

GSEP AT THE SIX-YEAR MARK

A REVIEW OF THE MASSACHUSETTS GAS SYSTEM ENHANCEMENT PROGRAM

EXECUTIVE SUMMARY

In response to the growing climate emergency, Massachusetts began establishing transformative decarbonization goals in 2008. Now, more than a decade later, the Commonwealth is at a critical crossroads with respect to creating a sustainable energy pathway forward to safely power our homes, businesses, municipalities, and industries. In 2014, the Commonwealth embarked on an ambitious program—the Gas System Enhancement Program (GSEP)—to replace leaking fossil gas infrastructure showing corrosion and cracking due to age. Each year, more than 14,000 new gas leaks in underground pipeline networks serving gas customers are detected and reported. These leaks not only present safety and health hazards, but also release methane (CH₄), an extremely potent greenhouse gas.

This report, *GSEP at the Six-Year Mark*¹ addresses the challenging dilemma presented by the current situation. On the one hand, Massachusetts must move rapidly towards a decarbonized future. On the other hand, a major, very costly, fossil gas infrastructure program—GSEP—is replacing substantial amounts of the Commonwealth’s gas pipeline owned and operated by six investor-owned local distribution companies (LDCs). Looking back over the last six years, this analysis considers the outcomes of GSEP to date: how many miles of infrastructure have been replaced, how much the program is costing, and what progress has been made reducing fugitive gas. Next, this analysis projects the likely future costs of GSEP and considers the various pressures and constraints impacting pipeline costs for gas utilities. Finally, the report examines the degree of alignment between GSEP, the Commonwealth’s mandated greenhouse gas limits, and the necessary and inevitable transition to renewable energy sources and a low-carbon economy.

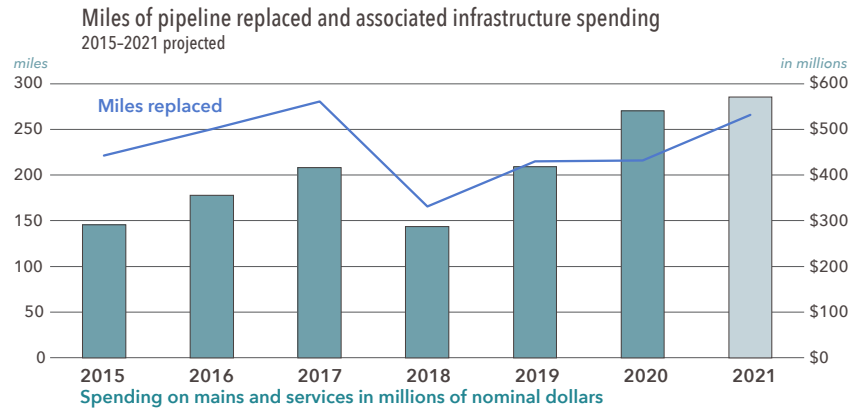
Key findings of this report include:

1. The total cost of GSEP is likely to top \$20 billion. This estimate is based on current, approved rates of return and unit costs, and assumes that GSEP-funded infrastructure is depreciated by 2050, the year that Massachusetts has targeted to achieve net-zero emissions. Costs of this magnitude would make GSEP one of the most expensive infrastructure projects ever undertaken in the Commonwealth –one rivaling the scale of the Big Dig.
2. GSEP’s effective time frame has been extended to 2039, bringing it dangerously close to the Commonwealth’s mandated 2050 net-zero emissions deadline. Meeting even this revised timeline is increasingly unlikely. Approximately 20 percent of the leak-prone pipe in the Commonwealth had been eliminated by 2020 but a quarter of the extended time frame had

¹ Dorie Seavey, *GSEP at the Six-Year Mark: A Review of the Massachusetts Gas System Enhancement Program*, version 1.0, October 2021, <https://gasleaksallies.org/gsep>

elapsed. Moreover, meeting the extended timeline assumes an infrastructure replacement rate for the largest LDC—National Grid-Boston Gas—that is both unrealistic and cost prohibitive, given the GSEP cost recovery system and the fact that the most complicated and expensive replacement projects within the Boston Gas territory have barely commenced.

