

# GSEP's cumulative costs

*As derived from the "Future of Gas" Independent Consultant Reports*

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GSEP Working Group



# Research question

Leaving aside GSEP's cost to date, how much are new GSEP investments likely to cost over time, fully loaded with return of capital costs and investor return?

# Summary of results

**\$15.9 billion**

Utility GSEP capital expenditures thru 2039

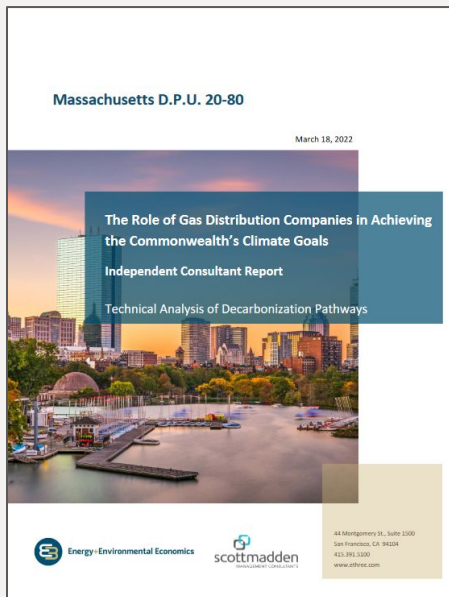
*This is the forecast from the Future of Gas consultants with no adjustments.*

**\$34.4 billion**

Cost to ratepayers

*Doesn't include O&M, property taxes (expressed in 2022 dollars)*

# How these figures were calculated



**Final Independent Consultant Reports (3/18/2022)**

- [Part I: Decarbonization Pathways](#) ↓
- [Part II: Regulatory Designs](#) ↓
- [Appendix 1: Modeling Methodology](#) ↓
- [Appendix 2: Literature Review](#) ↓
- [Appendix 3: LDC Characteristics](#) ↓
- [Appendix 4: Input Assumptions](#) ↓
- [ERM: Future of Gas Stakeholder Engagement Process Report](#) ↓
- [Eversource: Clean Energy Business Case Analysis](#) ↓

**Total Forecasted GSEP Investments (Consultant Estimate)**

Indicates values tied to GSEP filings  
Indicates a forecasted value based on filed GSEP investments and the anticipated GSEP end year for each utility. Please refer to Appendix 1 for further information on the Consultants' development of GSEP forecasts.

Miles of main replaced	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Eversource NSTAR	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	43	43
Eversource EGMA	35	40	45	45	45	45	45	45	45	45	45	40	34	-	-	-	-	-
Berkshire Gas	9	6	6	5	5	5	5	5	5	5	5	5	5	-	-	-	-	-
Liberty	20	20	17	15	15	4	4	4	4	4	4	4	4	-	-	-	-	-
National Grid - Boston	124	131	143	144	157	158	161	164	164	164	160	155	150	145	125	115	78	51
National Grid - Colonial	18	13	13	13	13	13	13	13	9	2	2	2	2	-	-	-	-	-
Unitil	4	3	2	2	2	4	4	4	4	4	4	4	4	-	-	-	-	-
<b>Total</b>	<b>255</b>	<b>257</b>	<b>271</b>	<b>269</b>	<b>282</b>	<b>274</b>	<b>277</b>	<b>280</b>	<b>276</b>	<b>269</b>	<b>265</b>	<b>255</b>	<b>244</b>	<b>190</b>	<b>170</b>	<b>158</b>	<b>121</b>	<b>94</b>

