

The High Cost of New Jersey Gas Utilities' Leak-Prone Pipe Replacement Programs

May 2024

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New Jersey's leak-prone pipe problem

New Jersey's gas distribution systems include extensive amounts of aging leak-prone cast iron and unprotected steel pipes for both mains and service lines to individual customers. Statewide, there are over 3,100 miles of leak-prone mains and 85,000 leak-prone service lines. The gas utilities are currently replacing sections of this leak-prone pipe (LPP) and intend to continue replacing it for years.

Leaking pipes pose safety concerns and emit methane, a harmful greenhouse gas (GHG), into the atmosphere. Replacing actively leaking pipes is in the interest of customers and the public in general. Yet, the gas utilities are not only replacing actively leaking pipe; they are also replacing pipe that is not leaking but may be more likely to leak at some point in the future.

Pipe replacement is a costly endeavor. Utilities recover investments in pipe replacement from their customers over the lifespan of the new pipes, which gas utilities generally assume will be more than 50 years. Continuing with the current pace of LPP replacement will increase undepreciated asset balances, in turn pushing up the rates that customers pay for gas for many years to come. These investments in LPP replacement will result in billions of dollars in additional revenue to be collected from customers to cover the cost of the new pipes, a return on that investment for utility investors, and property and income taxes.

If New Jersey's gas utilities continue their current trends for LPP replacement, just how big are the impacts on revenue requirements?

Analyzing the costs

Synapse conducted an analysis of the future costs of replacing the remaining LPP for the four main New Jersey gas utilities: Public Service Electric and Gas (PSE&G), Elizabethtown Gas (ETG), New Jersey Natural Gas (NJNG), and South Jersey Gas Company (SJG).

Table 1. Existing LPP Mains and Replaced LPP Mains (miles and percent of miles in the state)

	2023 Existing LPP Mains (miles)	% of Total NJ Existing LPP Mains	2022 Replaced LPP Mains (miles)	% of Total NJ LPP Replacement
PSE&G	2,878	93%	176	68%
ETG	217	7%	72	28%
SJG	11	<1%	11	4%
NJNG	0	0%	0	0%
Subtotal	3,106	100%	258	100%

Source: Pipeline and Hazardous Materials Safety Administration, Pipeline Replacement Background. Available at <https://www.phmsa.dot.gov/data-and-statistics/pipeline-replacement/pipeline-replacement-background>.

For this analysis, we obtained financial metrics such as return on equity from the utilities' most recent rate cases and the cost of pipe replacement (per mile for mains and per unit for services) from their infrastructure investment plan filings.¹ We used these financial values to calculate the future revenue requirement associated with replacing the remaining LPP—in other words, the total costs to customers of replacing the remaining LPP.

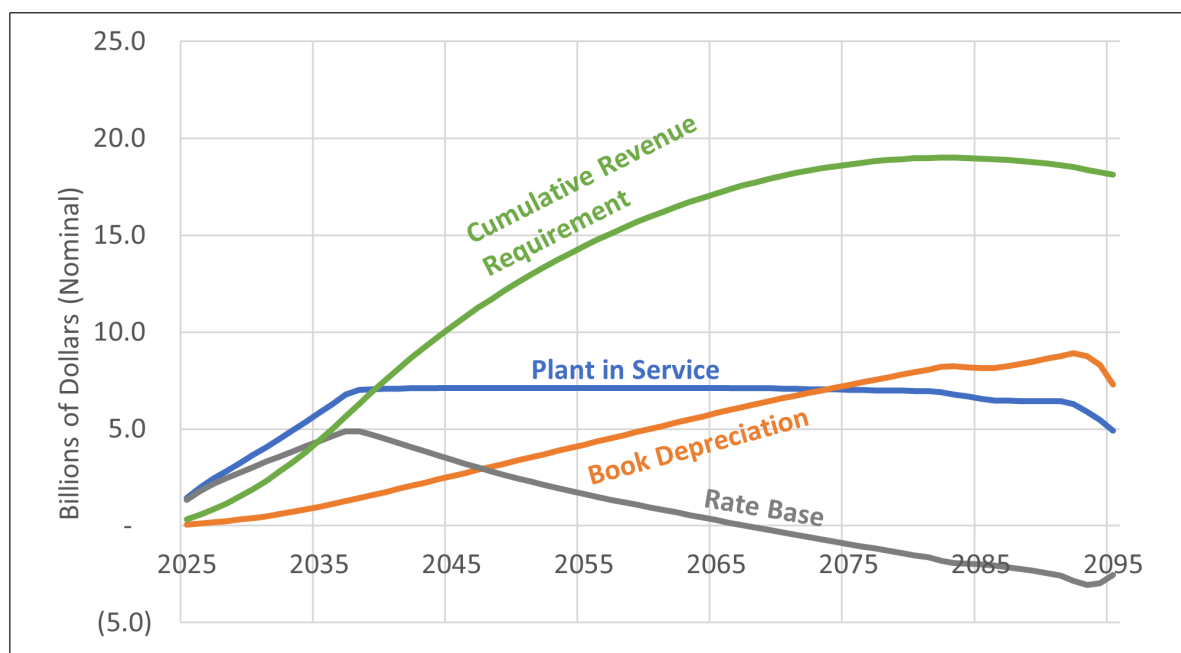
High costs over time

Our analysis finds that LPP replacement leads to a burgeoning cumulative revenue requirement for New Jersey gas customers through 2080. New Jersey's

Global Warming Response Act (GWRA) requires a 50 percent reduction in statewide GHG emissions relative to 2006 levels by 2030 and an 80 percent reduction by 2050. This is 30 years before the gas utilities' cumulative revenue requirement for LPP replacement reaches its peak, according to our analysis.