3. The increasing cost of pipeline replacement work may constrain the ability of LDCs to achieve their stated replacement goals due to the regulatory cap on LDC spending for GSEP. As infrastructure replacement costs escalate, the “revenue cap” can be expected to become a significant factor constraining LDC replacement

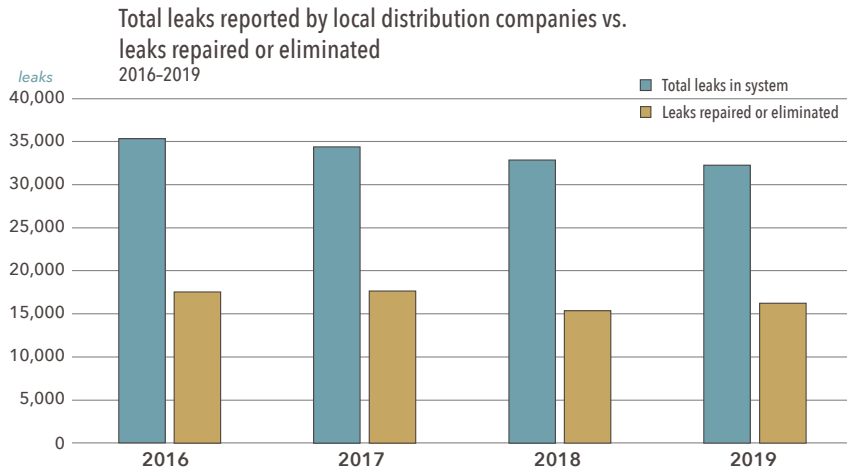


work because this cap limits the increment of new annual expenses that LDCs can recover through customer rate increases (the “revenue requirement”). As LDCs “max out” their revenue requirement with fewer, more costly replacement miles, they will be unable to keep up with the rate of infrastructure replacement needed to meet GSEP’s timeline unless further extensions are approved.

4. LDCs are likely to request unprecedented financial relief as GSEP proceeds, resulting in higher gas rates for customers. As exemplified by the current rate case of National Grid-Boston Gas (DPU 20-120), LDCs can be expected to petition the DPU for two types of unprecedented financial relief due to the risks they find inherent in the current situation: (i) higher rates of return on equity, and (ii) accelerated rates of capital-cost recovery through depreciation. These requests reflect the gas industry’s concerns about fully recovering its investments and attracting sufficient investment capital considering the transition underway to a low-carbon economy. If approved, each of these changes will necessarily raise customer gas rates through the medium term. Shorter asset lives will also put downward pressure on the longer-term earnings of gas companies.

5. While 15,000 to 18,000 leaks have been repaired or eliminated in each of the last four years, each year has begun with a backlog of unrepaired leaks roughly equal to the number of leaks repaired or eliminated during the previous year. In other words, for the Commonwealth as a whole, leak repair activity, at best, has only managed to keep up with the new leaks emerging each year.

6. To date, the Commonwealth has not created incentives to strategically and successfully repair leaks and monitor those repairs. The use of state-of-the-art monitoring and repair technologies by LDCs is hindered by the fact that the regulatory cost recovery system rewards pipe replacement, not repair, even though the life of a pipe can be significantly extended using



advanced repair technologies that are more cost effective than traditional excavation and replacement.

GSEP has brought Massachusetts into an intensive, protracted gas infrastructure replacement cycle that today raises red flags. The program’s original intent was sound: to enhance public safety and reduce the amount of methane

leaked into the atmosphere by replacing leak-prone pipe on an accelerated basis. But the impact of the replacement activity on safety has been indeterminant, the sheer number of reported gas leaks has only minimally declined, and the three largest gas companies have so far been unable to meet the methane emission targets set by the Commonwealth’s Department of Environmental Protection. Furthermore, GSEP has become one of the largest, most expensive infrastructure projects ever undertaken in Massachusetts and the program is not receiving the scrutiny, analysis, and evaluation it warrants given its mega project status.

