



## Public Facilities Committee Report

### City of Newton In City Council

**Wednesday, April 3, 2024**

Present: Councilors Albright (Chair), Getz, Laredo, Kelley, Leary, Gentile, and Danberg

Absent: Councilor Kalis

Also Present: Councilor Malakie

City Staff: Associate City Engineer John Daghlian and Chief Operating Officer Jonathan Yeo

For more information regarding this meeting, a video recording can be found at the following link: [Public Facilities Committee – April 3, 2024](#)

**#173-24      Eversource petition for Grant of Location for 150 Jackson Road**

EVERSOURCE ENERGY petitioning for a grant of location to relocate two poles (227/11 and 227/10) on the southwesterly side approximately 339 and 239 feet southwest of Pearl Street in Jackson Road. (Ward 1) The back-up can be found [here](#).

**Action:**      **Public Facilities Approved 7-0**

**Note:**      Joanne Calendar, Eversource representative joined the committee to discuss the request to replace and relocate to poles on Jackson Road. Ms. Calendar explained that this was at the request of the Newton Public Buildings Department to accommodate the new Lincoln Eliot Elementary School.

The public hearing was opened and with no member of the public wishing to speak, the public hearing was closed.

Councilor Leary motioned to approve which passed unanimously.

**#147-24      Discussion with Audrey Shulman from HEET regarding Networked Geothermal Energy**

Councilor Albright on behalf of the Public Facilities Committee requesting a discussion with Audrey Shulman from HEET regarding Networked Geothermal Energy to include references to this program in the final GSEP report and GE's role in converting to renewable energy.

**Action:**      **Public Facilities Held 7-0**

**Note:** Please see the note for item #179-24.

**#179-24 Discussion regarding the Framingham Networked Geothermal Project.**

Councilor Albright on behalf of the Public Facilities Committee requesting a discussion about the Framingham Networked Geothermal Project with Eversource. This discussion should include neighborhood selection, pros and cons of the project learned to date, and costs and feasibility of scaling this project city-wide.

**Action:** **Public Facilities Held 7-0**

**Note:** Audrey Shulman, HEET representative and Shawn Luz, Sustainability Coordinator for the City of Framingham joined the Committee to discuss items 147-29 and 179-24.

Mr. Luz explained that Framingham was selected for the site of the Eversource Network Geothermal Pilot project. The type of geothermal that is being used for this project is a series of bore fields which are pipes in the ground between 200 and 700 ft deep and they create loops where water is circulated. In the summer energy is transferred into this water through the pipes system so that the heat is stored underground. Then in the winter heat can be pulled from underground. He added that because this is on a network system heat can be exchanged between the buildings as well. The pilot program will add a system of bore fields in three public parking lots and the participating buildings including many residential homes will be connected to these geothermal assists. <https://www.youtube.com/watch?app=desktop&v=WyAdNkQWvYk> This you tube video from National Grid explains Networked Geothermal. (National Grid has been invited to talk about their project in Lowell for one of the June meetings.)

There are currently 3 locations for the bore fields, which are behind a fire station, the Framingham Public Schools Welcome Center and the Framingham Housing Authority. These will provide the thermal capacity for the system.

A councilor questioned how much land you would need for a network geothermal project. Mr. Luz explained that it depends on the size of the heating and cooling load. It was also questioned what the cost for a project like the Newton Free Library would be and what the reimbursements would be. The Chair noted that they would learn answers about cost and reimbursements through this pilot program in Framingham. Mr. Luz noted that the pilot program will include approximately 150 customers.

Jonathon Yeo, Chief Operating Officer noted that they are planning on pursuing geothermal for both Countryside and the Franklin Elementary School, with the new federal tax benefits. He noted that it does have longer payback but it still makes sense to do. For this project they would be using the school parking lots for the bore fields. He also noted that they will bring the cost breakdown when these projects come before the Council.

A councilor questioned how Framingham was selected for this pilot program. Mr. Luz explained that there was a number of different criteria including geology and Eversource wanted diverse types of heating fuels that currently exist on site. This project is also in an environmental justice neighborhood, which was also a part of the criteria.

Mr. Luz also noted that the main that is being used for the project are very similar to the ones used for natural gas, which is a HTTP pipe. They are now working on the pump house and the next step is the building conversion work.

A councilor questioned if Framingham has to pay any of the costs of the pilot. Mr. Luz explained that this is all being paid through the pilot. Questions were also raised related to community engagement. Mr. Luz explained that Eversource did door to door canvassing to see where the interest was. The first weekend they did the canvassing they had 40 residents signed up.

Ms. Shulman presented the attached PowerPoint. She explained that HEET is a non-profit organization that does not take funding from any industry but they do involve all industries in their discussions. The goal is to find ways to use the infrastructure that is being put in now by gas companies in the future for other energy resources. Geothermal can use this infrastructure and it is more efficient because it passes waste energy from one property the next and it is able to store energy underground. The outcomes of using geothermal are expressed in the presentation and include safety and affordability.

Ann Berwick, Co-Director of Sustainability asked through the Chair if the assumption is that Eversource and National Grid will provide Network Geothermal in the future. Ms. Shulman explained that from the latest Department of Public Utilities (DPU) order, they seem positive of the idea of gas companies taking over geothermal. She noted that in Troy, New York they are selling geothermal to National Grid and National Grid owns the infrastructure in the street and services the customer. The bore fields were created by the municipality.

Ms. Berwick expressed her gratitude for the work that HEET is doing. She also asked Ms. Shulman to comment on the role of network geothermal in New England as a winter peaking area with degrading battery capacity. Ms. Shulman explained that network geothermal is the most efficient

type of energy because of the fact that heat can be stored underground and in bed rock to be used during the winter months

A councilor questioned how the switch to geothermal would affect residents who have just switched to air source heat pumps. Ms. Shulman explained that by switching to air source heat pumps that is already part of the work to switch over to geothermal.

A councilor questioned if the bore fields could be in private parking lots. Ms. Shulman explained that it would be up to the property owner but this would give them a revenue stream. A councilor noted that the developers of these larger projects should be notified to see if they would be interested in being bore field ready.

Ms. Luz noted the hope is to have construction for the pilot to be completed by the end of June. Eversource will be running this pilot for two years and collecting data on pricing and other metrics.

Councilor Danberg motioned to hold item 147-24 which passed unanimously.

Councilor Danberg motioned to hold item 179-24 which passed unanimously.

**#148-24      Presentation of the Gaspipes.org database to the Public Facilities Committee**

Councilors Albright and Leary on behalf of the Public Facilities Committee requesting a discussion and presentation from the Newton Gas Pipes team to show the Public Facilities Committee the database built based on data from National Grid data. This graphic representation maps various data regarding leaks, reduction of leaks over time, proximity of leaks to trees and other important factors.

**Action:**      **Public Facilities Held 7-0**

**Note:**      Please see the note for item #39-24.

**#39-24      Discussion regarding reducing gas leaks and transition away from methane gas**

COUNCILORS LAREDO, ALBRIGHT and LEARY requesting a discussion with the Administration's Sustainability Team and the Department of Public Works on (a) a plan to more effectively reduce methane gas leaks in the city and (b) how to best coordinate with National Grid regarding the transition away from methane gas to electric heating and cooling solutions.

