

August 5, 2026

Memo to: Newton Energy Commission Chair Philip Hanser
From: Peter J. Barrer and Denise Freed
Re: GSEP in Newton 2025
Cc: Bob Persons, Ellie Goldberg, Nathan Phillips

Summary

The Newton Gas Pipes Team, a volunteer non-governmental group, has completed an investigation into National Grid's Gas System Enhancement Program (GSEP) plans and National Grid's pipeline replacement and leak repair projects in Newton for calendar year 2025. We are investigating to what degree National Grid's (NG) leak repair and pipeline replacement activities are in the interest of the City and its resident gas ratepayers.

As Newton residents work to reduce carbon emissions, the leaky gas distribution system will be phased out as it becomes obsolete. Under GSEP, however, National Grid's continued investments in the outdated gas pipe system will impose unnecessary costs on ratepayers and perhaps taxpayers.

This report follows similar investigations of GSEP in Newton for [2022](#), [2023](#) and [2024](#) as well as across all [National Grid territory for 2024](#).

We found that the work which National Grid is currently performing under GSEP does not serve the interests of Newton and does not align with the City's Climate Action Plan goal of eliminating fossil fuel carbon emissions by 2050.

The City's priorities have evolved since the implementation of GSEP in 2014. The City now recognizes that even leaks classified as non-hazardous can still pose significant risks to health and the environment and that the City needs a plan for retiring the gas system entirely.

National Grid replaces most of its pipes in Newton without obtaining specific approval from the City Council through a Grant of Location (GOL). Although National Grid submits its GSEP plans to the DPU, the plans lack details showing all the specific street segments; as a result, Newton elected officials have little information or control over gas pipe construction in Newton streets. Newton should alter its procedures to receive detailed GSEP street segment statements (which may require action by the DPU) and to require City Council GOL review for all non-emergency pipe replacement projects.

Gas leaks are a significant contributor to Newton's greenhouse gas emissions. However, "leak-prone" pipe replacement dominates current GSEP expenses, and this pipe replacement has been ineffective in reducing existing gas leaks. Leak repair is less expensive and more

effective for reducing leaks than pipe replacement. In coordination with National Grid, Newton should now prioritize repairing gas leaks as quickly as possible. To achieve this goal while minimizing ratepayer costs, the state needs to completely overhaul the GSEP program and align its priorities with the climate goal of eliminating gas by 2050.

Detailed Highlights

- \$27,071,209 was charged to GSEP for work in Newton in 2025.
- All of the eliminated leak extent (a measure of environmental harm attributable to a Grade 3 leak, the least hazardous class) was treated by lower-cost leak repair and not by pipe replacement.
- Repair of large leaks is far more cost-effective than pipe replacement at eliminating leaks in gas pipe.
- Over 75% of the total length of pipes installed and then charged to GSEP was not preceded by a Grant of Location approved by Newton's City Council
- Pipe replacement cost was \$759 per ft or \$4,004,903 per mile, a significant increase from \$658 per foot in 2024, and is becoming increasingly untenable in comparison to the cost-effectiveness of electrification and other non-pipeline alternatives.
- Some new leaks appeared on lengths of pipe (or the service lines connected to them) after the pipe had been replaced under GSEP.
- In the past year, measured gas leak extent has dramatically increased, which reverses the encouraging trend from the previous five years.

Introduction

The Newton Gas Pipes non-governmental volunteer team compiles publicly available data about the Newton gas distribution system operated by National Grid. We are working with public records of Gas System Enhancement Program (GSEP) plans, end-of-year accounting reports (GREC), end-of-year Service Quality reports (SQARs), and quarterly gas leak reports filed with the Mass. Department of Public Utilities (DPU), in addition to street surveys and other data from Newton public records.

The pipe replacement program requires National Grid to evaluate leak-prone pipe segments to prioritize replacing pipes that are at significant risk of developing high-impact leaks that could be explosive. It requires National Grid to repair the dangerous leaks, and permits accelerated cost recovery for replacing leak-prone pipes, with an allowance of accelerated cost recovery for pipes whose replacement can be coordinated with other public works jobs.