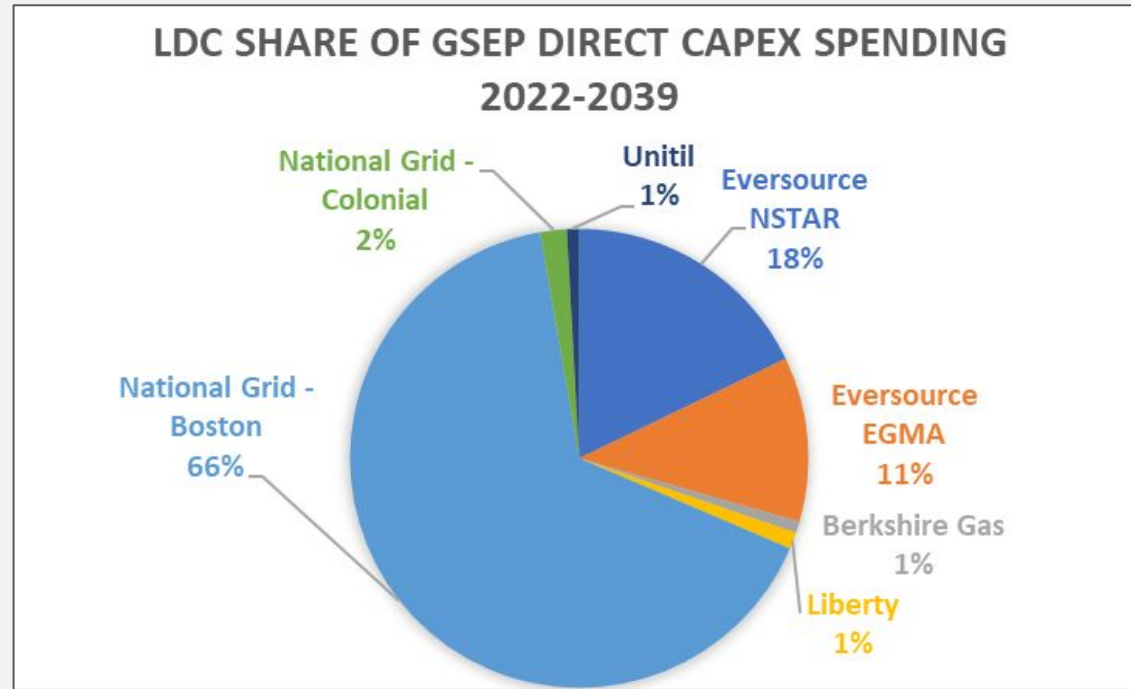
  

Total annual investment (\$M - nominal)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Eversource NSTAR	\$ 132	\$ 126	\$ 130	\$ 133	\$ 137	\$ 142	\$ 146	\$ 150	\$ 155	\$ 159	\$ 163	\$ 168	\$ 173	\$ 178	\$ 183	\$ 182	\$ 187	\$ 193
Eversource EGMA	\$ 97	\$ 114	\$ 132	\$ 136	\$ 141	\$ 145	\$ 149	\$ 154	\$ 158	\$ 163	\$ 168	\$ 154	\$ 135	-	-	-	-	-
Berkshire Gas	\$ 11	\$ 9	\$ 12	\$ 8	\$ 9	\$ 9	\$ 9	\$ 9	\$ 10	\$ 10	\$ 10	\$ 11	\$ 11	-	-	-	-	-
Liberty	\$ 28	\$ 27	\$ 24	\$ 21	\$ 22	\$ 7	\$ 7	\$ 7	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	-	-	-	-	-
National Grid - Boston	\$ 366	\$ 398	\$ 449	\$ 493	\$ 552	\$ 573	\$ 615	\$ 633	\$ 690	\$ 712	\$ 719	\$ 718	\$ 717	\$ 757	\$ 673	\$ 641	\$ 451	\$ 303
National Grid - Colonial	\$ 37	\$ 26	\$ 27	\$ 30	\$ 30	\$ 31	\$ 32	\$ 33	\$ 24	\$ 6	\$ 6	\$ 6	\$ 6	-	-	-	-	-
Unitil	\$ 9	\$ 7	\$ 6	\$ 7	\$ 6	\$ 12	\$ 12	\$ 12	\$ 13	\$ 13	\$ 13	\$ 14	\$ 14	-	-	-	-	-
<b>Total</b>	<b>\$ 681</b>	<b>\$ 708</b>	<b>\$ 780</b>	<b>\$ 829</b>	<b>\$ 898</b>	<b>\$ 918</b>	<b>\$ 970</b>	<b>\$ 999</b>	<b>\$ 1,057</b>	<b>\$ 1,071</b>	<b>\$ 1,087</b>	<b>\$ 1,078</b>	<b>\$ 1,064</b>	<b>\$ 935</b>	<b>\$ 856</b>	<b>\$ 823</b>	<b>\$ 638</b>	<b>\$ 496</b>

