



Orange & Rockland

**O&R Utility Thermal Energy Network Pilots
Request for Information (RFI) Webinar
January 4, 2023**

Introductions



Kai Wu



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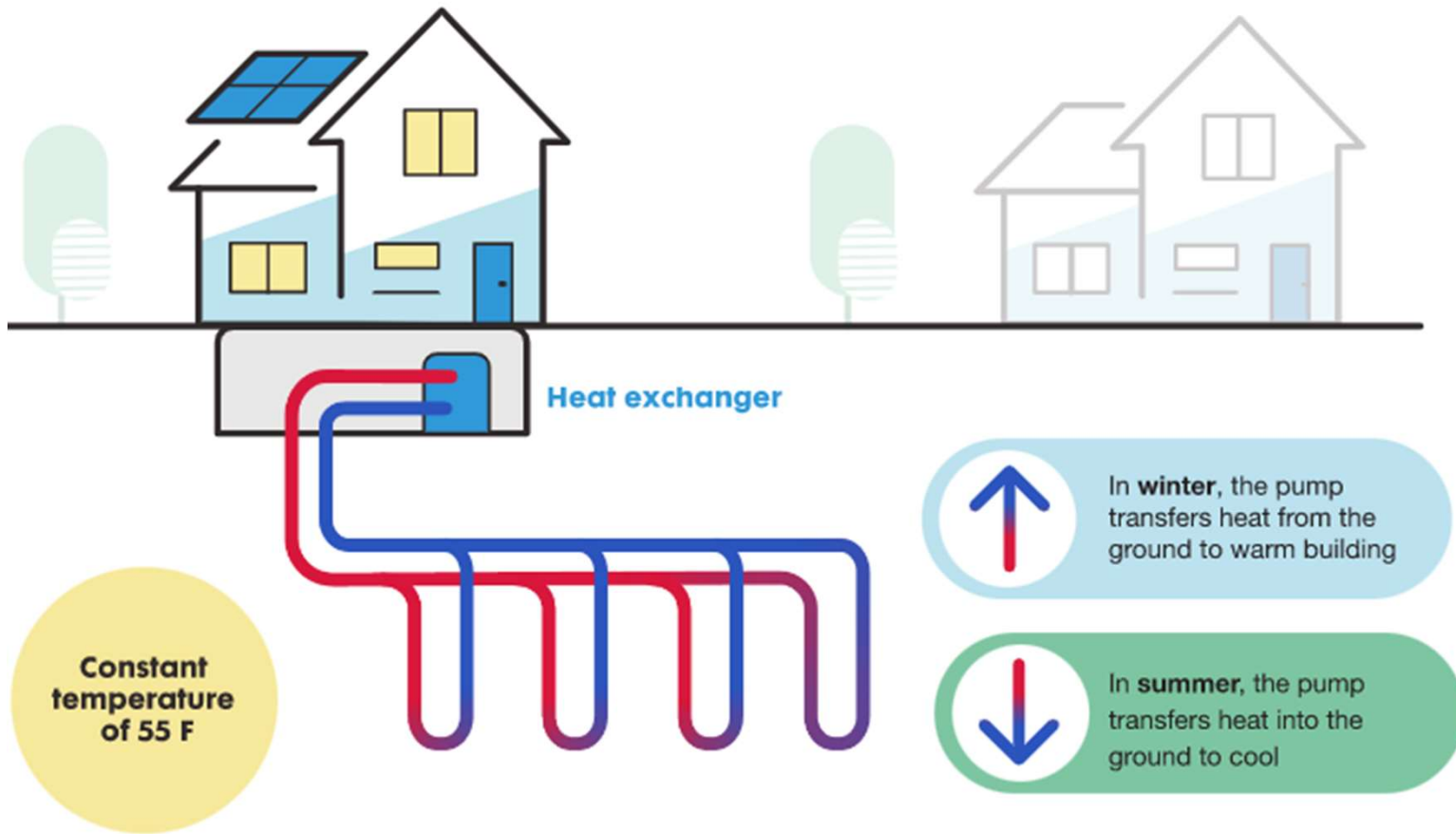
Third-party
consultants

- This Webinar is being recorded and will be posted on the O&R Website. All participants are on mute. There will be a Q&A session following the slide presentation.
- The RFI is available for download on O&R's website at: [Thermal Energy Network Pilot | Orange & Rockland \(oru.com\)](https://www.oru.com/thermal-energy-network-pilot).
- Questions can be sent via e-mail to geothermalneighborhood@oru.com on or before January 6, 2023.