The Massachusetts legislature established GSEP in 2014 to increase the safety and reliability of the gas distribution system. This plan was made in the context of an aging system of pipes that would be used for the foreseeable future. GSEP provided a framework for classifying and repairing hazardous leaks, replacing leak-prone pipes, and expanding the gas infrastructure to replace what were considered more polluting energy sources.

However, even “non-hazardous” leaks pose health risks and can contribute significantly to greenhouse gas emissions and additional costs to consumers. To address the leak problem, the legislature in 2017 added the repair of high-volume methane leaks to the scope of GSEP. These leaks are classified as “non-hazardous” but still have a Significant Environmental Impact (SEI).

Massachusetts law and the DPU have defined various gas leak grades. Grade 1 leaks are hazardous and must be repaired immediately. Grade 2 leaks are non-hazardous, but could become hazardous in the near future and must be repaired within a year. Grade 3 leaks are non-hazardous and are expected to remain non-hazardous. Under the 2017 framework, Grade 3 leaks initially designated after January 1, 2018 are required to be repaired or eliminated within eight years. Grade 3 SEI leaks are those larger than 2,000 square feet, as measured by the leak extent method, and are required to be repaired within 1-3 years.

We are investigating the degree to which GSEP work is in the interest of the City and its resident gas ratepayers.

Methodology

Data for this investigation were compiled from National Grid’s filings submitted to the DPU. Most of these filings were downloaded from the DPU’s web-based “file room.”

Each October National Grid files GSEP plans for the coming year together with less-detailed GSEP plans (“lookaheads”¹) for the following four years. We focused on the 2025 GSEP plan. However, allowing for the possibility that a previous GSEP installation may have been delayed, we searched all GSEP plans back to 2019. Allowing for an unexpected acceleration of a GSEP installation, we also searched GSEP “lookaheads” covering the period 2020 through 2030. We compiled GSEP plans for 2019 through 2026 into a single table, which is linked as [Table L1](#). We compiled lookahead plans for 2020 to 2023, 2021 to 2024, 2022 to 2025, 2023 to 2026, 2024 to 2027, 2025 to 2028, 2026 to 2029 and 2027 to 2030 in linked [Table L2](#).

The cost data is sourced from various exhibits for the DPU’s CY 2025 GSEP reconciling mechanism which can be downloaded from the DPU file room (Docket 26-GREC-03). National Grid filed its Reconciliation “GREC” report for the 2025 GSEP expenses on May 1, 2025.

We obtained gas leak data from two largely overlapping sources: the NG Service Quality (SQ) Report for calendar year 2025, dated February 27, 2026 under DPU docket 26-SQ-05, and detailed leak reports produced for the DPU on a quarterly basis which can be obtained by public records request. The SQ report lists all reported leaks and identifies which ones were eliminated during the year, a summary of the quarterly snapshots. The quarterly reports provide

¹ Our use of the word “lookahead” refers to NGrid’s reports that anticipate pipe replacements four years out from the following calendar year, a total of five years, in compliance with regulations in 220 CMR 114.

a more complete chronology, allowing corroboration of leak conditions with dates of pipe replacement etc., but omit National Grid's assessments of both whether a given leak can be dealt with through a planned replacement, and whether or not the leak is G3SEI.

Regarding leak repair, GSEP provides incentivized cost recovery for the repair of Grade 3 Significant Environmental Impact (G3SEI) leaks in addition to supporting pipe replacement. We compiled and analyzed the GSEP plans for such repairs in 2025, as well as the actual 2025 costs in the GREC filing.

We extracted Newton data from National Grid GSEP and leak reports, analyzed the 2025 GREC filings to determine what kind of work in Newton the 2025 costs actually funded, and determined how Newton gas leaks were eliminated in 2025.

Results: GSEP cost summary for Newton in 2025

Table 1 below summarizes GSEP costs in Newton as reported in the National Grid GREC filing for 2025. GSEP reimburses both main replacements and service lines to individual buildings, in addition to leak repair. Note that this table does not include the expense of repairing grade 3 non-SEI (smaller) leaks, since such repair costs are not reimbursed through GSEP and are not reported. National Grid has stated that the annual repair cost for Grade 1, Grade 2, and smaller, non-SEI Grade 3 leaks, which are not reported in GSEP, is substantially greater than the annual cost to repair SEI Grade 3 leaks.