**Action:**      **Public Facilities Held 7-0**

**Note:** Peter Barrer, member of the Newton Gas Pipes team, gave the attached presentation. He and his team pull data into the system from a variety of sources including National Grid and Newton's tree data. went through how to look up where the gas leaks are in the City and what grade the leaks are. The website, found here, <https://www.gaspipes.org/>, also shows what trees are directly impacted by the gas leaks. Through his presentation, Mr. Barrer also discussed how many leaks were left to repair in Newton compared to the cities and towns in the neighboring areas. He noted that the Newton Gas Pipes team discusses ways to move Newton off of natural gas and how to use the infrastructure in the future.

The website shows the information sources and tools to achieve climate goals and protect the health of the community.

Mr. Yeo stated that the Mayor and the Department of Public Works have met and agreed to again lean on National Grid to get these larger leaks fixed at a more rapid pace.

The Councilors thanked Mr. Barrer and his team for the work they have done, expressing that this information should be shared with the DPU.

Councilor Leary motioned to hold item 148-24 which passed unanimously.

Councilor Leary motioned to hold item 39-24 which passed unanimously.

The Committee adjourned at 9:00 p.m.

**Respectfully Submitted,**

**Susan Albright, Chair**



# heet

## A New Utility is Born



Community Activist

Utility Executive

Steelworkers Union Leader

MIT academic

## HEET Networked Leadership

State Regulator

Geothermal Expert

Governor's Office

2 "Gas is the Bridge Fuel" originator



Two Summers Ago..

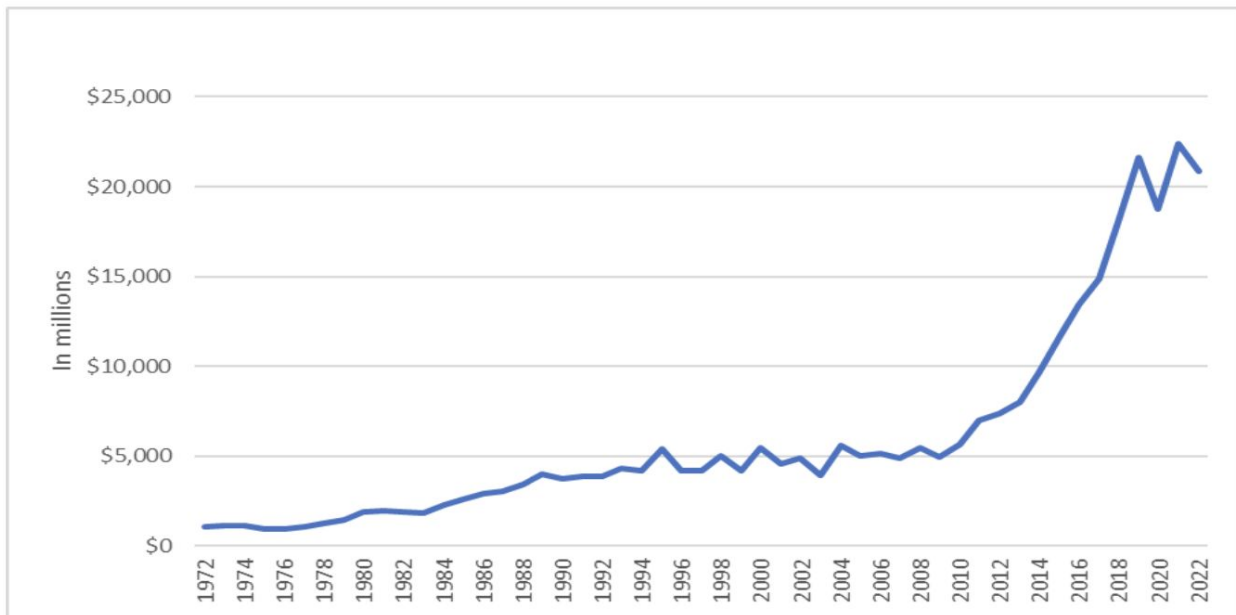
147-24



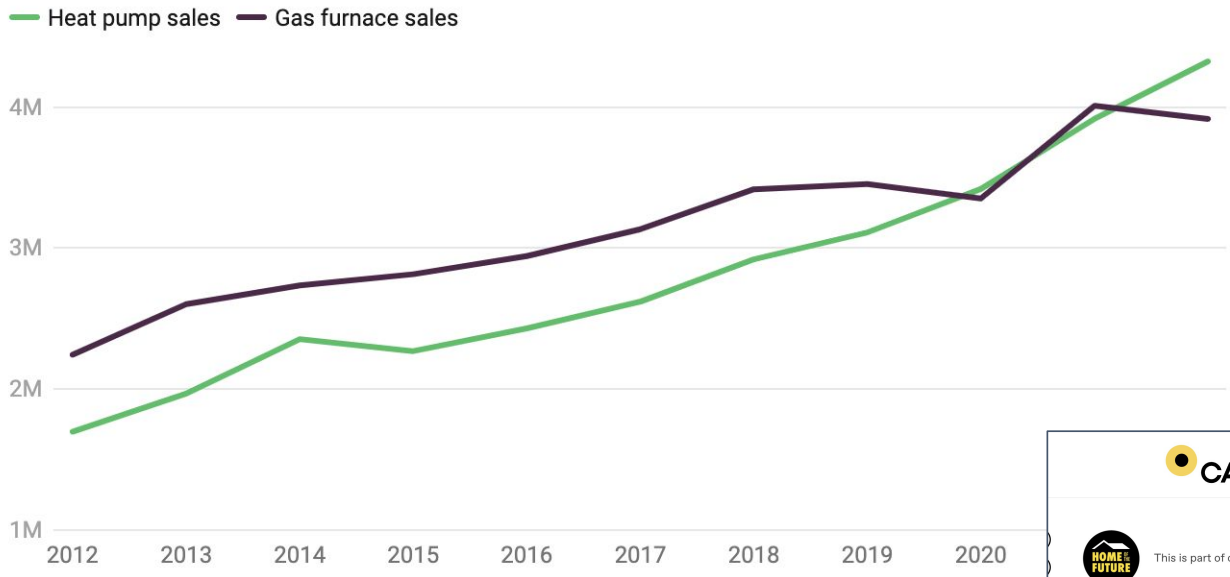
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## US Aging Gas Pipe Replacement



# Heat pump sales in U.S. surged past gas furnaces in 2022



2022 figures include sales data for Jan–Nov and projected sales for Dec.

