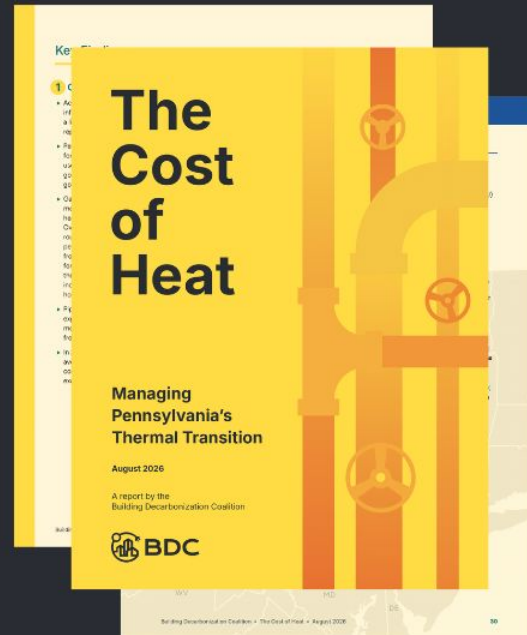


WEBINAR

BDC Presents: The Real Cost of Gas Pipeline Replacements



About the BDC

The Building Decarbonization Coalition (BDC) aligns critical stakeholders on a path to transform the nation's buildings through clean energy, using policy, research, market development and public engagement.

The BDC and its members are charting the course to eliminate fossil fuels in buildings to improve people's health, cut climate and air pollution, prioritize high-road jobs, and ensure that our communities are more resilient to the impacts of climate change.

- **Sign up for our newsletter!**
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Webinar Logistics

- Everyone is muted
- Drop **comments or questions** in the **chat**. Presenters will address them during or after the webinar in the Q/A portion.
- This webinar is being recorded and will be placed in our website's Resource Library.
- All registrants will be emailed with a link and additional resources early next week



Today's Presenters



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What Are Accelerated Pipeline Replacement Programs?

Accelerated Pipeline Replacement Programs

- These programs allow utilities to recover the costs of pipeline replacements more quickly than usual.
- Also defined as “alternative rate recovery mechanisms” that “accelerate the modernization, replacement, and expansion of the nation’s natural gas pipeline systems” (NARUC).

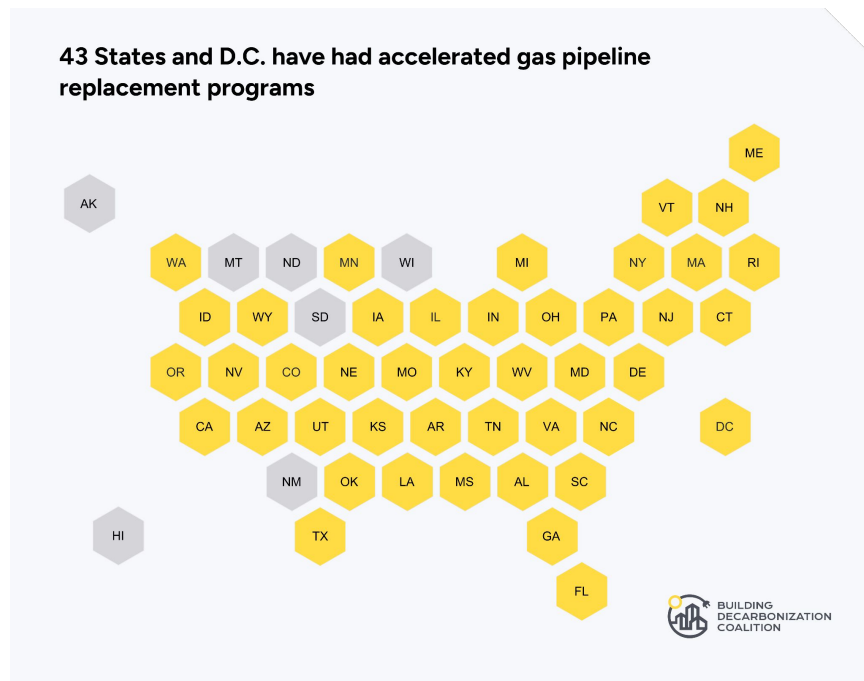


How Utilities Recover Costs

	Traditional Recovery of Pipeline Investments	Accelerated Recovery of Pipeline Investments
Primary Goal	Recover reasonable and prudent costs at general rate cases	Reduce regulatory lag by recovering costs between rate cases
Recovery Mechanism	Through rates	Through a surcharge
Review	Intensive review involving multiple intervenors	Streamlined review by Commission

The Cost and Breadth of Accelerated Pipeline Replacement

- \$250 billion in the past 15 years (FOHI)
- In 2024, the American Gas Association estimated they spending \$33 billion a year on pipeline safety.
- State by state spending:
 - Pennsylvania: \$920M / year
 - Massachusetts: \$560M / year
 - Maryland: \$170M / year



What Are States Doing About It?

- Limiting total spend allowed through accelerated recovery (e.g. D.C.) 
- Capping bill surcharge amounts (e.g. MA) 
- Disallowing accelerated cost recovery altogether (e.g. IL) 
- Requiring gas utilities to map gas line replacement plans (e.g. NY, CA)  
- Evaluate non-pipeline alternatives compared to like-for-like gas replacements (e.g. MD) 

Webinar: BDC Presents

Spending and Safety Outcomes in U.S. Gas Distribution Systems

*An assessment of two major changes in federal gas
distribution safety policy: the 2011 Call to Action and DIMP*

October 8, 2026



WHO WE ARE

The Future of Heat Initiative is a nonprofit dedicated to providing research and technical assistance to energy regulators.