Table 1 2025 GSEP costs in Newton

GSEP costs for repairing large leaks	\$108,805.	\$0.4%
GSEP costs for pipe replacements	\$22,911,385	84.6%
CISBOT ²	\$2,015,671	7.4%
Lining ³	\$0	0.0%
GSEP costs for in-service projects ⁴	\$2,029,282	7.5%
GSEP costs for service replacements ⁵	\$6,066	.0.0%
Total	\$27,071,209	100%

² CISBOT is a robotic method of repairing a gas pipe without full excavation

³ Certain pipes can receive a protective lining which strengthens the pipe against leakage, obviating replacement. Such work was done in Newton as recently as 2022.

⁴ In-service projects are work on new replacement gas pipes that had been installed in recent years.

⁵ Service replacements connect the main in the street to the customer's building.

Results: Pipe replacement

Analysis of 2025 GSEP pipe replacement costs as displayed in the GREC filing

We separated the costs reported in the 2025 GREC into the following five categories of projects, displayed in Table 2.

- A. Projects that were anticipated in the GSEP plans for 2025.
- B. Projects that appeared in any other year's GSEPs or lookaheads.⁶
- C. Projects that did not appear in GSEP plans and were attributed to "encroachment" or water intrusion.
- D. Projects that did not appear in GSEP plans that were attributed to a leak in an abutment wall for a bridge. (Note – in 2021 lookahead there was a plan for a liner, not new Coated Steel main).
- E. Projects that were not in GSEP plans and were accomplished in accordance with Newton DPW coordination.

Table 2: 2025 GSEP pipe replacement costs compared to plans

Category	Number of projects	GSEP cost
A.	7	\$14,442,968
B.	6	\$3,948,739
C.	6	\$985,421
D.	1	\$3,505,720
E.	1	\$28,536
Total	21	\$22,911,384

Table 3 below consolidates results from Table 2.

⁶ Category B includes two projects that are attributed to "encroachment" and one public works project. None of these projects have a prioritization assessment (see [Table L3](#)).

Table 3 Consolidated analysis of 2025 GSEP pipe replacement costs

Description	GSEP cost	Pct.
All projects in a GSEP plan or lookahead (A plus B)	\$18,391,707	80.3%
Projects that were not in GSEP plans but addressed encroachment from other utilities or work on bridges(C plus D)	\$4,491,141	19.6%
Projects not in GSEP plans or lookaheads that were completed in coordination with Newton Public Works. (E)	\$28,536	0.1%
Total	\$22,911,384	100.0%

Unlike previous years when Public Works projects were a substantial part of the overall pipe replacement work, in 2025 very little pipe replacement work was done that was not in GSEP plans or in response to encroachment from other utility work.

Pipe replacement projects charged to GSEP in 2025 are shown in the linked [Table L3](#). The table lists each pipe replacement project. If the project appeared in a prior GSEP plan, the previous plan is also noted in the table.

We found that most of Newton’s GSEP work in 2025 was not preceded by a City Council vote for a Grant of Location (GOL). According to state law, a GOL must be approved by the city before any excavation of public roads. However, only 24% of the GSEP pipe length in 2025 was approved with a GOL, as shown in Table 4 below. At Newton’s Public Facilities Committee meeting on December 4, 2024, National Grid stated that it follows a “two-foot rule” that exempts the need for GOL approval. Newton Gas Pipes Team has yet to see written documentation of the rule; the Newton City Council has opened Docket #218-26 this year to look into changing it.