Chart: Canary Media • Source: Air-Conditioning, Heating, and Refrigeration Institute • [Embed](#) • [Download image](#)

CANARY MEDIA

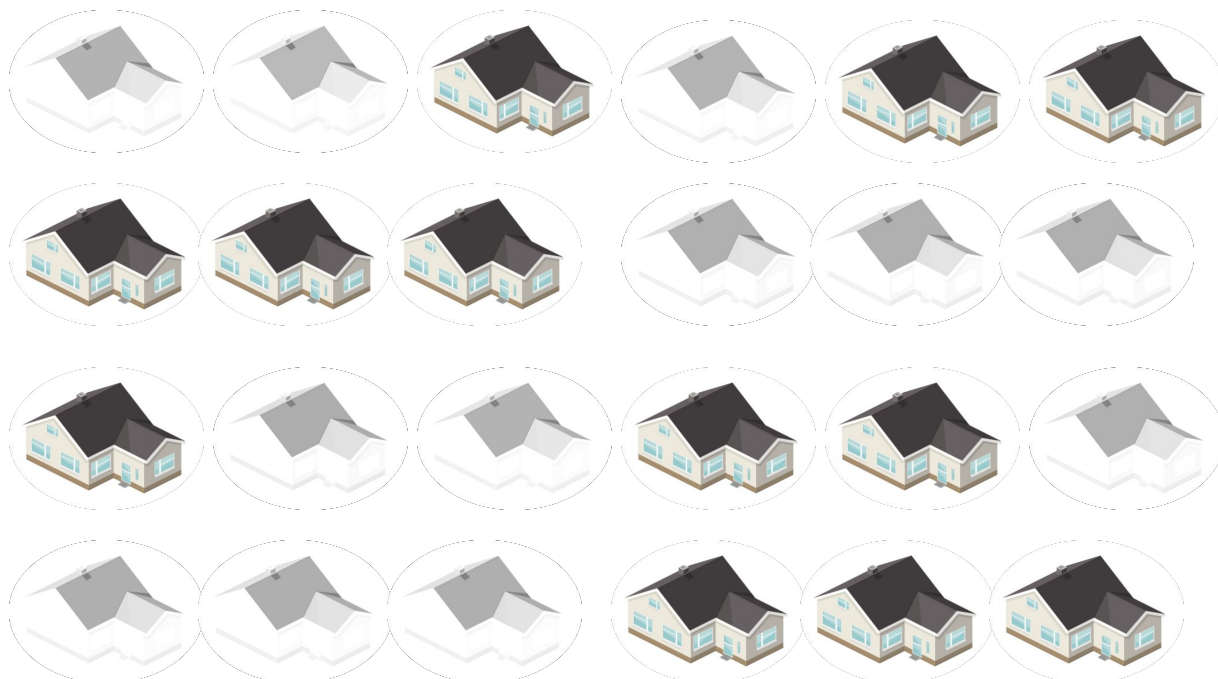


This is part of our special series "Home of the Future." [Read more.](#)

## Chart: Americans bought more heat pumps than gas furnaces last year

Even before Inflation Reduction Act incentives kicked in, Americans bought more heat pumps than ever before last year — well over 4 million.