# GSEP capex forecast by Future of Gas Consultants, 2022-2039

**\$15.9 billion**

in direct capex  
spending



# Modeling assumptions for calculating cumulative costs

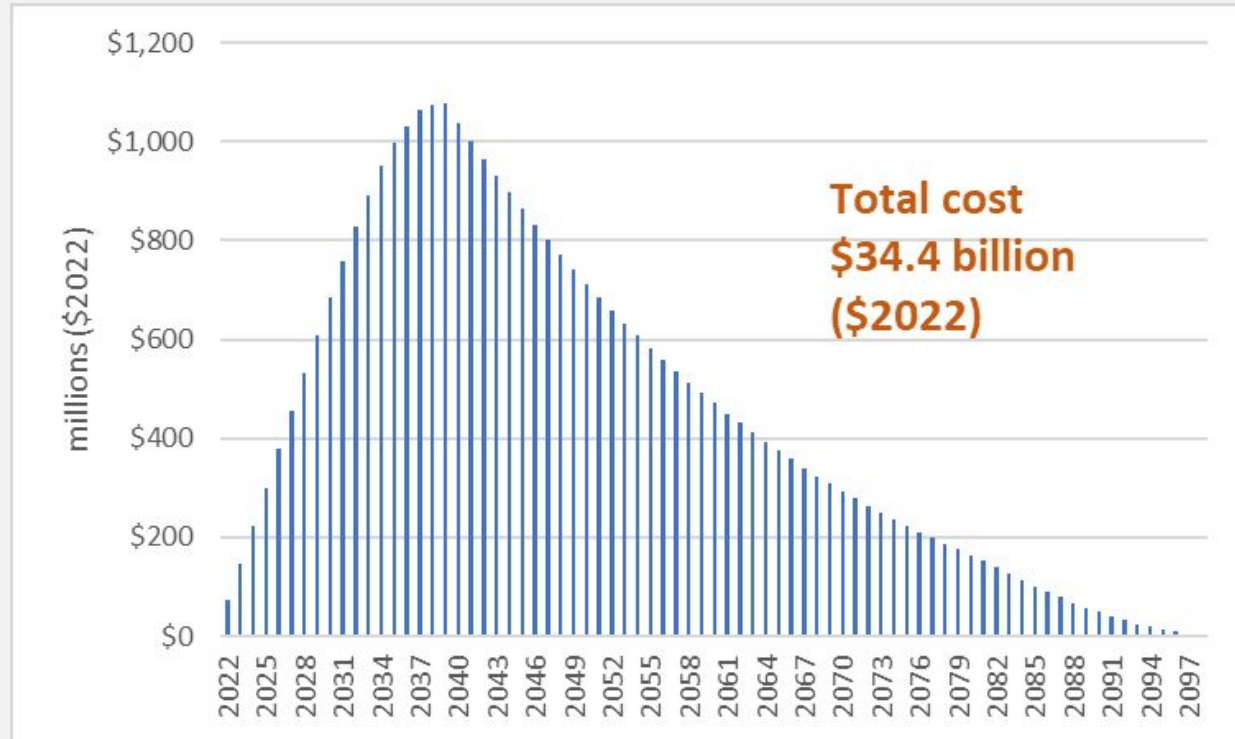
- **Replacement miles** and **gas capex projections**, as provided by FOG independent consultants
- **Actual pre-tax rate of return** for each LDC, weighted by LPP miles yet to be replaced under GSEP (9.11%)
- **GSEP end date**, as specified by each LDC
- **Straight-line depreciation** over 60 years (the average “whole life” for LDC mains per Appendix 4, weighted by LPP miles yet to be replaced)
- **2% escalation rate**

## What's not included:

- Operations & maintenance expenses, property taxes
- Depreciation & return on investment for prior GSEP spending (2015-2021) – another \$7.4 billion (\$2022)

# Results - Cumulative costs 2022-2039

Assuming 60-year depreciation, the cumulative cost of remaining GSEP capex totals \$34.4 billion (\$2022), with payback continuing through 2098.