Table 4 Grants of Location preceding GSEP work

	Number of projects	Length of pipeline installed (ft.)	Pct. of length
Projects that had a GOL	5	7,205	24%
Projects that did not have a GOL	16	23,001	76%
Total	21	30,206	100%

Table 5 Cost effectiveness of GSEP leak elimination methods

	Number of leaks	Cost	Leak extent sf	Cost per leak
Large Leak Repair G3SEI	14	\$108,805	58,933	\$7,772
Pipe Replacement G3SEI	0	\$0.0	0	NA

GREC reported an expense of \$108,805 over the year to repair 14 G3SEI leaks with a combined extent of 58,933 sq. ft. according to the latest measurements reported in 2025. Because no G3SEI leaks were eliminated in 2025 by pipe replacement, we cannot compare the relative cost. In 2024, pipe replacement costs to eliminate were about 200 times the cost of pipe repair. Generally speaking, GSEP expenditures to reduce leak extent by leak repair are much more cost-effective than expenditures by pipe replacement.

Through pipe replacement, in 2025, GSEP did not address any G3SEI leaks. In other filings, National Grid reported that four non-G3SEI leaks were “eliminated by replacement” but the work was not part of GSEP and costs were not reported. (see Table 6), A more detailed review of all active leaks at the GSEP replacement sites just before each project started also revealed that these replacements did not lead to any elimination of leaks. (see [Table L4](#)). (There were only 5 distinct ongoing leaks at the time the projects were started, one Grade 2 leak and 4 non-SEI Grade 3 leaks. Three of them were reported to be eliminated by leak repair, and two are still pending.)

There were 17 Grade 1 leaks, two Grade 2 leaks, and four Grade 3 leaks that were first reported during the replacement period, which indicates that these pipes were in a fragile state. One of these leaks is a Grade 3 SEI leak which is still pending. At least nine leaks occurred after the replacements were completed, including two Grade 3 SEI leaks. These new leaks were all in the portions of the road where the work was done or very close to them. The new leaks could be in the service lines or other pipes at those locations. We conclude that replacing or repairing pipes does not prevent all new leaks, which illustrates the fragility of the whole gas distribution system.

Results - Leaks in Newton during 2025

We analyzed the National Grid Service Quality Report to collect information about how all Newton leaks were treated in 2025 regardless of whether the cost appeared in GSEP or outside of GSEP. Our analysis found the following:

- Total reported leaks as of Jan 1, 2025: 376 leaks comprising 266,103 sq. ft. leak extent [Table L5](#)
 - 3 Grade 1 leaks
 - 15 Grade 2 leaks

- 358 Grade 3 leaks comprising 266,103 sq. ft. leak extent⁷
- Total reported leaks as of Jan 1, 2026: 394 leaks comprising 441,434 sq. ft. leak extent [Table L6](#)
 - 1 Grade 1 leak
 - 17 Grade 2 leaks
 - 376 Grade 3 leaks comprising 441,434 sq. ft. leak extent
- A total of 451 leaks were eliminated during 2025, including 158 Grade 3 leaks comprising 149,300 sq. ft. of leak extent.
- 76% of the eliminated leak extent for Grade 3 leaks was accomplished by leak repair. 0% of the eliminated leak extent for Grade 3 leaks was reported as accomplished by pipe replacement. The remainder, 24% of the eliminated leak extent, resulted from a variety of circumstances, including leaks that ceased to be observable, duplicate leak accounting, or other factors.
- Service Quality Reports showed that 476 new leaks were recorded during 2025. According to the quarterly reports, there were $469 = 394 + 451 - 376$ new leaks. The small discrepancy between 476 and 469 of 7 leaks is due to incomplete reporting in the National Grid quarterly leak reports.
 - 150 new Grade 1 leaks
 - 119 new Grade 2 leaks
 - 207 new Grade 3 leaks

This is a significant increase compared to 2024, when there were only 68 new Grade 2 leaks and 80 new Grade 3 leaks.

- 26 leaks that were non-hazardous in January 2025 were “upgraded” to a higher risk category during the year; only one leak was downgraded.
- 24 new leaks appeared on or near GSEP work during the pipe installation period. This indicates that pipe replacement projects initiated the observation of many new leaks or caused them to begin leaking.

[Table L7](#) lists all the leaks that were eliminated in 2025 along with the explanation for their elimination.

[Table L8](#) lists leaks that were eliminated by leak repair without being upgraded to a more hazardous category.