## Fleeing Customers, Increasing Gas Bills



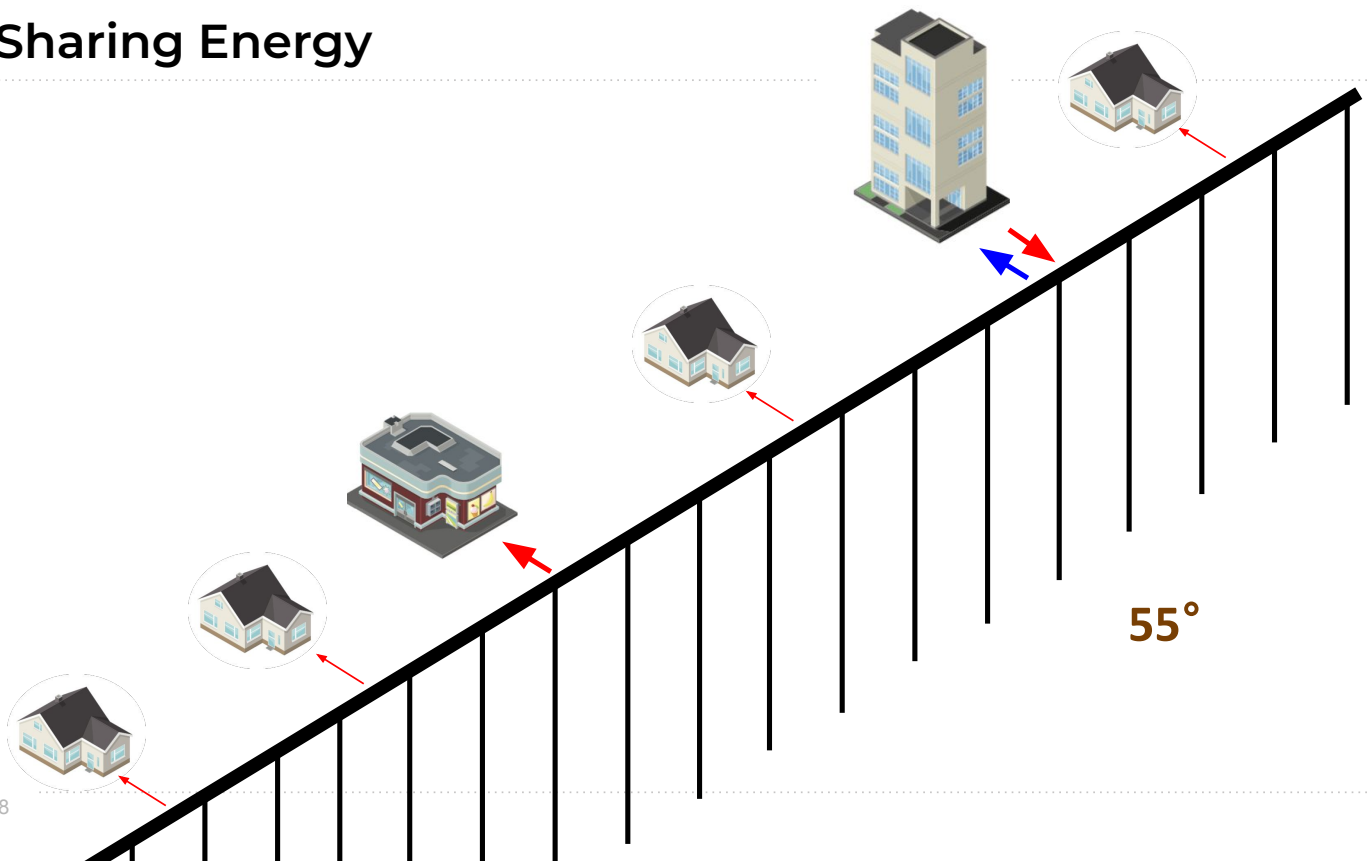


# Networked Geothermal

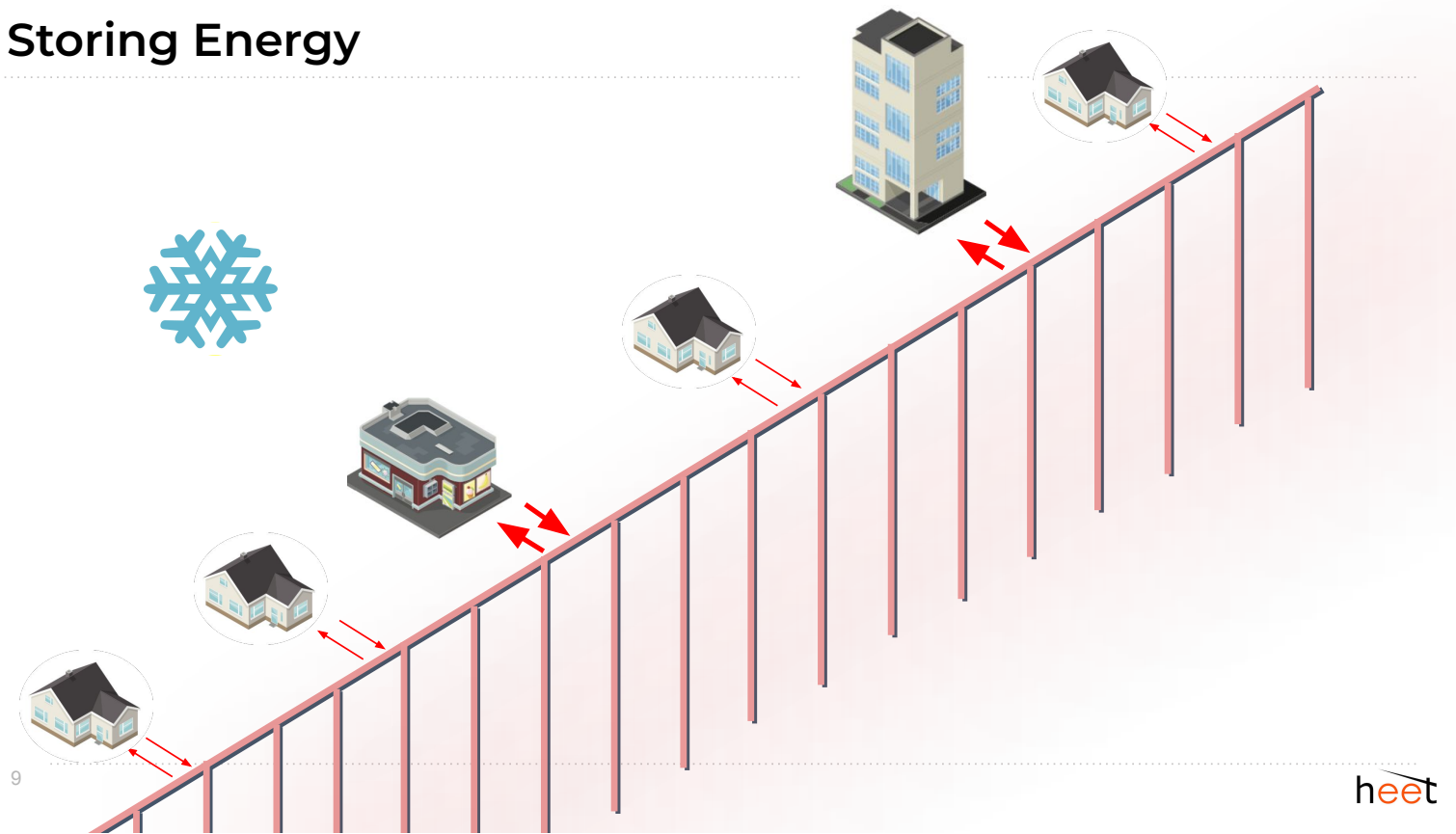


- Infrastructure in the street
- “Shallow” boreholes
- Ambient temperature
- Single pipe
- Active thermal management

