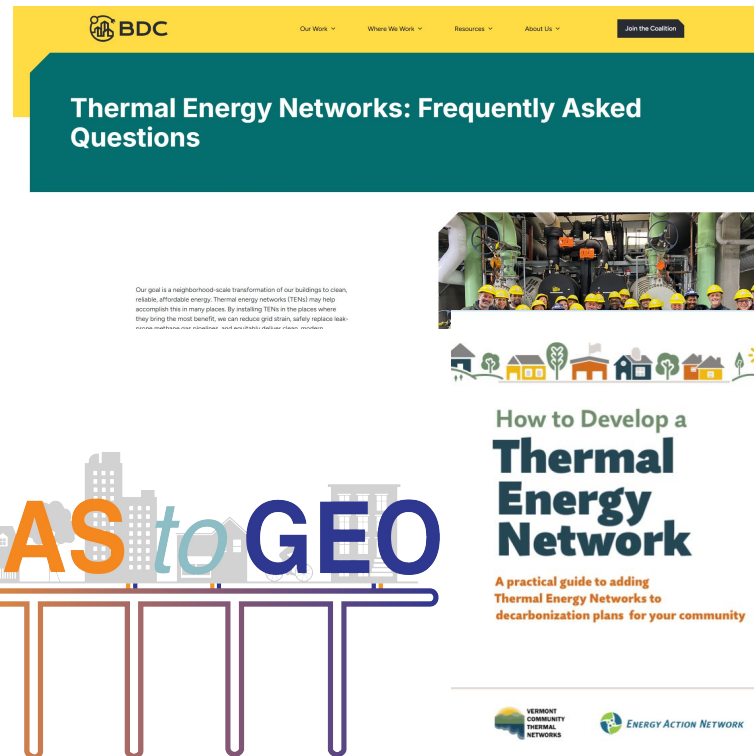
- [Toolkit: How to Develop a Thermal Energy Network](#)

HEET

- [Gas-to-Geo Hub](#)
 - [Site and Design Considerations](#)

+ more to come in the MTEN-A

Resource Hub



Next Up & November Preview:

*Community Planning,
Zoning, and Permitting*



November 17th or 24th
11am - 12pm

Reach out for 1-on-1s!

- Go over topics discussed so far
- Share updates
- Think about resource and material needs for implementation packages

Session 7 Topic:

Planning, Part 2: Community Planning,
Zoning, and Permitting for TENs

Thank you!