[Table L9](#) lists leaks eliminated by pipe replacement (GSEP and non-GSEP)

⁷ Combines information from SQ and quarterly leak reports

[Table L10](#) lists leaks “eliminated otherwise”, such as by being upgraded first, by repair of a nearby leak, or by some circumstance other than repair

[Table L11](#) aggregates National Grid’s statement of how leaks were “Eliminated Otherwise”

Table 6 aggregates how leaks were eliminated, according to National Grid categories.

Table 6 Leak Elimination in 2025

How eliminated	Count (All grades)	Count (Grade 3)	Leak extent sq. ft. (Grade 3)	% leak extent
Simple repair	372	114	110,200	74%
Pipe replacement	4	3	0	0%
Eliminated by the leak repair of other leaks or after being upgraded	6	3	3,070	2%
Eliminated by circumstances other than leak repair or pipe replacement	69	38	36,030	24%
Total	451	158	149,3000	100%

Much of the large leak extent that was eliminated by “circumstances other than leak repair or pipe replacement” in 2025 was explained by National Grid as correcting a recorded duplicate leak.

Results - Leak History in Newton starting 2020

Table 7 (next page) summarizes the status of reported gas leaks in Newton at the end of each quarter starting in 2020.

Table 7 Newton Reported Leak History since January 1, 2020

National Grid Report Date	Number of unrepaired leaks	Total leak extent of unrepaired leaks	Percentage reduction in total leak extent from previous quarter
03/31/2020	856	793,062	
06/30/2020	765	648,712	18%
09/30/2020	733	554,243	15%
12/31/2020	714	520,851	6%
03/31/2021	691	568,224	-9%
06/30/2021	678	567,029	0%
09/30/2021	672	565,074	0%
12/31/2021	639	601,857	-7%
03/31/2022	622	548,597	9%
06/30/2022	639	582,140	-6%
09/30/2022	619	529,339	9%
12/31/2022	588	477,736	10%
03/31/2023	573	364,170	24%
06/30/2023	566	328,240	10%
09/30/2023	545	319,140	3%
12/31/2023	507	287,317	10%
03/31/2024	496	286,502	0%
06/30/2024	505	311,616	-9%
09/30/2024	438	301,974	3%
12/31/2024	373	266,103	12%
03/31/2025	366	234,611	12%
06/30/2025	372	198,776	15%
09/30/2025	404	388,632	-96%
12/31/2025	394	441,434	-14%
03/31/2026	380	434,157	2%
06/30/2026	381	354,257	18%

Alarming, in the past year, gas leak impact in Newton has greatly increased. The leak extent has roughly doubled since June 30, 2025. In Newton, out of 381 total unrepaired leaks as of June 30, 2026, there were 125 unrepaired leaks which at any time in their history qualified as SEI. The sum of leak extent of these leaks is 247,791 sq. ft. which is 70% of the total leak extent in Newton (354,257 sq. ft.).

Although the number of leaks has not varied much in the past year, more new leaks appeared than in past years, and National Grid apparently increased the rate of repair.

Since 2020, National Grid has successfully reduced the number of leaks and leak extent in Newton, but the recent year has been a failure. National Grid now needs to prioritize eliminating leaks, especially SEI leaks, and through repair instead of generic replacement projects. Newton has a valuable opportunity to review its coordination with National Grid to do a better job of eliminating large leaks.

Conclusions and Recommendations

National Grid's pattern of expenses for replacing pipes and repairing leaks in 2025 was similar to previous years.

Gas leak repair is much more cost-effective for reducing gas leaks in the short term than replacing leak-prone pipes. Gas pipe work in Newton should heavily prioritize leak repair and pipe retirement; complete pipe replacement is an expensive choice and should be avoided wherever possible.

To achieve more input into and control over pipe replacement, and to foster non-fossil alternatives, Newton should alter its procedures to receive detailed GSEP street segment statements long before work begins (which may require action by the DPU) and to require City Council GOL review for all non-emergency pipe replacement projects. Newton should eliminate the "two-foot rule".