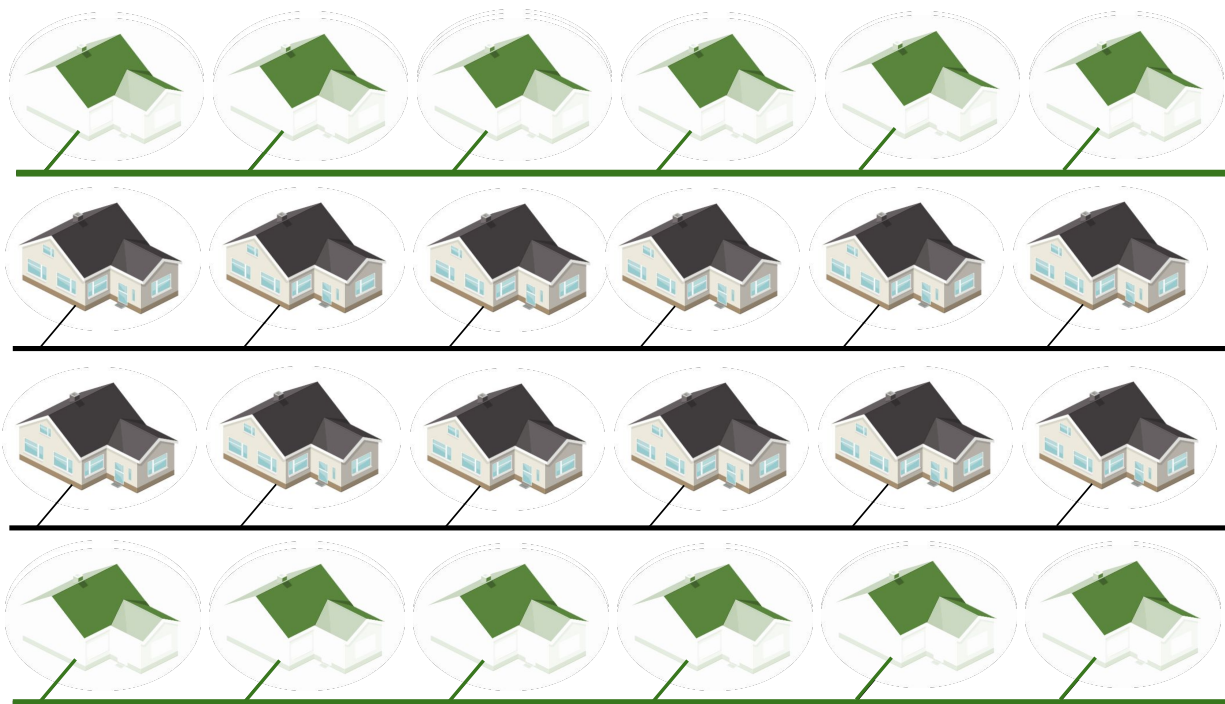
# Sharing Energy



# Storing Energy



# Merged Gas/Geo Rate Rase, Customer Bill Stays Low



# Outcomes

- Safer

## Merrimack Valley Gas Disaster 2018

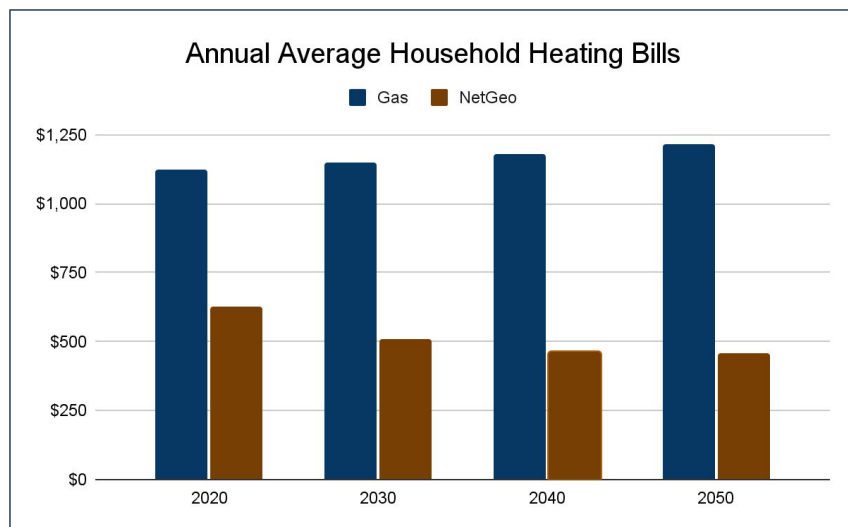


# Outcomes

- Safer
- Affordable
  - Heating

## MA Energy Bill Projection (gas vs. networked geothermal)

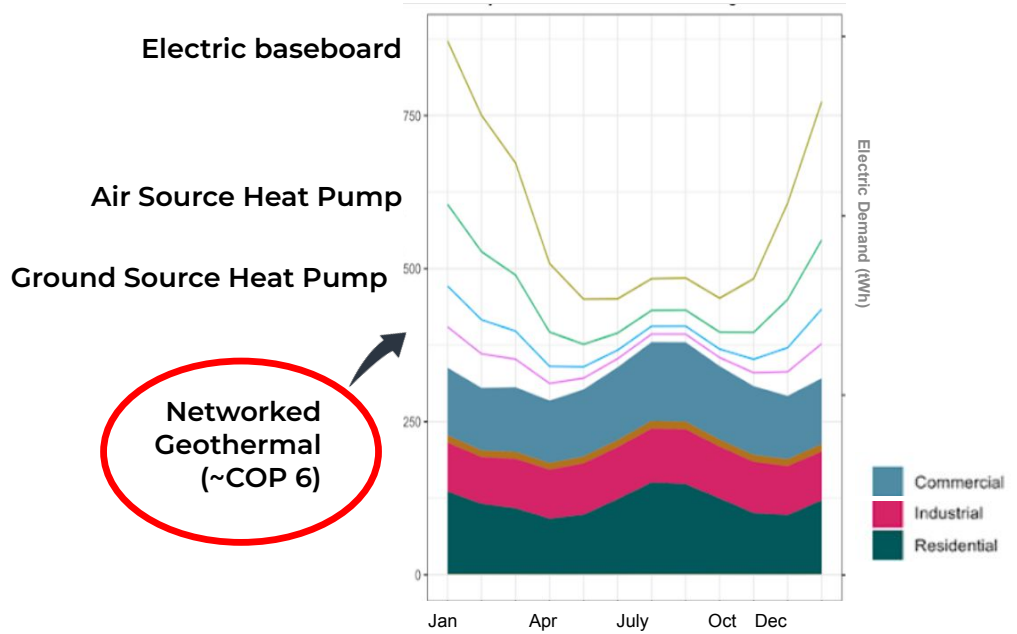
(Applied Economics Clinic Brief)



# Outcomes

- Safer
- Affordable
  - Heating
  - Electricity

## Future US Seasonal Electric Peaks (as we electrify)



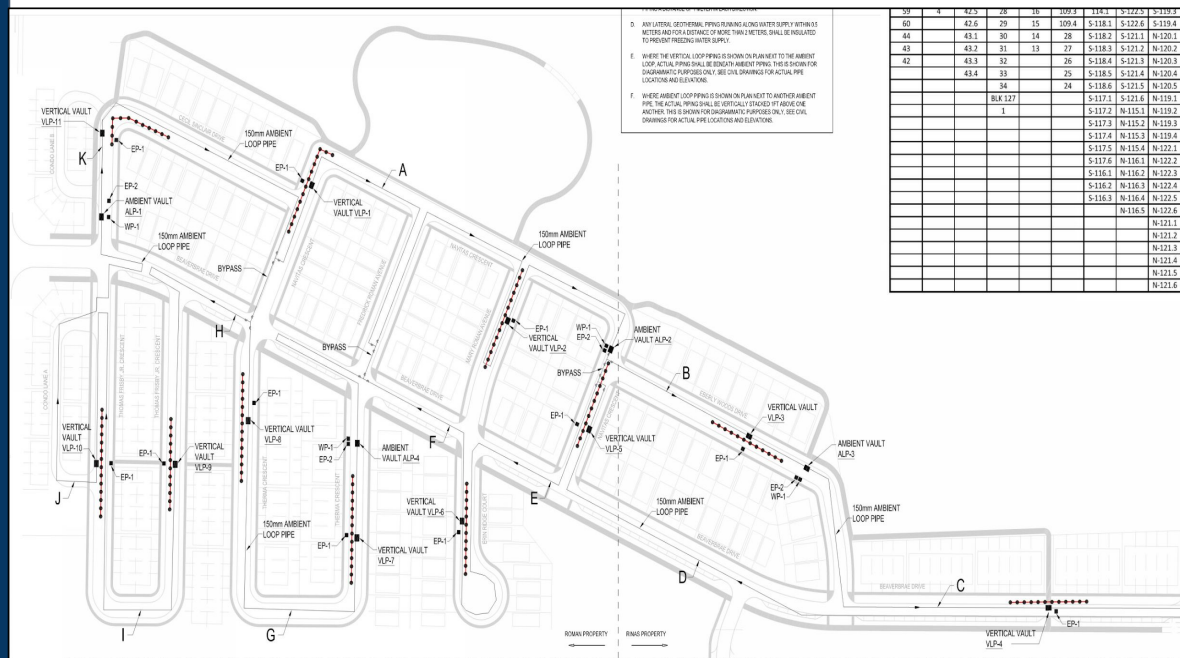
Buonocore, J., Salimifard, P., Magavi, Z., Allen, J., "The Falcon Curve: Implications of Seasonal Building Energy Use and Seasonal Energy Storage for Healthy Decarbonization" DOI: [10.21203/rs.3.rs-1054606/v1](https://doi.org/10.21203/rs.3.rs-1054606/v1)



# Outcomes

- Safer
- Affordable
  - Heating
  - Electricity
- Reliable

## Mattamy Homes, Toronto



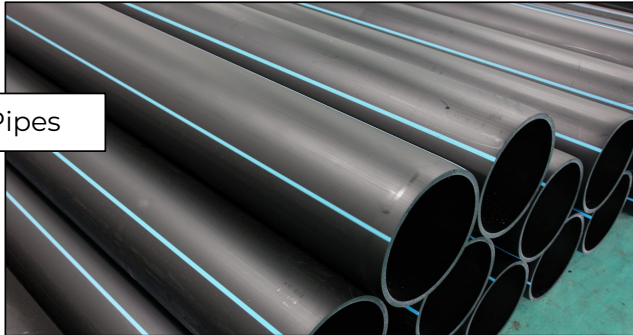
## Outcomes

- Safer
- Affordable
  - Heating
  - Electricity
- Reliable
- Workforce can transition