Agenda

1. Basics of a Ground Source Heat Pump (GSHP) System
2. Utility Thermal Energy Network (UTEN) Pilot Concept
3. UTEN O&R/Developer Partnership
4. O&R Request for Information (RFI) for Site Selection
5. RFI and Overall Pilot Timelines
6. Q&A

Basics of a Ground Source Heat Pump System



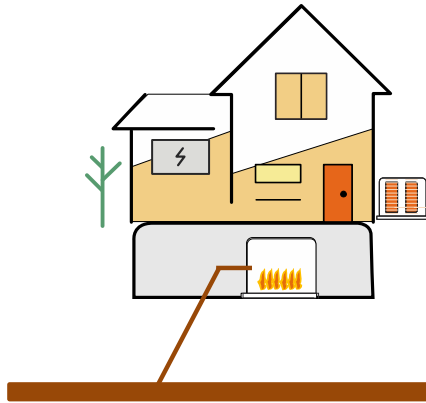
Orange & Rockland. <https://www.oru.com/en/save-money/rebates-incentives-credits/new-york-customers/incentives-for-residential-customers-ny/clean-heating-cooling-with-heat-pumps/heat-pump-equipment/save-on-geothermal>

GSHP vs Alternative Heating/Cooling Solutions

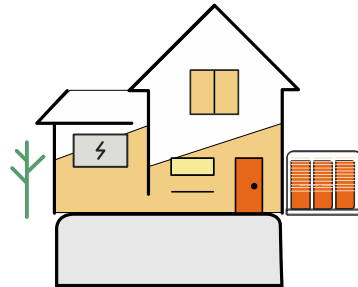
Cost Comparison for 2,000 sq-ft home

These are estimated average cost for illustrative purpose only. Actual cost may vary greatly for individual customers.

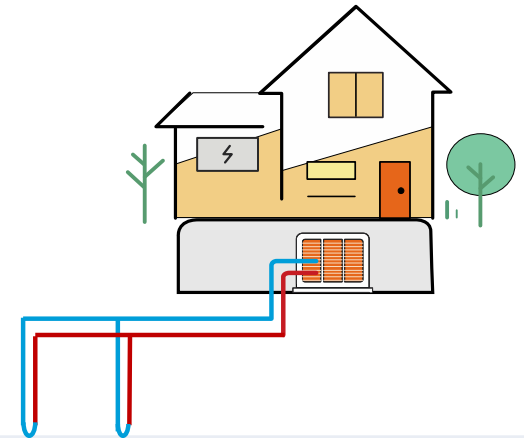
NG Furnace/Central Air



Cold Climate Air Source Heat Pump



GSHP (Heating/Cooling)



Installation Costs	~\$10,000	~\$16,000	~\$36,000 \$17,000 (GSHP) + \$19,000 (Ground Loop)
Annual Fuel Costs	~\$2,300 ~\$1,700 (heating) + ~\$600 (cooling)	~\$2,400 ~\$2,000 (heating) + ~\$400 (cooling)	\$1,600 ~\$1,300 (heating) + ~\$300 (cooling)
Annual GHG Emissions	~16,750 lbs	~10,000 lbs	~6,800 lbs