This report finds that GSEP is in dire need of systemic, state-wide evaluation that carefully considers the aggregate impact of the program and the likely ramifications for both gas companies and ratepayers (the “public”). While the DPU has been the industry policymaker and regulator, the agency offers little in the way of proactive, publicly released, evaluative analysis of the six LDC GSEP plans taken together. As a result, massive infrastructure decisions—totaling more than half a billion dollars annually—are being made in a piecemeal fashion.

A comprehensive assessment of the program should also produce guidelines for vastly improved oversight and management of the LDCs by their regulator. Guidelines could include, for example, improved pipe and leak classification systems, clear and strategic criteria for prioritizing leak repair vs. pipe replacement projects based on both safety and climate-damage considerations, spending limitations ensuring that new GSEP costs are not incurred for projects that fail to meet prioritized repair / replacement criteria, and rigorous program target goals and benchmarks tied to consistently measured and monitored metrics.

The report raises serious concerns about whether GSEP, taken as a whole, remains financially and programmatically sound. In 2021, \$570.4 million is to be spent by the six LDCs to replace 266 miles of pipeline and approximately 15,300 services. Since 2015, 1,348 miles have been replaced, but more than 5,300 miles remain to be replaced by the program’s target end date. Unit costs for the replacement of distribution pipeline have been increasing on the order of 17 percent annually for the largest LDCs. In 2020, these costs reached \$2.6 million per mile for National Grid-Boston Gas, the largest LDC in the Commonwealth and the company responsible for about 60 percent of

the state's leak-prone pipe. Replacement rates and depreciation practices have become unrealistic relative to the actual useful economic life of these pipelines, considering both the physical deterioration and technical obsolescence of the existing gas distribution infrastructure as well as the Commonwealth's mandated emission limits.

In sum, GSEP is on a course to generate unrecoverable costs, an outcome with the potential to create serious inequities for ratepayers. Lower-income households are likely to have the most difficulty switching to lower-cost, cleaner energy systems due to higher upfront costs and the likely reluctance of landlords to invest in weatherization and new thermal energy systems.

Safety must remain the essential priority of the gas companies and the DPU. **The largest, most hazardous, and climate-damaging leaks need to be aggressively identified and fixed. To accomplish this goal, two underlying price regulation distortions must be corrected: GSEP's financial incentive to replace rather than repair leaking infrastructure should be reversed, and "lost gas" from leaks should no longer be treated as a normal cost of doing business to be entirely passed on to ratepayers.** These perverse incentives stand in the way of creating effective incentives to strategically and successfully repair leaks and to monitor those repairs.

The DPU's recently broadened mandate to balance equity, security, and reductions in greenhouse gas emissions with its longstanding priorities of safety, reliability, and affordability creates an immediate imperative for rethinking GSEP's "business-as-usual" approach to replacing gas pipes and associated infrastructure. The fact that GSEP is neither aligned or integrated with the Commonwealth's climate goals must be addressed: the underlying premise of GSEP—the indefinite continuation of the fossil gas distribution network—is irreconcilably at odds with the Commonwealth's climate-related mandates and the urgency of needed state policy action to dramatically reduce greenhouse gas emissions. Furthermore, Massachusetts' mandatory emissions reduction goals will inevitably require decommissioning at least some parts of the Commonwealth's fossil fuel infrastructure. But while the Commonwealth has set aggressive targets for building electrification, it has yet to establish targets for decommissioning the fossil fuel infrastructure that will be displaced by electrification.

The Governor, the Executive Office of Environment and Environmental Affairs, the DPU, and the legislature need to take a hard look at GSEP and its future viability in light of the significant market and policy forces reshaping our energy future. Much work remains to be done to determine how to efficiently, equitably, and safely create an energy transition for the Commonwealth that balances the interests of society at large, existing and future energy customers, and the shareholders of energy utilities. Rethinking GSEP offers an important opportunity for state government, utilities, and other investors to work together to shape the Commonwealth's energy transition by **redirecting GSEP financing away from sustaining an outdated, failing gas distribution system and toward investments in renewable, zero-emission energy for all.**