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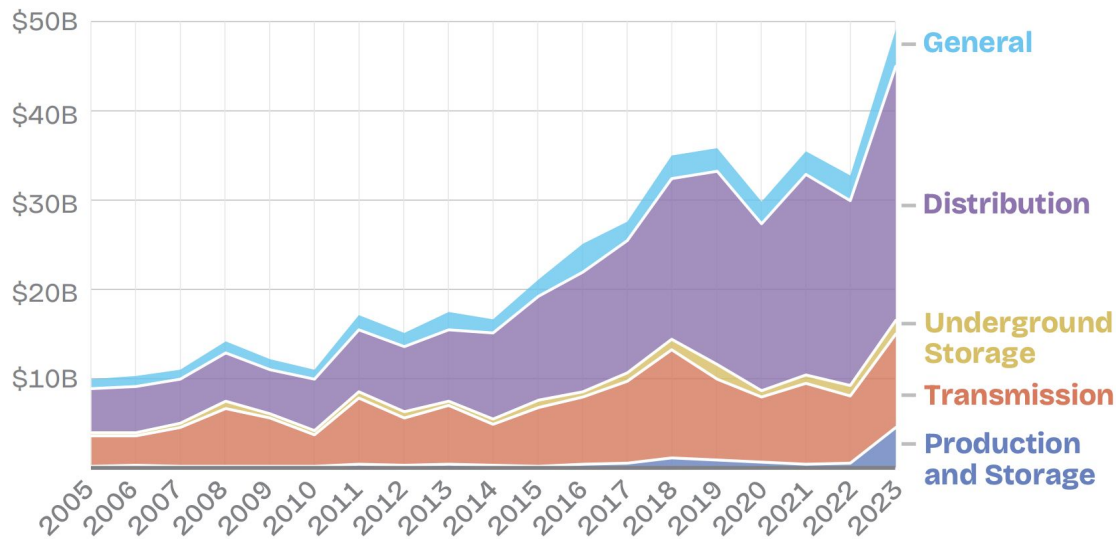
Orli Katz
*Policy Research
Associate*

Why did we undertake this effort?

- Regulators and legislators asked us to evaluate the effectiveness and outcomes of this increase in capital spending
- We now have access to 15 years of national safety and spending data, so such an evaluation is possible

National Gas Utility Capital Spending

Source: AGA

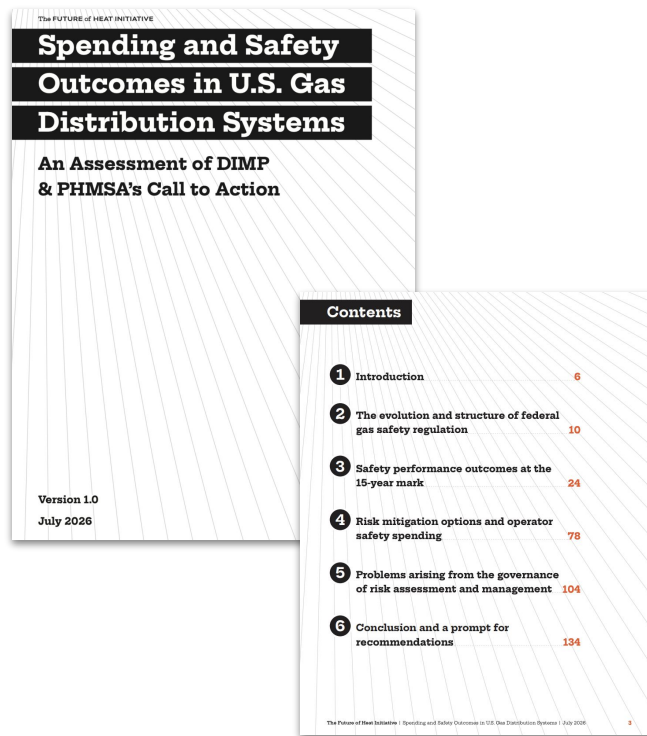


Report methodology

Our findings are based on:

- Statistical analyses of federal databases on incidents, excavation damage, leaks, and pipeline materials
- Expert interviews and reviewers (GTI, Kent Muhlbauer, Joel Anderson, state pipeline safety officials, 811 operations experts, and more)
- In-depth research on utility investment spending
- Integration of engineering literature
- Examination of operator risk analyses and regulatory practices (DIMP reviews and interviews)

v1.0 of the report is an evaluation,
not a set of recommendations



Study Outline & Key Findings

Report structure

CHAPTER 2

The regulatory framework

How has regulatory policy evolved?

How DIMP and the Call to Action each began — and how their coincident launch has compromised the DIMP framework

CHAPTER 3

Safety performance outcomes

Have policy changes made the system safer?

15 years of PHMSA performance data assessed against PHMSA's own performance measures; also, critical assessments of those measures

CHAPTER 4

Risk mitigation options and safety spending

What was available, and what was chosen?

An assessment of the landscape of risk mitigation options available, and operator spending across those options

CHAPTER 5

Problems with risk assessment

How do operators explain their decisions?