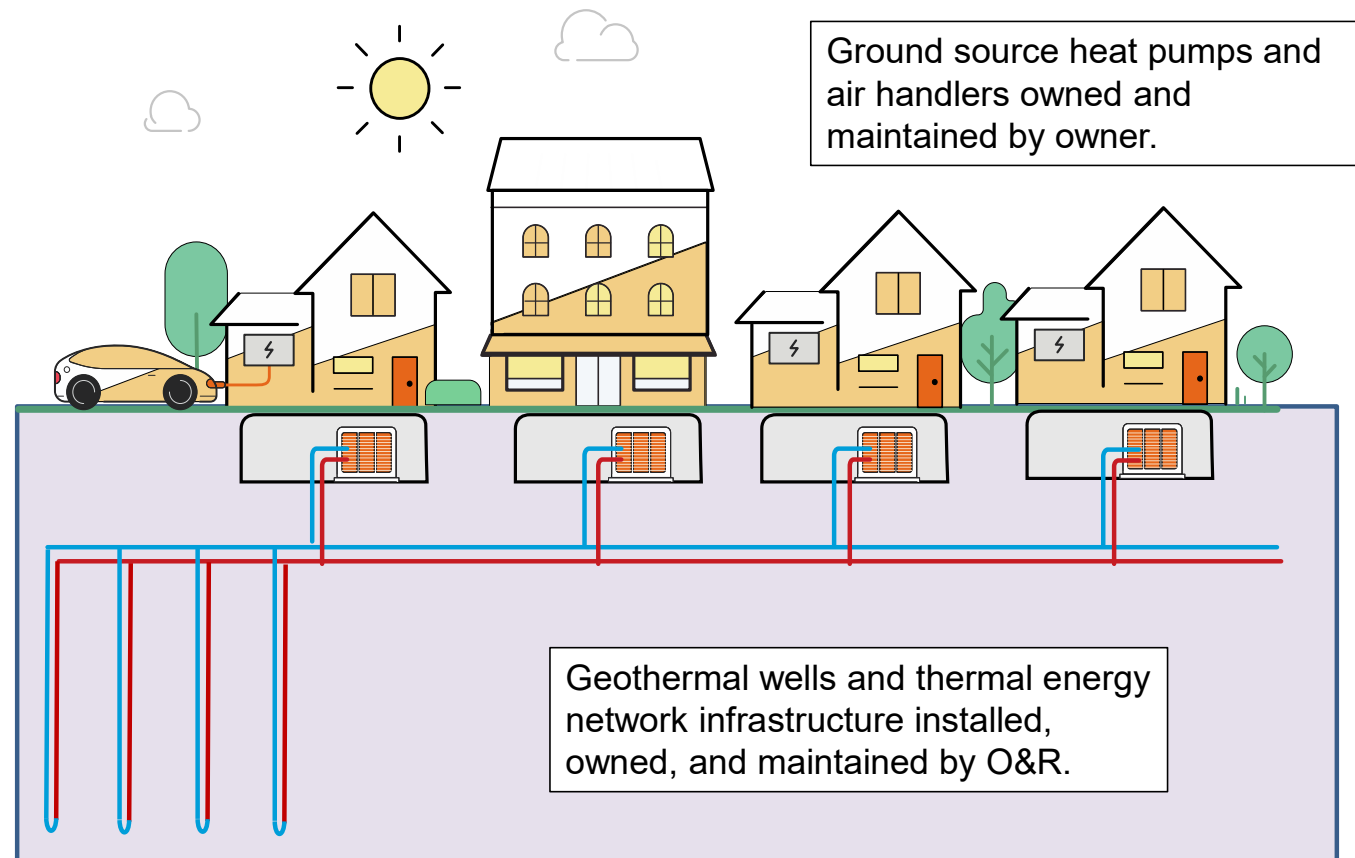
GSHP Advantages / Disadvantages

- **Heats/Cools more efficiently, producing operational savings:** Single equipment can deliver 3-5x energy they consume for heating and cooling, generating monthly operating cost savings
- **No Local Emissions:** No local combustion and overall GHG emission reductions
- **Long Lasting, Proven Technology:** GSHPs have been in use since the late 1940s has an effective useful life of 25 years
- **Water Heating Assist:** GSHP equipped with 'desuperheaters' can produce hot water by transferring excess heat to hot water tank
- **Enhanced Outdoor Aesthetic:** Eliminates the need for an outdoor AC unit, enhancing neighborhood appeal and eliminating the AC noise in the summer
- **Higher Installation Cost:** GSHP can be 3x more expensive to install than traditional HVAC systems