Gas Pipes



Water Pipes

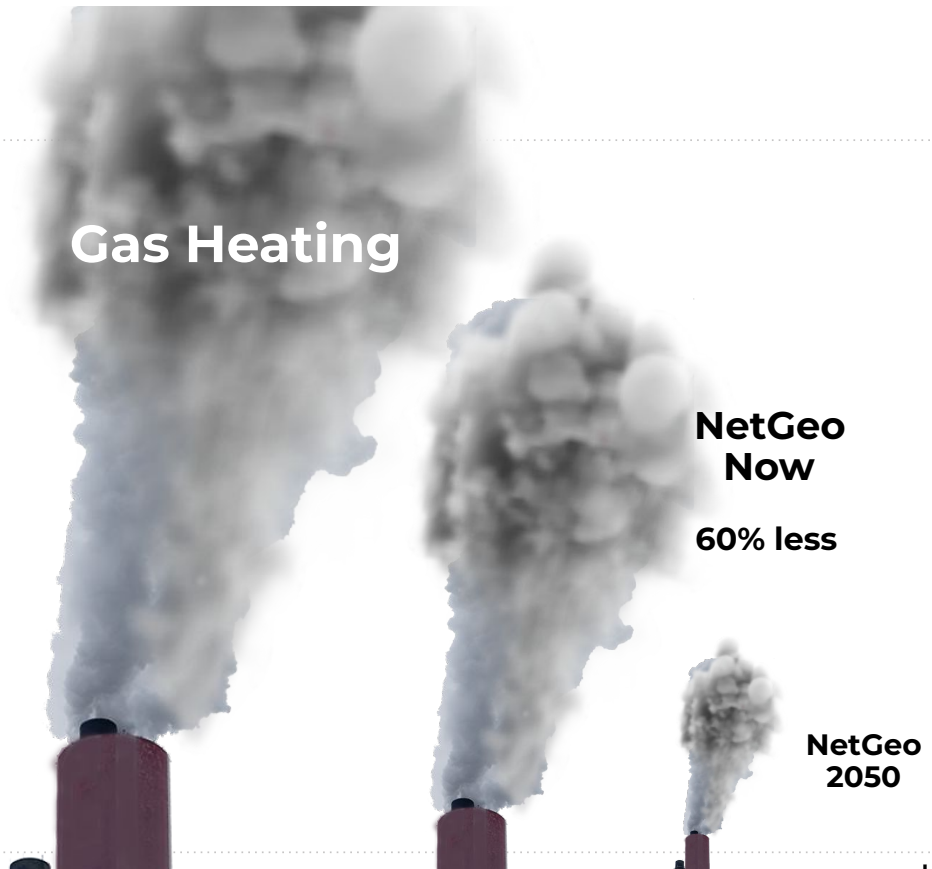


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## Outcomes

- Safer
- Affordable
  - Heating
  - Electricity
- Reliable
- Workforce can transition
- Lower emissions

### Gas Heating



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# MA Gas Utility Installs

Eversource - Framingham

- 140 units, including residential & commercial buildings
- Turned on by spring

National Grid - Lowell & Dorchester

- @ 160 units total
- Full electrification



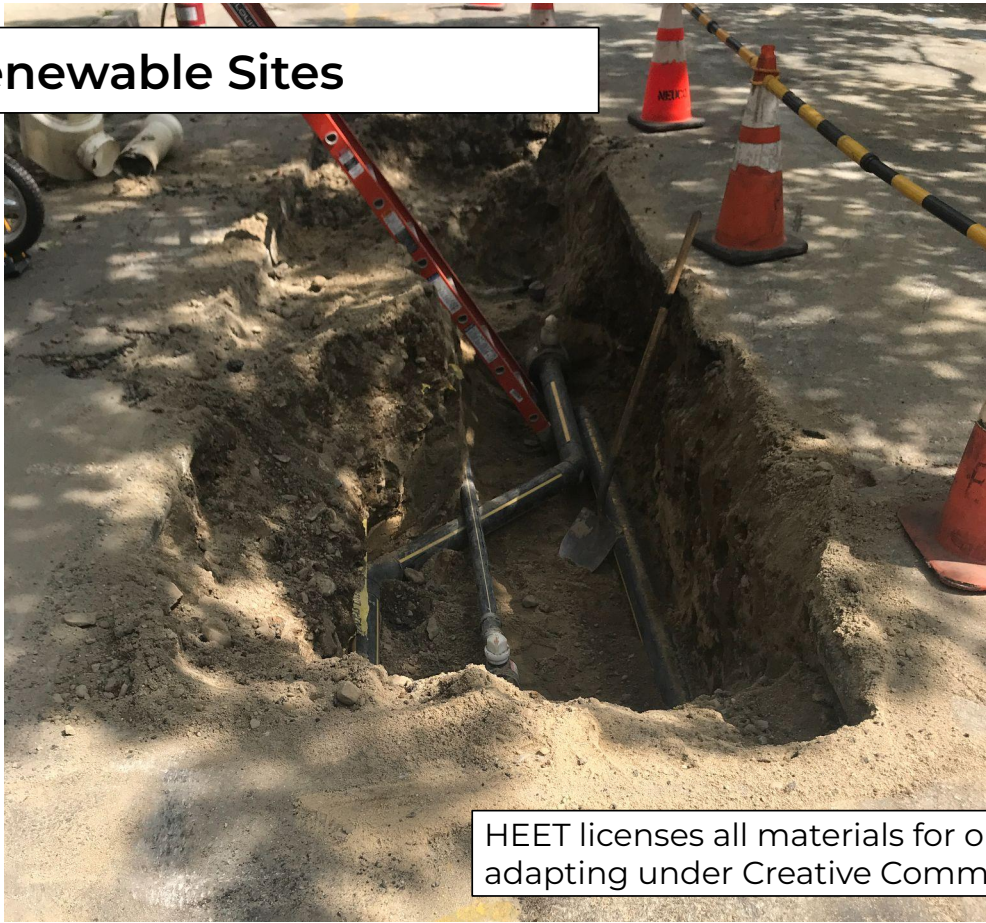
# HEET Research Team

- Open database of normalized data
- Best practices
- Verification of results
- Optimization tool
- Environmental impacts

Learn how & where to scale.



# Future Renewable Sites



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# Gaspipes.org

## Newton Gas Pipes Team

### Newton Large Leak History

<b>National Grid Report Date</b>	<b>Number of Unrepaired Leaks</b>	<b>Total of Leak Extent, sf</b>	<b>Leak extent reduction in quarter</b>	<b>Reduction in number of leaks 2,000+</b>
03/31/2020	860	801,000		
06/30/2020	769	653,000	18%	-91
09/30/2020	737	557,000	15%	150
12/31/2020	718	524,000	6%	0
03/31/2021	695	572,000	-9%	-84
06/30/2021	682	569,000	1%	5
09/30/2021	677	567,000	0%	9
12/31/2021	644	607,000	-7%	35
03/31/2022	627	554,000	9%	16
06/30/2022	645	587,000	-6%	-9
09/30/2022	625	535,000	9%	9
12/31/2022	595	487,000	9%	-3
03/31/2023	580	377,000	23%	27
06/30/2023	573	342,000	9%	2
09/30/2023	552	336,000	2%	6
12/31/2023	515	306,000	9%	11



# Thank Mayor Fuller for leadership in 2023

Thursday, Feb. 2, 2023 Mayor's Newton Update

## NGrid & Super Environmental Impact Gas Leaks

In part as a result of our DPW Commissioner Jim McGonagle and our team raising the importance of major leaks, National Grid has repaired the 16 largest Grade 3 super environmental impact (SEI) gas leaks in the City of Newton as well as several smaller leaks.

While NGrid still has critical repair work to do, this is a huge start. (See the attached list here.)

We have requested that National Grid prioritize the work by leak volume and keep fixing them a timely manner not just the next set of highest leaks but all of them. (fyi: The City of Newton has no authority to repair gas leaks. That responsibility falls solely on National Grid.)