By utility, LPP replacement contributions to revenue requirement are highest for PSE&G, largely due to the size of its distribution system and the higher cost of projects there. Based on this analysis, PSE&G's revenue requirement for LPP alone would rise to a high of \$607 million in 2038 before gradually declining as the new pipes depreciate.

Figure 1. LPP Cumulative Revenue Requirement, Rate Base, Book Depreciation, and Plant in Service, 2025-2095



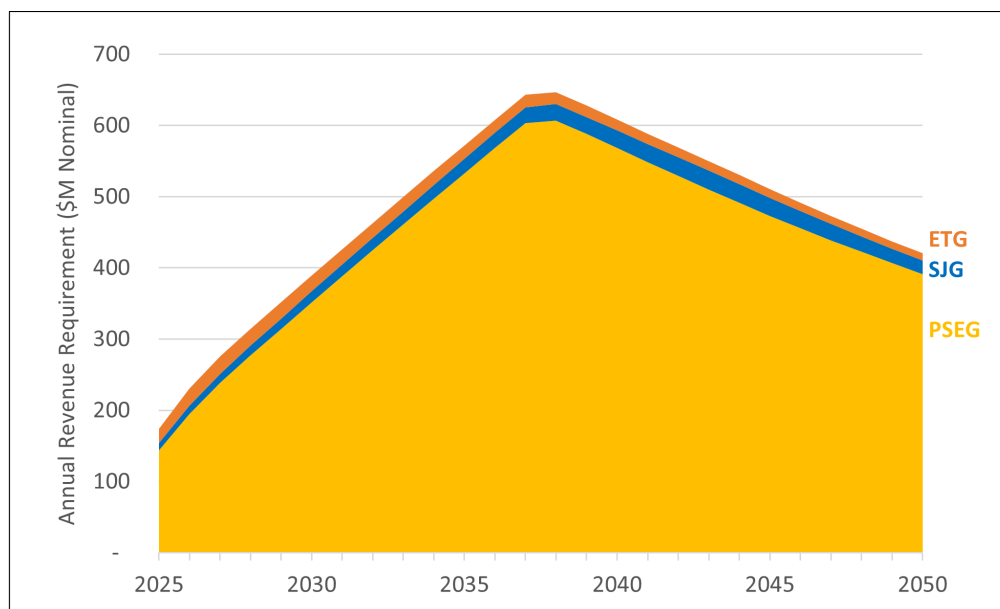
Revenue requirement: total revenue authorized by a public utility commission, such as the New Jersey Board of Public Utilities, to be realized through a utility's revenue collections to cover the costs associated with one or more projects. Annual revenue requirements are the amount that a utility would recover over a year for such project(s), and cumulative revenue requirements reflect the revenue needed over the life of the asset.

Plant in service: assets used to provide service to ratepayers.

Rate base: total value of a utility's assets (e.g., plant, equipment, working capital, and deductions for accumulated depreciation) net of depreciation.

Book depreciation: the portion of a fixed asset that has been considered consumed in the current period and is recorded in the utility's financial statements.

Figure 2.LPP Annual Revenue Requirement by Utility, 2025-2050



Implications for New Jersey customers and policy compliance

As mentioned, the GWRA requires a statewide reduction in GHG emissions of 80 percent by 2050 relative to 2006 levels. The gas utilities have generally promoted emission-reduction approaches that encourage continued use of the gas distribution system, such as by replacing traditional supply with renewable natural gas and hydrogen. These approaches would incur both the \$19 billion cumulative cost of LPP replacement to maintain safety, and the ongoing high cost of these non-fossil fuels.

Continuing to replace LPP in New Jersey at the present pace enables the gas utilities to maintain their current business model even if those practices are not the most cost-effective approach to meeting the GWRA targets. It also risks incurring substantial costs to extend the life of a system that will likely see lower usage as customers electrify their end uses, driven by technology improvements and federal incentives. These LPP replacement costs would be spread over fewer gas sales, resulting in greater rate increases and encouraging customers to defect from the gas system. This scenario could disproportionately affect the most vulnerable customers. That would

exacerbate economic challenges for those already under financial strain – potentially causing an unsustainable feedback loop.

This analysis points to the need for New Jersey to evaluate all proposed LPP replacements for non-pipe alternatives that could avoid costly, long-term investments in the gas system. Non-pipe alternatives, such as pairing strategic pipe retirement with building electrification on the neighborhood scale, could prove to be more cost-effective than LPP replacement and would facilitate compliance with the GWRA.

Endnotes

¹ Whenever possible, we used values from the Board of Public Utilities' orders. We used 2022 values when available and escalated costs from prior years (e.g., 2018) using a Gross Domestic Product Chain-type Price Index inflator. To project future costs beyond 2022, we assumed a 2 percent inflation rate.