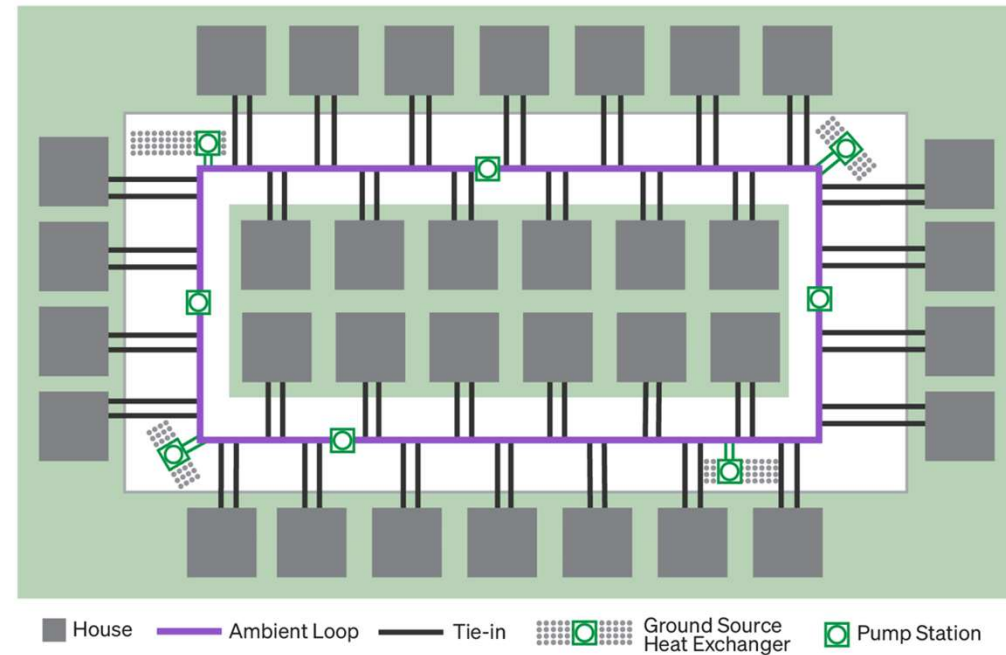
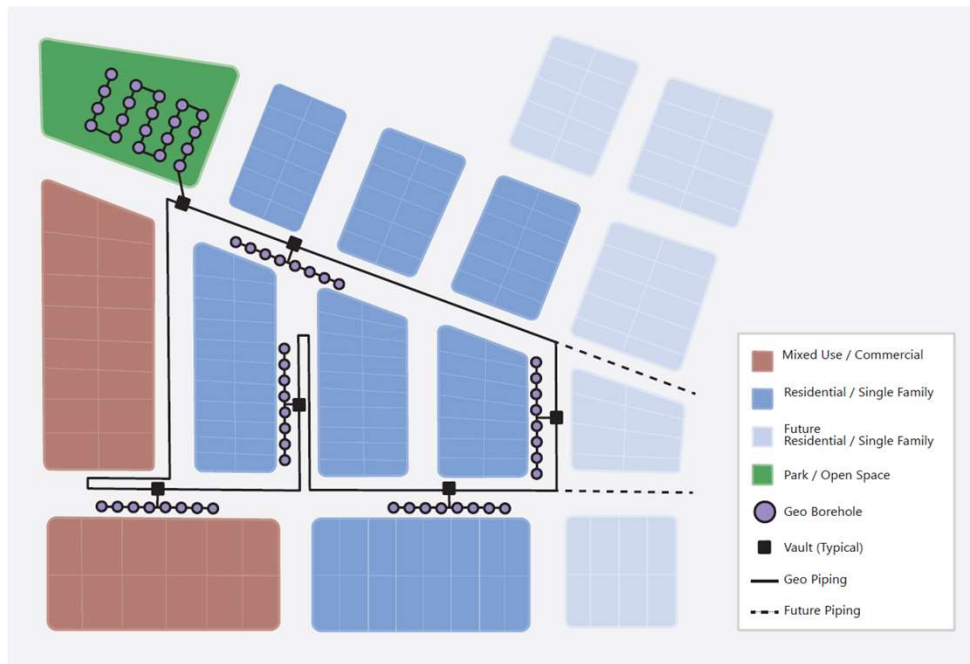
Utility Thermal Energy Network Pilot Concept