How operators assess the risks arising from threats to their systems and how they decide whether and how to mitigate those risks

CHAPTER 6

Conclusions and recommendations

What should change?

Summary of key findings and prompts for recommendations from PHMSA, Congress, Researchers, and State regulators

Our findings fall into 3 categories

Spending

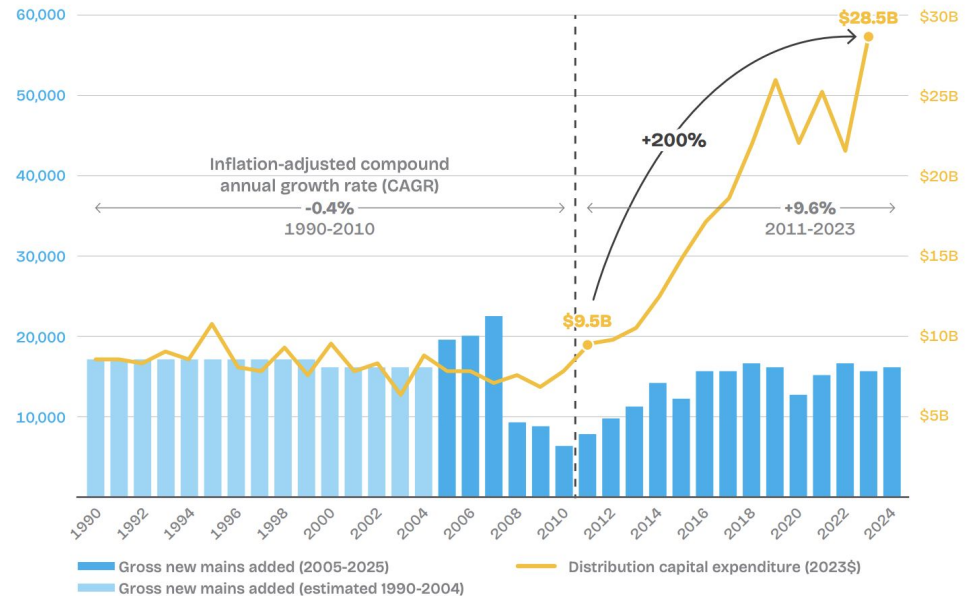
Safety

Governance

The Call to Action was a catalyst for increased capital spending

- Capital spending on gas distribution increased 200% from 2011 through 2023 (2023\$)
- This increase did not correlate with significant expansion (main miles added) of the system
- We estimate that 50% to 70% of this capital spending (\$14 to \$22 billion annually) is now directed to pipe replacement

Distribution capital expenditure vs. gross new mains added



Pipe replacement has eclipsed other categories of safety related spending

- Spending on pipeline replacement swamps all other safety-related spending
- Replacement spending has become the main driver of rising delivery charges, which nationwide have nearly doubled since 2011, climbing at more than twice the rate of inflation

Estimated current annual spending on risk mitigation categories

Pipeline replacement

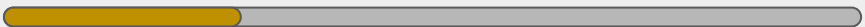
\$14-22B



~75% of total distribution capex — justified primarily as a safety measure

Excavation Damage Prevention

\$3-6B



Locate and mark costs, 811 programs, contractor education

Leak Detection and Repair

~\$2.5B

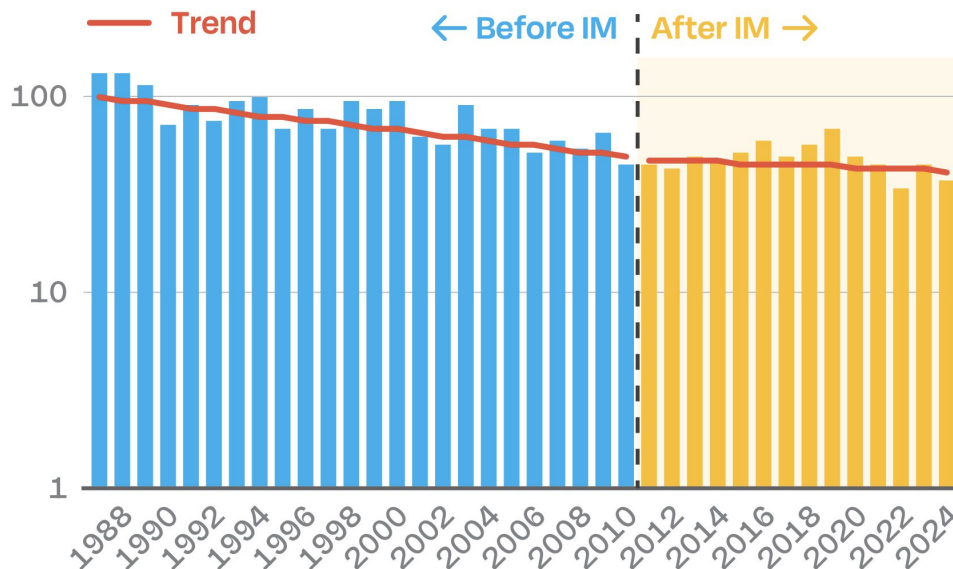


\$521M on surveys, ~\$2B on repairs at ~\$4,300 per leak

Incident trends were not altered by the increase in spending

- PHMSA considers incident data to be “the ultimate measure of the effectiveness of efforts to assure distribution safety”
- The 2011 policy changes did not alter the secular decline in incidents nationwide (no statistically significant step-change or change in trend slope after 2011)