### Benchmarks and what is possible

Newton National Grid Report Date	Number of Unrepaired Leaks	Total of Leak Extent, sf	Leak extent reduction in quarter	Reduction in number of leaks 2000+
12/31/2022	595	487,000	9%	-3
03/31/2023	580	377,000	23%	27
06/30/2023	573	342,000	9%	2
09/30/2023	552	336,000	2%	6
12/31/2023	515	306,000	9%	11
<b>Compare Benchmarks</b>		<b>12/31/2023</b>		
Boston	851	359,000		
Watertown	83	72,300		
Waltham	166	119,000		
Brookline	168	114,000		
<b>Newton feasible targets reducing leak extent by 15% per quarter</b>				
12/31/2023	515	306,000	actual	
12/31/2024		159,734	projected	
12/31/2025		83,382	projected	

# Proposal Context

*This statement was approved by the Newton Node of 350Mass at its October 17, 2023 meeting. It has also been approved by Green Newton, Newton Mothers Out Front, and the Newton Citizens Commission on Energy.*

## **A Proposal for Rapidly Reducing Methane Leaks in Newton**

### Whereas:

The large number of Newton's methane leaks contributes to greenhouse gases that drive the Climate Emergency. Methane leaks endanger the community's health and safety, kill trees, and waste ratepayer and taxpayer resources that could go to funding electrification and decarbonization.

More whereas, etc.

# Proposal detail

### Therefore:

The City of Newton can greatly reduce methane emissions from gas leaks, enhance accountability and transparency, and avoid the excessive disruption, waste and cost of pipe replacements by taking the following steps:

Enlist National Grid's agreement to prioritize the repair of high volume leaks, setting a goal of at least 20 SEI leak repairs each quarter identified by each leak's ID, its location, and amount of methane emissions.

Report to the City Council within 60 days of the end of each calendar quarter the following information:

- The SEI leaks repaired in the previous quarter
- The cost of each SEI leak repair
- The unrepaired SEI leaks at the beginning of the current quarter
- Agreed priorities between DPW and NG for SEI leak repair in the current quarter

# Questions?

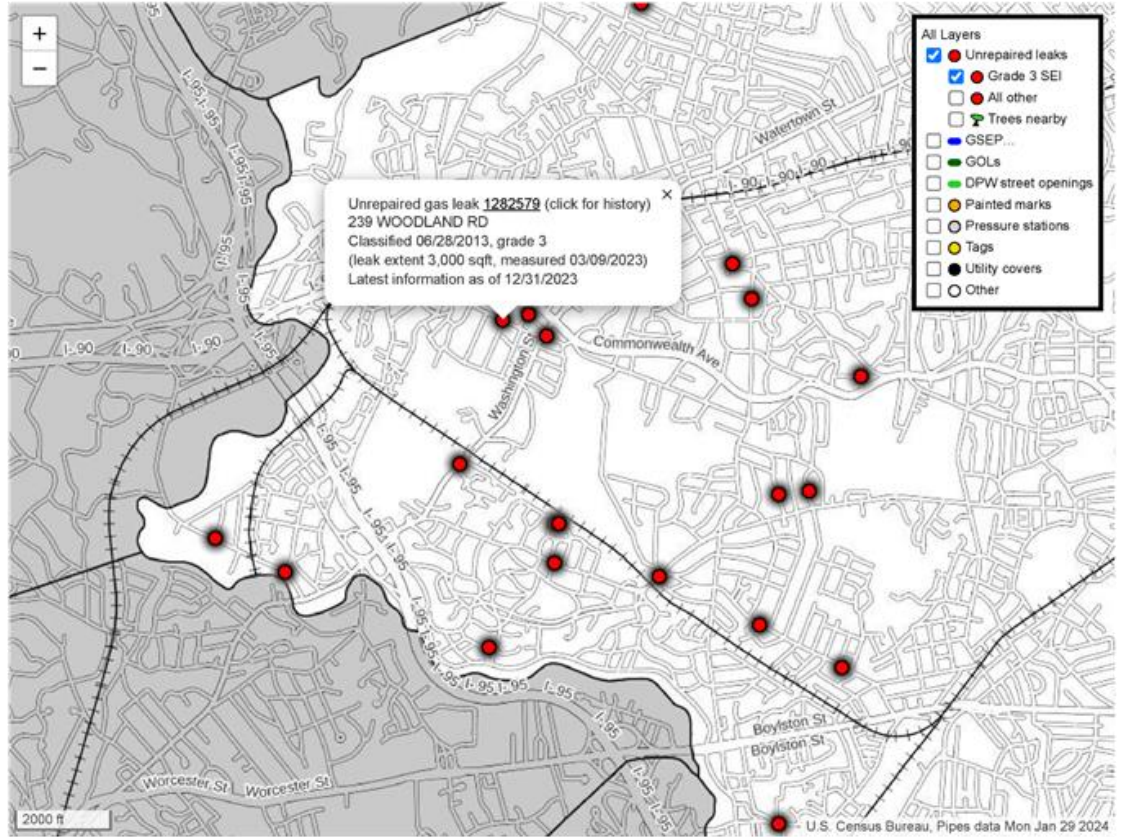
Select another municipality:

The municipality of Newton is served by National Grid alone.  
As of latest quarterly report (12/31/2023):

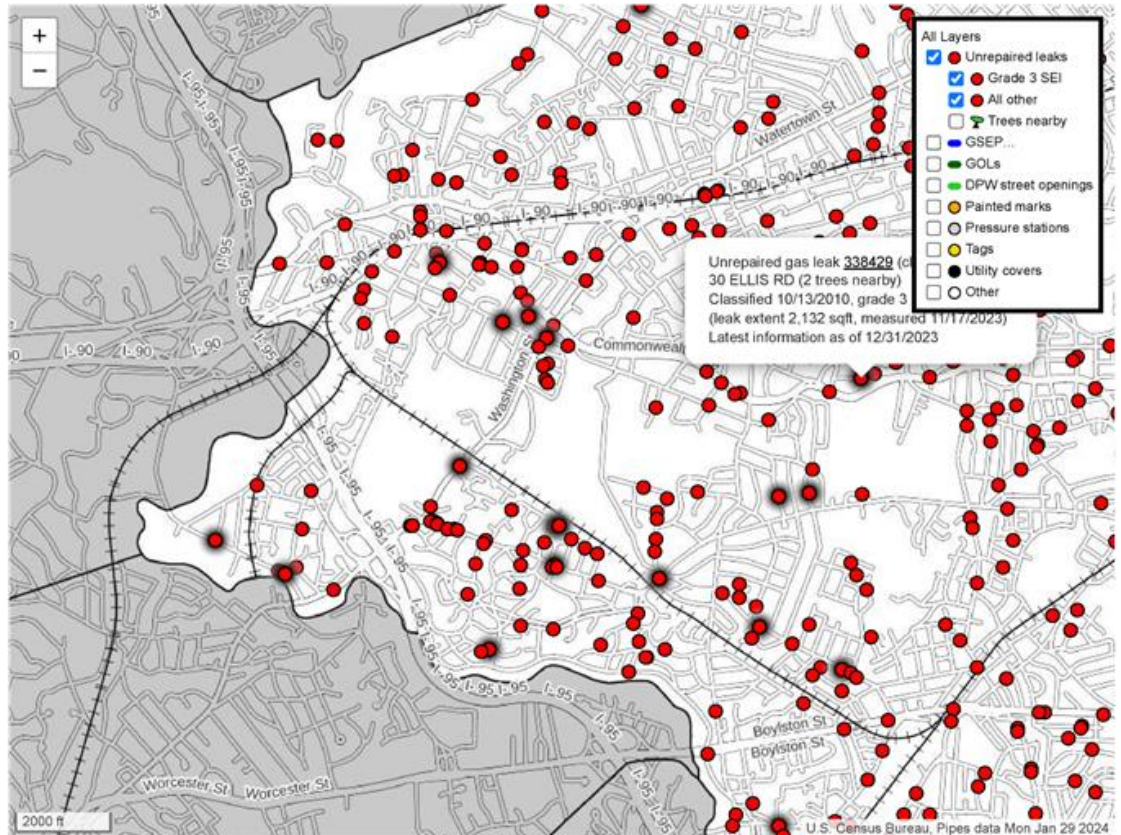
- Number of unrepaired leaks in Newton which were reported by National Grid: 515
- Total leak extent of these unrepaired leaks: 306,000 sqft