Same GSHP equipment but utilizing a shared utility thermal energy network (UTEN)

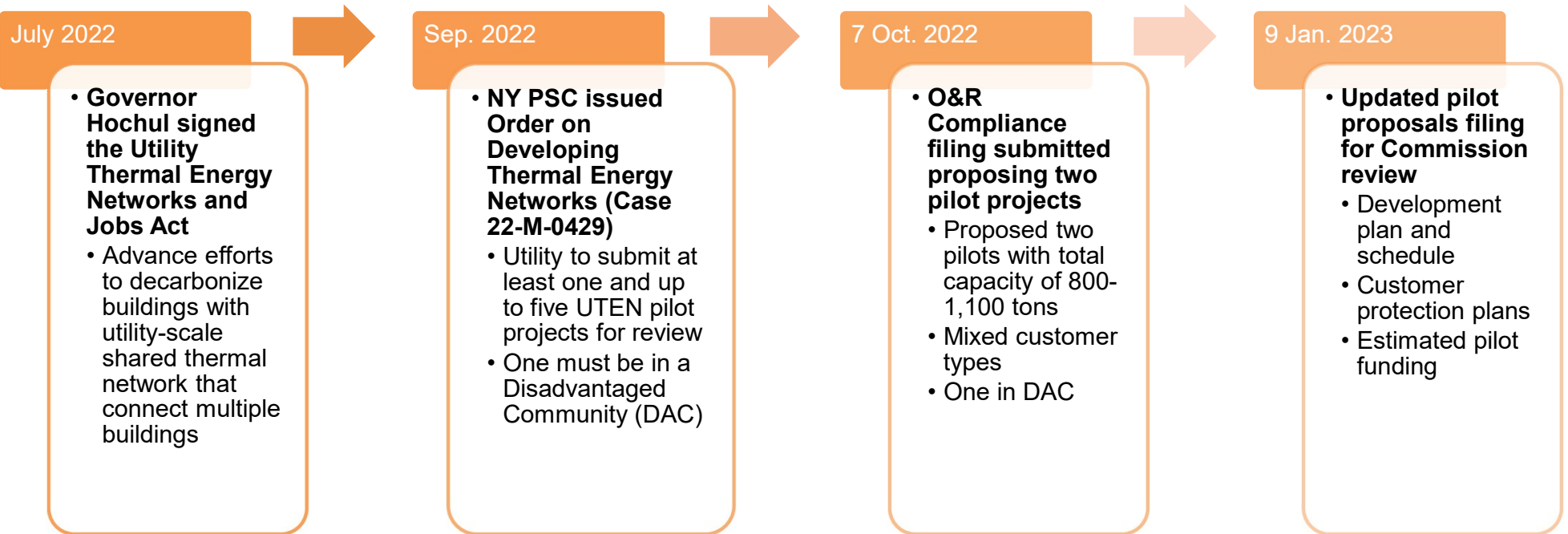
- Maintains **all the advantages** of a customer-owned GSHP system
- Eliminates first cost hurdle; makes GSHP available to **all customer classes**
- Facilitates clean heat transition that is **scalable & equitable**
- Thermal energy networks are likely **part of the solution** to meeting the state's clean energy goals
- Leverages utility experience in shared infrastructure, response time, reliability