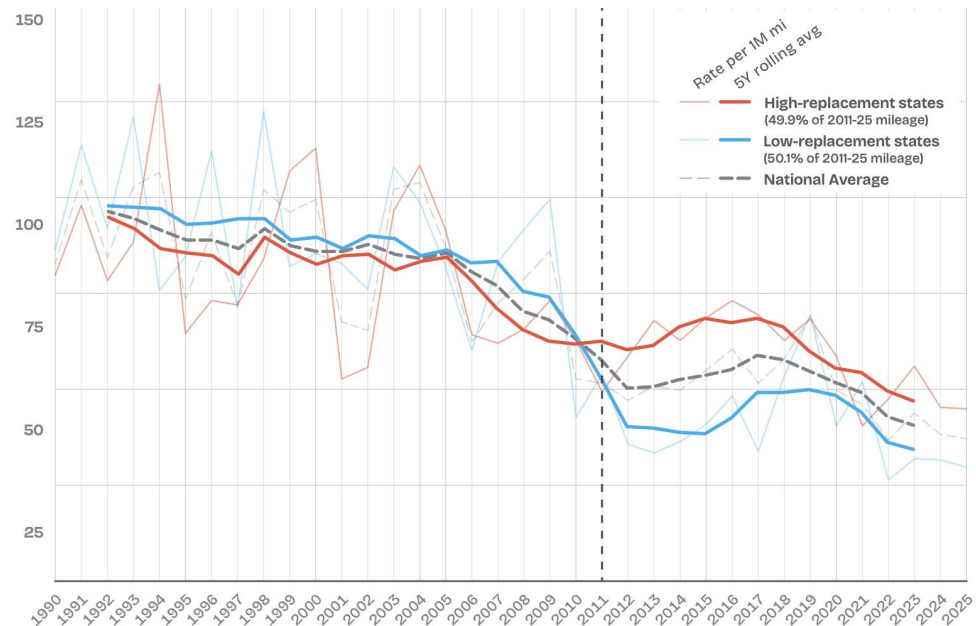
Significant Incidents before and after the adoption of the DIMP rule and the Call to Action (incidents per 10⁶ miles log scale)



The data suggest that pipe replacement itself is a source of risk

- In high-replacement states, Significant Incidents *increased* after 2011 and remain higher than in low-replacement states. Looking just at the national trend misses this divergence
- Data on reported causes shows that excavation and other outside force damage plays a greater role in high-replacement states

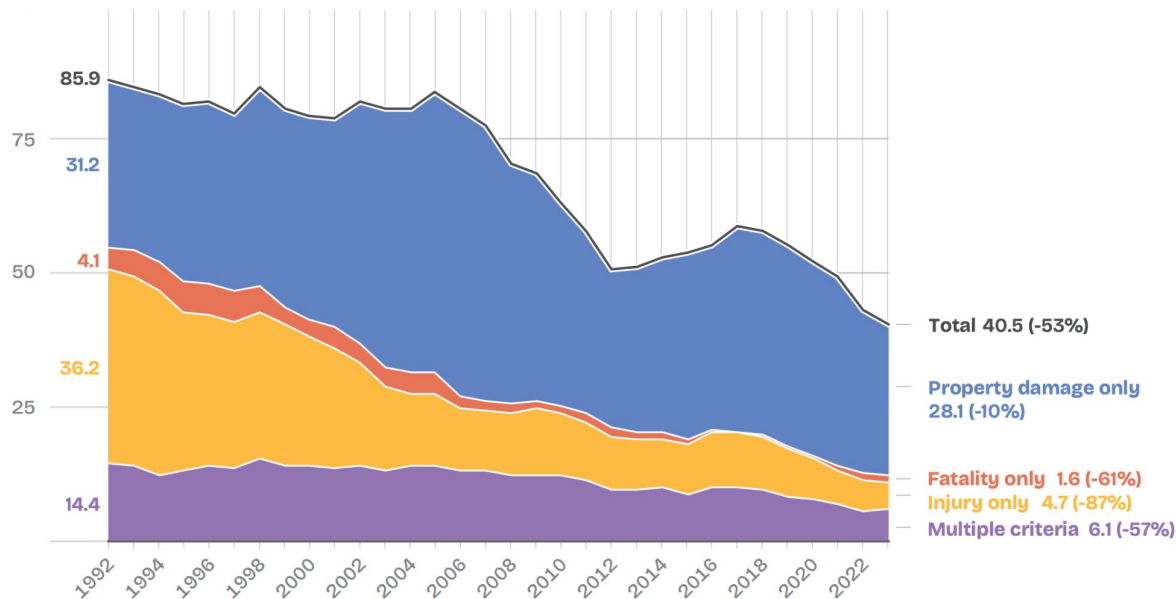
Significant Incident rates by high- and low- replacement states per million miles



Measurement flaws have inflated the apparent decline in incidents

- Much of the decline in Significant Incidents may owe not to improving safety, but to falling in-patient hospitalization rates (an incident is classified as “Significant” if an injury requires hospitalization)
- Of the 45.4 point decline in Significant Incidents since 1992, injury-only events accounted for 69%