Newton prioritizes the immediate reduction and repair of gas leaks. National Grid needs to repair the most significant leaks as quickly as possible, because leaking methane is a significant local source of greenhouse gases. The plans and results for leak repair in Newton should be published quarterly for accountability.

Newton should formally urge State officials to eliminate or overhaul GSEP in support of Newton's Climate Action Plan goal of eliminating fossil gas emissions.

The original GSEP law envisioned the indefinite operation of the gas system. However, Newton and Massachusetts have climate goals that will require retirement of the gas distribution system. If GSEP is overhauled, it needs to provide a better balance among public safety, infrastructure cost, and speedy retirement of the gas system. If the GSEP program continues in its current

form, it should provide incentives to accelerate the retirement of the residential gas infrastructure. One way or another, GSEP should no longer serve as a broad excuse for the gas network to persist in spite of its damage to the environment.

Appreciations

Thank you to others on the Newton pipes team, including, in particular, Josh Nichols-Barrer.

APPENDIX

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Appendix: Guide to GSEP program abbreviations for pipe replacement

Quoted from NGrid filing D.P.U. 26-GREC-03, Exhibit NG-GPP-1, May 1, 2026, Page 8

“There are fourteen types of programs included: (1) “BSMNRPL,” which indicates a bare steel main replacement project; (2) “CIMNRPL<10,” which is a cast iron main replacement project with pipe diameter less than 10 inches; (3) “CIRE101214,” which is a cast iron main replacement project with pipe diameter greater than 8” but less than or equal to 14”; (4) “ENCRCHMTPL,” which is a parallel main encroachment; (5) “PWNONREIM,” which is a public works non-reimbursable project; (6) “ENCRCHMTUM,” which is a main encroachment due to undermining of the existing facility; (7) “H2OINT,” a program that addresses recurring customer outages resulting from water intrusion into low-pressure distribution systems through the replacement of existing LPP; (8) “REANONLEAK,” a program used to replace main that, based on conditions found in the field, is immediately prioritized for replacement regardless of leak history; (9) “ALDYRPL,” a program to replace pre-1985 vintage Aldyl-A plastic pipe; (10) “GPLNG,” which are system reliability main replacements, (11) “BRIDGES”; (12) “CISBOTPRO”, which are proactive CISBOT projects; (13) “CIMNLINING” which are the large diameter pipe lining projects; and (14) “CISBOTREA” which are the reactive CISBOT projects.”

The following expanded definitions are quoted from DPU 26-GREC-03, Exhibit DPU-1-1, July 13, 2026⁸.

“Program Name	Definition	Prioritization
ENCRCHMTPL	Cast-iron pipes that are encroached due to a parallel excavation occurring adjacent to the gas facility	Reactive projects triggered by third party excavations and safety concerns rather than annual proactive risk- ranking This work is prioritized based on required replacement as stated in 220 CMR 113.

⁸ Responding to DPU information request 1-1 on June 29, 2026.

PWNONREIM	Pipe replacement in conjunction with municipal projects such as water, sewer, drain, and roadway restoration projects	Reactive municipal coordination projects, not part of the proactive risk- ranked project list because the timing in which projects are identified. This work is identified in the Company's GSEP plan filing (D.P.U. 24-GSEP-03, Exhibit NG-GPP-2, at 25).
ENCHRCHMTUM	Cast Iron Pipes that are encroached due to an undermine from a trench crossing excavation	Reactive projects triggered by third party excavations and safety concerns rather than annual proactive risk-ranking. This work is prioritized based on required replacement as stated in 220 CMR 113.
H2OINT	Projects targeted at addressing a problem with water intrusion into the gas distribution system	Generally prioritized on a reactive basis and identified based on customer loss of gas service. Projects approved under the H2OINT program are meant to solve problems with the loss of reliable customer service

Encroachment projects involve the exposure of enough cast iron pipe to increase the risk of failure based on the third-party excavation area and proximity to the cast iron main. Replacement of encroachment cast iron pipe is required per 220 CMR 113.

H2OINT projects are generally prioritized on a reactive basis and identified based on customer loss of gas service. Projects approved under the H2OINT program are meant to solve problems with the loss of reliable customer service.”

END