Conceptual UTEN Schematics



UTEN Law and NYPSC Order



UTEN O&R/Developer Partnership

- O&R is looking for partners to locate sites for thermal energy network pilots
- This venture provides an excellent opportunity for a community to install a cost-effective, low-carbon source of heating and cooling.
- Under this partnership, O&R will design, install, and maintain the geothermal wells and thermal energy network infrastructure up to customer property line.
- The customers will install and operate the HVAC system including the heat pumps.
- O&R will work with customer on potential financial support for customer-owned equipment



O&R Request for Information (RFI) for Pilot Site Selection

- **O&R has released a Request for Information (“RFI”) on December 21, 2022.** The RFI requests interested parties to submit information on viable sites to be considered for O&R thermal energy network pilots.
- **Who should apply?** Real estate developers, building owners, municipalities, and/or other interested parties (“Respondents”) who are interested in partnering with O&R for the development the pilots.
- **Key components** for submission
 - Map(s) or sketches delineating the proposed site/buildings
 - Description of the surrounding area (if available)
 - Construction drawings for new or renovated buildings (if available)
 - Letters of Support from local municipalities, building owners, or other partners (if available)
- Final approval of pilot projects will be at the discretion of the New York State Public Service Commission and is expected to come in the first half of 2023.

Site Types

1st Site Type

- New Community Site: Community development (i.e., greenfield) of high density, mixed-use development (e.g., homes, apartments and commercial buildings)
- Potentially pair system with solar and storage for resilient local energy resource.

2nd Site Type

- Retrofit Site: An existing community where the UTEN would be installed by O&R and connected to existing buildings.
- A subset of the buildings located in retrofit site can be parcels with new and/or demolition (i.e., rebuilds) facilities.

Additional proposal characteristics (applicable to both projects):

- Total cooling/ heating load for both pilots less than or equal to 1,100 tons
- Estimated necessary budget for both projects is in \$10M's
- One project located in Disadvantaged Community (DAC): nyscrda.ny.gov/ny/disadvantaged-communities

Preferred Site Characteristics

- Site Characteristics
 - Development density of approximately 5-7 units per acre;
 - Appropriate geology for ground-loop installation with one or more available green spaces, recreation areas, or parking areas where the geothermal bore holes could be located; and
 - Total potential cooling/ heating load between 150 tons and 500 tons with a minimum of 100 tons or two buildings committed upon installation of the thermal network.
- New Building(s) Project Characteristics
 - Status of the project must be in the planning stages (*i.e.*, prior to construction and permitting) or in a phased construction stage (with future stages being proposed); and
 - Estimated construction start date for the thermal network utility infrastructure is 12-18 months from release of this RFI.

These are only preferred characteristics and are not required for consideration. O&R will evaluate each proposal holistically, based on the proposal evaluation criteria listed in the RFI

RFI Timeline

RFI Solicitation Milestones	Completion Date*
RFI Issued	December 21, 2022
O&R Webinar on Pilot RFI	January 4, 2023
Deadline to submit clarification questions	January 6, 2022
Responses to clarification questions will be sent out	January 11, 2022
Respondents' proposals due	January 31, 2023
Post Submission Interviews**	Up to February 14, 2023

Preliminary Pilot Timeline

Key Milestones	*Timeframe (from site selection)
Site Selection and Customer Acquisition	January-February, 2023
Feasibility Analysis and Preliminary Design	~March, 2023
Submission of Proposed Project	~March-April, 2023
PSC Approval of Proposed Projects	Q2 2023
Detailed Project Design	Q3 2023
Execution of Agreement with Selected Respondent and Connected Customers	Q3 2023
Construction Initiated	Q4 2023
Construction Completion	Q1 2024
Start-up & Commissioning	Q2 2024

Q&A:

- Webinar Q&A via MS Team's Chat function
- After the webinar is over, any questions or clarifications concerning this RFI should be sent to GeothermalNeighborhood@ORU.Com
- The deadline is January 6, 2023. Emailed questions received after this date may not receive a response.
- A summary of all questions submitted, and the corresponding answers will be posted on O&R's website by January 11, 2023
[Thermal Energy Network Pilot | Orange & Rockland \(oru.com\)](https://www.oru.com/Thermal-Energy-Network-Pilot).



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