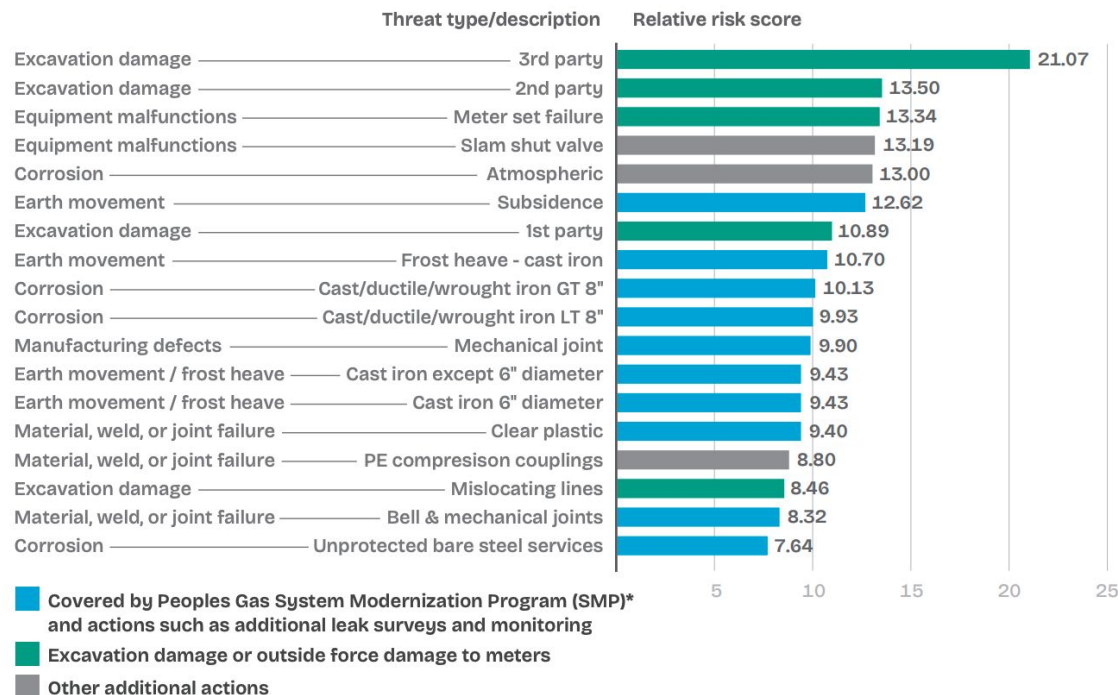
Significant Incidents by criterion per million main miles, 1992-2023 (five-year rolling average)



State replacement programs often supersede DIMP-guided risk rankings

- Operators rank threats (a DIMP requirement) but do not consistently use those rankings to guide risk management decisions
- In PGL's DIMP, for example, the highest ranked risks are excavation- related. But pipes with much lower ranked risks are automatically slated for replacement.

People Gas top-ranked DIMP risk scores & matched risk mitigation action



State replacement programs often supersede DIMP-guided risk rankings (pt. 2)

Gas Distribution Incident Data (Mains only) 2010-2024

<i>CAUSE</i>	<i>Number of Incidents</i>	<i>% of all incidents</i>
EXCAVATION DAMAGE	405	57.6%
OTHER OUTSIDE FORCE DAMAGE	81	11.5%
PIPE, WELD, OR JOINT FAILURE	64	9.1%
INCORRECT OPERATION	49	7.0%
NATURAL FORCE DAMAGE	42	6.0%
OTHER INCIDENT CAUSE	28	4.0%
CORROSION FAILURE	21	3.0%
EQUIPMENT FAILURE	13	1.8%

The DIMP rule has significant weaknesses

DIMP directs operators to identify threats, assess risk, select mitigation measures, and evaluate outcomes, but it also ...

- Permits outmoded risk assessment methods
- Does not require operators' spending decisions to follow from risk assessment
- Does not direct operators to quantify risk reduction or conduct benefit-cost analyses of risk mitigation measures
- Relies on performance metrics that have significant weaknesses

State utility commissions rarely stand in the way

Operators control the risk model

- DIMP lets operators self-design risk rankings and they often override their own results to prioritize "leak-prone" pipe anyway
- Commissions lack the technical capacity to challenge these calls

Call to Action arguably discourages rigorous review

- Consistent with the Call to Action, many states have parallel tracks for treating "leak-prone" pipe as categorically risky and accelerating cost recovery for its replacement, not for demonstrating actual risk reduction

No enforced cost-effectiveness standard

- Operators rarely apply benefit-cost analysis to justify mitigation choices and commissions rarely require it, especially once costs move outside standard rate-case scrutiny

Summary of findings

Spending

- The Call to Action was a catalyst for spending
- Pipeline replacement has since eclipsed other categories of safety-related spending

Safety

- Incident trends were not altered by the increase in spending
- Measurement flaws have inflated the apparent decline in incidents
- The data suggest that pipeline replacement itself is a source of risk

Governance

- The DIMP rule has significant weaknesses
- State pipeline replacement programs often supersede the DIMP-led risk assessment process
- State utility commissions rarely stand in the way

Our high-level conclusion

DIMP and C2A have yielded:

- **an unprecedented increase in spending**
- **without commensurate improvements in measured safety outcomes.**

This divergence owes, fundamentally, to poor alignment across risk assessment practices, risk management decisions, and regulatory incentives.