# Why are GSEP's cumulative costs important?

For a multi-decade spending program creating long-lived assets, **expected cumulative costs are critical for evaluating whether this spending is appropriate, economically and technically efficient, recoverable, and in the public interest.**

Cumulative cost reporting is essential for:

- ❑ Transparency
- ❑ Basic business management
- ❑ Capital efficiency
- ❑ Protecting ratepayers
- ❑ Informing long-term gas planning



# 2023 GSEP: approved spending

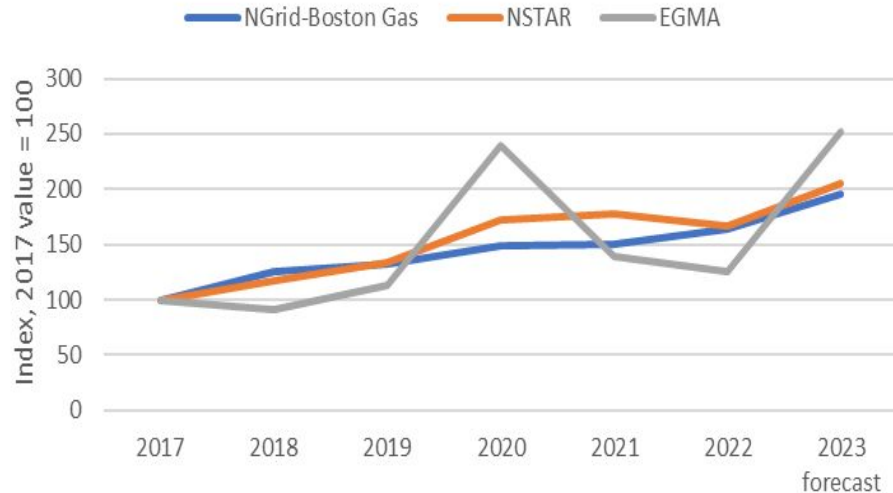
Gas Utility	Proposed CY2023 GSEP spending (including advanced leak repair and G3SEI) (a)	Approved 2023 GSEP Revenue Requirement (b)	No. of main miles to be replaced in 2023 (c)	Actual average cost of main replacement (per mile) in 2022 * (d)
Unitil	\$12,139,744	\$4,496,531	6.3	\$1,253,290
Berkshire Gas	\$14,330,540	\$2,101,545	10.4	\$1,041,066
National Grid	\$443,844,539	\$131,414,093	130.0	\$2,786,322
Liberty Utilities	\$36,644,360	\$20,234,054	19.7	\$811,982
Eversource Gas Co.	\$132,267,824	\$37,709,277	43.0	\$1,054,061
NSTAR	\$177,250,022	\$68,599,783	62.0	\$1,689,369
<b>TOTAL</b>	<b>\$816,477,029</b>	<b>\$264,555,283</b>	<b>271.4</b>	<b>\$2,068,194</b>

\* Average main replacement cost across the 6 utilities is weighted by main miles replaced in 2022.

**Sources:** (a) and (c) are from various exhibits filed in Dockets 22-GSEP-01 to -06 (CY2023 GSEP Plan proceedings); (b) is from DPU's final orders concerning the CY2023 plan petitions; (d) is from various exhibits filed in the 2023 GREC (Gas System Enhancement Plan Reconciliation) proceedings (Dockets 23-GREC-01 to -06).

# Significant unit cost escalation continues for largest LDCs

Acceleration in main replacement costs per mile,  
2017-2022 and 2023 forecast



- **Per mile replacement costs have essentially doubled over the last 6 years.**
- **More difficult projects:** Larger LDCs anticipate rising costs due to focus on replacement activity in densely populated areas with congested roadways and layers of other underground utilities.
- **Spending cap:** 4 of the 6 LDCs hit their “GSEP spending cap” in 23-GSEP and asked to defer some recovery to future years. (Cap equals 3% of total firm revenues)

# 2023 GSEP spending on Grade 3-SEI leaks & advanced leak repair is de minimus

2.2% of total GSEP-approved spending (\$18.3 million)

	Grade 3-SEI leaks	Advanced leak repair
NGrid-Boston	\$1,958,642	\$14,453,278*
NStar	\$50,022	\$1,500,000
EGMA	\$303,490	
<b>TOTAL</b>	<b>\$2,312,154</b>	<b>\$15,953,278</b>

\* Note: NGrid's advanced leak repair is directed at non-GSEP-eligible pipe only.

# Contact Information

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**Groundwork Data** offers advisory, research, and technology services to accelerate a clean, equitable, and resilient energy transition.