50 Largest Gas Leaks in Newton						
Address	Service area	Leak extent	Survey date	Class/grade assigned	GSEP repair proposal	Leak ID
146 ALBEMARLE RD	NEWTON	1,500 sqft	08/04/2023	08/04/2023		7383021
18 ALDEN ST	NEWTON	1,530 sqft	11/16/2023	04/24/2015		3800011
5 ANGIER CIR	NEWTON	3,000 sqft	12/20/2023	05/11/2022		7374854
130 BEACON ST	NEWTON	2,016 sqft	12/19/2023	06/04/2015		4339243
1629 BEACON ST	NEWTON	2,200 sqft	12/19/2023	02/19/2014	Planned for CY 2024	1593092
BEACON ST and OWAlSA RD	NEWTON	6,400 sqft	09/26/2023	12/17/2022	Planned for CY 2024	7379000
53 CHARLESBANK RD	NEWTON	7,500 sqft	08/31/2023	08/30/2012	Planned for CY 2024	1065939
212 CHESTNUT ST	NEWTON	2,500 sqft	06/23/2023	10/09/2021		7371382
305 COMMONWEALTH AVE	NEWTON	1,800 sqft	06/23/2023	10/06/2021		7371042
100 CONCORD ST	NEWTON	4,025 sqft	11/14/2023	08/01/2017		7337028
131 COUNTRY CLUB RD	NEWTON	4,560 sqft	12/05/2023	08/03/2004		270681
249 CYPRESS ST	NEWTON	2,025 sqft	11/13/2023	02/16/2023		7379849
327 DEDHAM ST	NEWTON	1,800 sqft	11/17/2023	07/12/2017		7336297
832 DEDHAM ST	NEWTON	4,550 sqft	12/19/2023	08/27/2015		5620596
200 DERBY ST	NEWTON	2,550 sqft	06/23/2023	08/24/2022		7376707
129 DORSET RD	NEWTON	6,500 sqft	03/18/2023	06/11/2021		7369309
DORSET RD and METACOMET RD	NEWTON	3,360 sqft	11/16/2023	08/19/2010		337228
295 DUDLEY RD	NEWTON	3,510 sqft	12/19/2023	09/19/2013		1363546
30 ELLIS RD	NEWTON	2,132 sqft	11/17/2023	10/13/2010		338429
27 EVELYN RD	NEWTON	4,200 sqft	03/10/2023	09/04/2019		7356220
15 G ROADWAY	NEWTON	2,000 sqft	06/23/2023	04/06/2018		7343321
142 GORDON RD	NEWTON	5,040 sqft	11/07/2023	09/08/2015		8592025
49 GROVE ST	NEWTON	2,400 sqft	03/21/2023	05/27/2022		7375165
640 GROVE ST	NEWTON	1,922 sqft	11/14/2023	04/22/2016		7325803
HAGAR ST and CONCORD ST	NEWTON	2,750 sqft	09/12/2023	11/04/2022		7378581
321 HAMMOND ST	NEWTON	1,739 sqft	11/16/2023	09/09/2013		1363304
HAMMOND ST and COLLEGE RD	NEWTON	25,000 sqft	12/05/2023	12/14/2015		5866391
HIGH ST NUF and ELLIOT ST	NEWTON	3,640 sqft	08/14/2023	08/14/2023		7383508
145 HIGHLAND ST	NEWTON	3,420 sqft	06/23/2023	05/11/2016	Planned for CY 2024	7326197

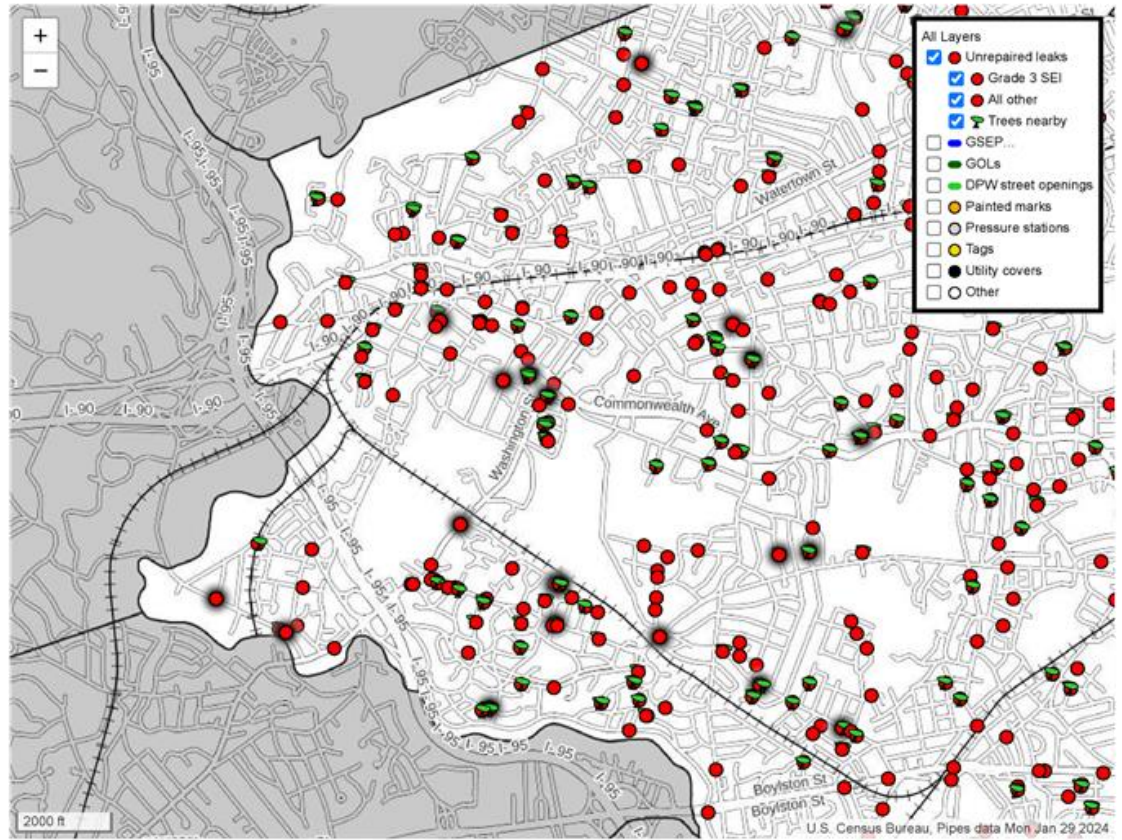
Newton leaks larger than 2,000 sf



All current leaks



Leaks and nearby trees



Leaks and nearby trees - detail



# Discussion

Feasibility ?

Next Steps ?

Eliminating Large Gas Leaks in Newton

March 19, 2024

## Data and maps from [gaspipes.org](http://gaspipes.org)

Newton's 50 largest gas leaks list by street

Map of Newton's SEI gas leaks

Map of all Newton gas leaks

Map showing street trees with root zone in gas leak zone