What we're doing with the report now

- We aim to advance pipeline safety by supporting initiatives that deliver the greatest safety improvements based on transparent, evidence-based risk assessment and rigorous benefit-cost analysis
- Our findings should be scrutinized and tested; we welcome feedback and collaboration from industry and any safety experts

QUESTIONS OR FEEDBACK
Safety@thefutureofheat.com

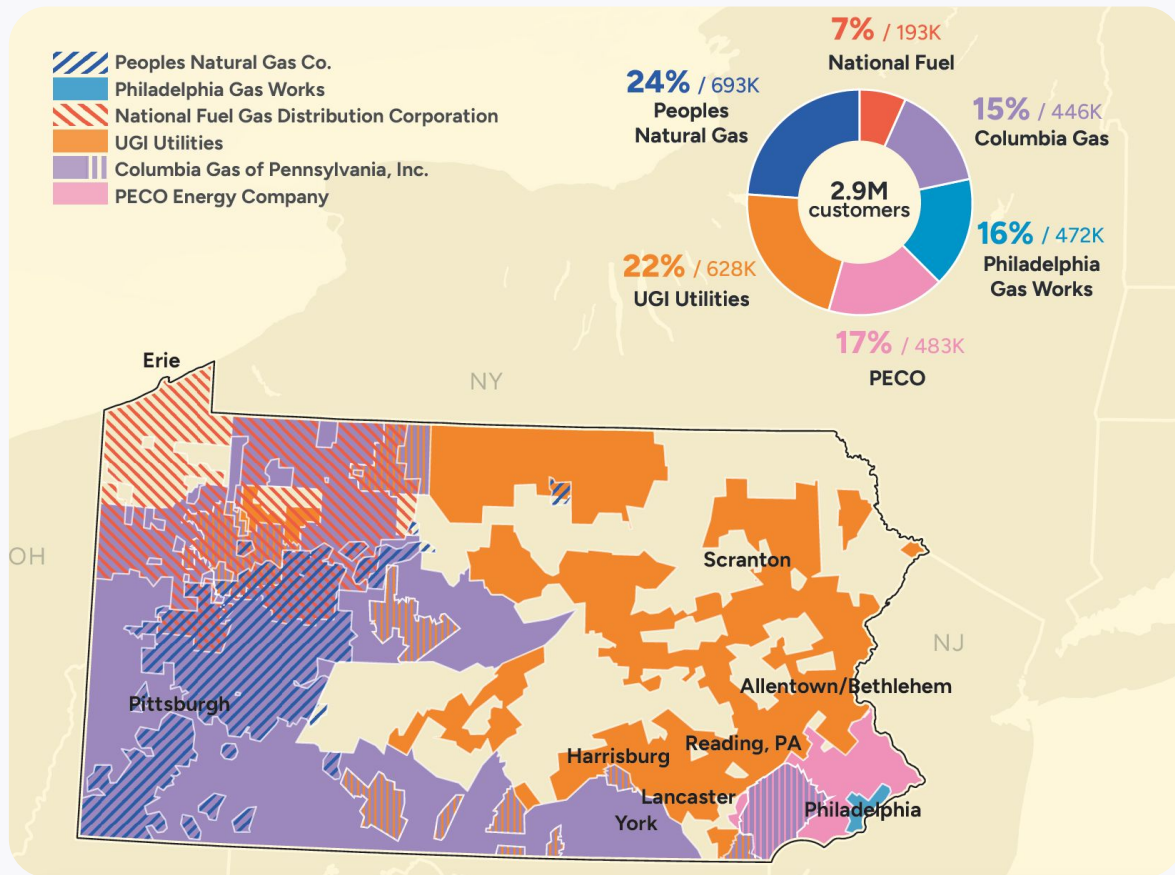
Accelerated Pipeline Spending in Pennsylvania



PA's "Big Six" Gas Utilities

These utilities comprise 97% of the Commonwealth's gas infrastructure, and serve 98% of the gas customers in PA.

Together they have spent **\$11 billion** on gas pipeline replacements since 2013



Act 11 created a new pathway for utilities to **accelerate spending and recovery** on distribution infrastructure and has received remarkably little public scrutiny.



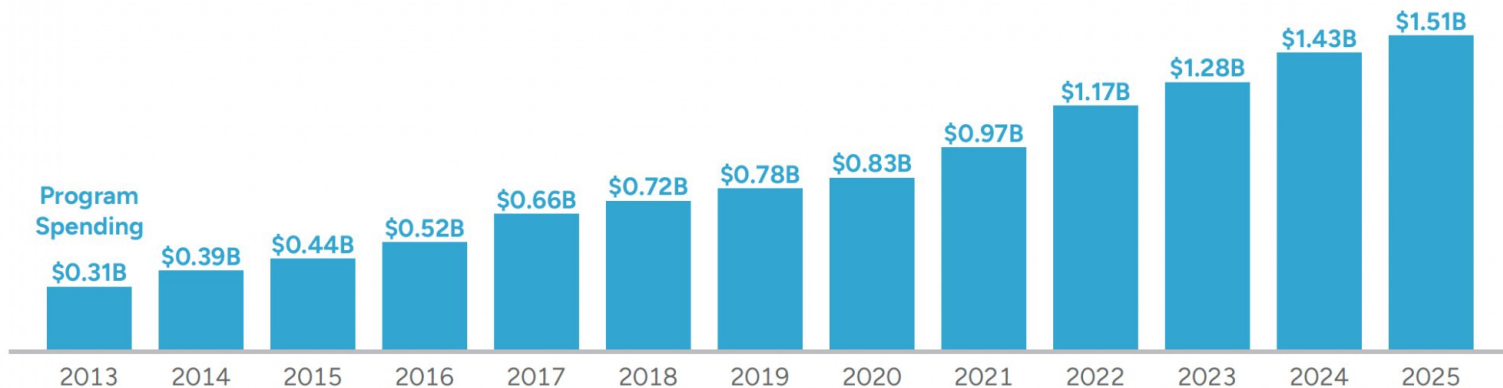
What Is Act 11?

- **Passed in 2012 to accelerate infrastructure replacement.** Utilities submit multi-year Long-Term Infrastructure Improvement Plans (LTIIPs) identifying eligible repair and replacement projects for PUC approval.
- **Allows faster cost recovery.** Once projects are approved, utilities can recover eligible costs between rate cases through the Distribution System Improvement Charge (DSIC). At the next rate case, investments are typically rolled into base rates and the DSIC resets. The DSIC therefore reduces the regulatory lag associated with traditional cost recovery.
- **Creates an open-ended investment framework.** The DSIC is generally capped at 5% of distribution rates, but Act 11 has no statutory end date or overall spending limit.
- **Does not require consideration of alternatives.** Utilities do not have to compare pipeline replacement with repair, retirement, electrification, or thermal energy networks before investing.



From Act 11 to *11 billion*: Pennsylvania's Accelerated Capital Spending Trend

The Big Six gas utilities have spent an increasing amount on gas pipeline replacements since Act 11 passed, totalling a massive \$11 billion from 2013-2025.



Data Source: Annual Asset Optimization Plans and Long-Term Infrastructure Improvement Plans filings, 2013-2025



Pennsylvania's Program Has Fewer Guardrails Than Peer Programs

- Compared to the peer programs we examined, Pennsylvania has spent the most to date and retains fewer guardrails on continued investment.
- Act 11 has no statutory end date, cumulative spending limit, completion estimate, and it covers a broad range of gas infrastructure.
- Massachusetts, Maryland, and Washington, D.C., have narrowed eligibility, strengthened spending controls, or required utilities to evaluate non-pipeline alternatives. Pennsylvania has not conducted a comparable reassessment.

Accelerated Replacement Has Created Up to \$30 Billion in Customer Charges When Investor Returns Are Included

\$18-30B

Total lifecycle cost for accelerated gas main replacements

Accelerated replacement spending per customer

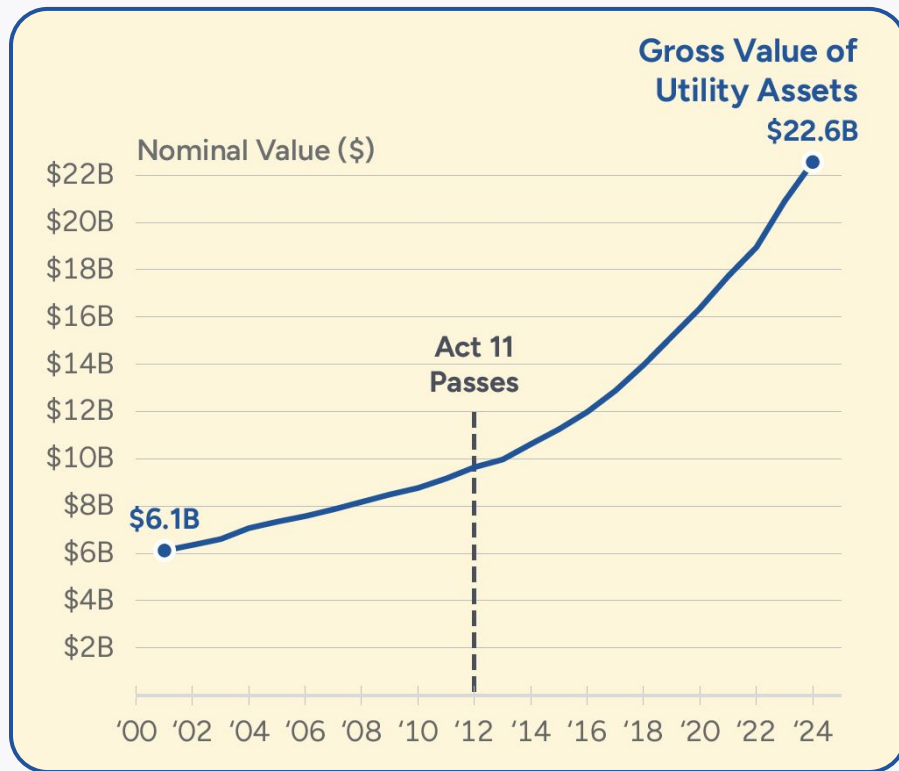


Gas infrastructure spending is a
major driver of **rising bills**.

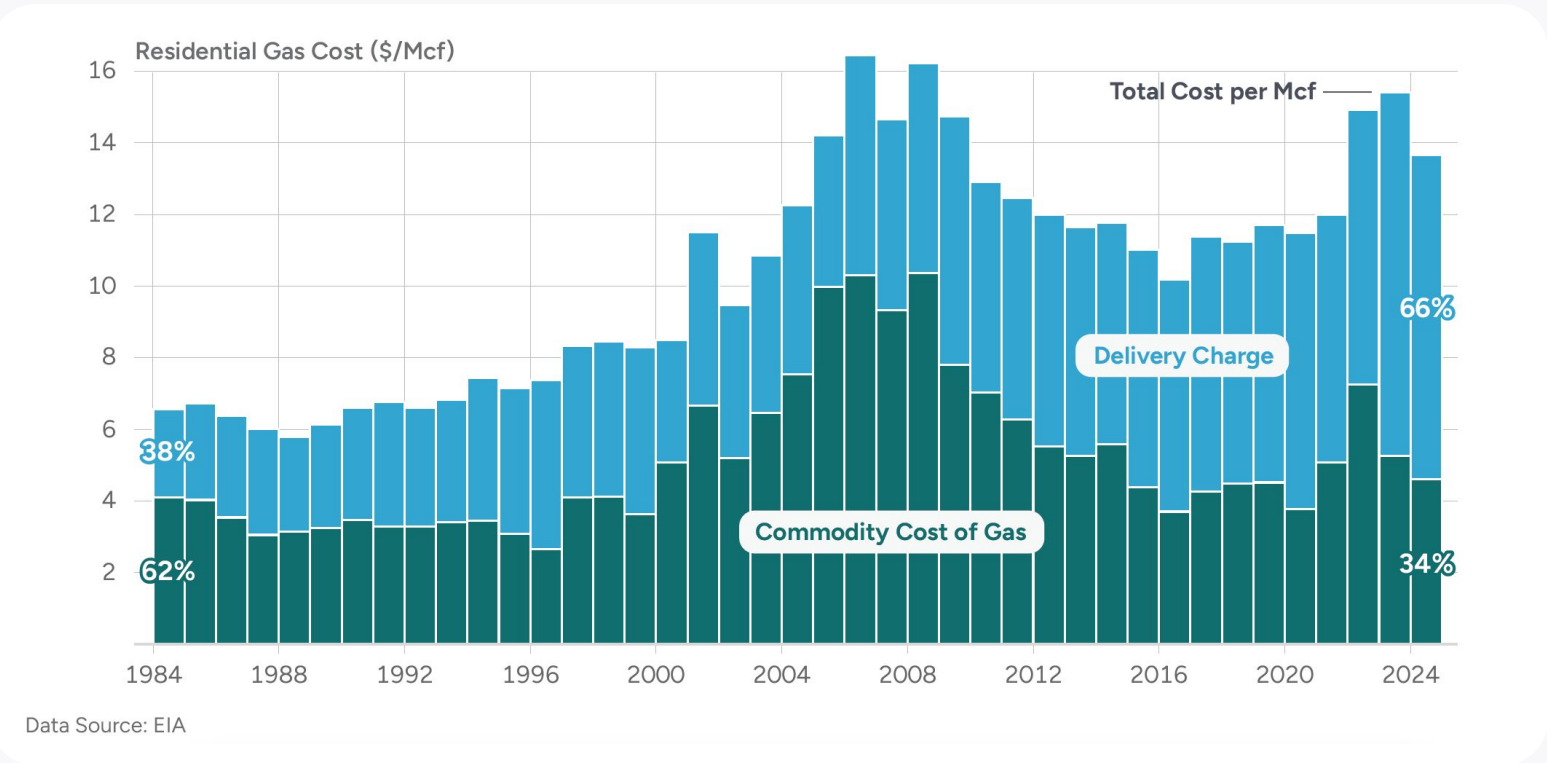


Gas Bills Are Rising Because of Act 11

- As each utility's asset portfolio grows, so does its revenue requirement—the amount that they must recover from all of their ratepayers to pay for these assets
- Over the past ten years, monthly gas bills have increased 67% on average, with bill at utilities like Columbia gas nearly doubling.
- In 2025, the average monthly gas bill during heating season was \$234 for households.



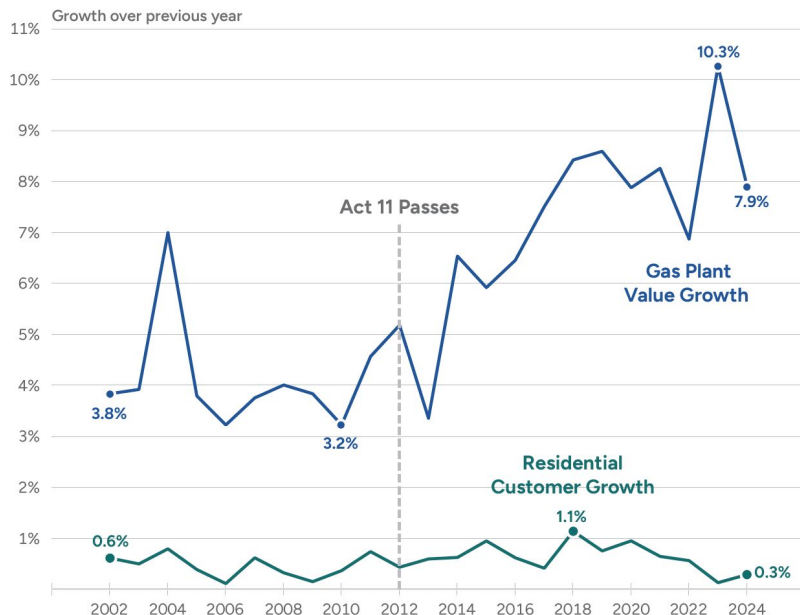
Most of a Customer's Bill Is Paying for Pipes, Not Gas



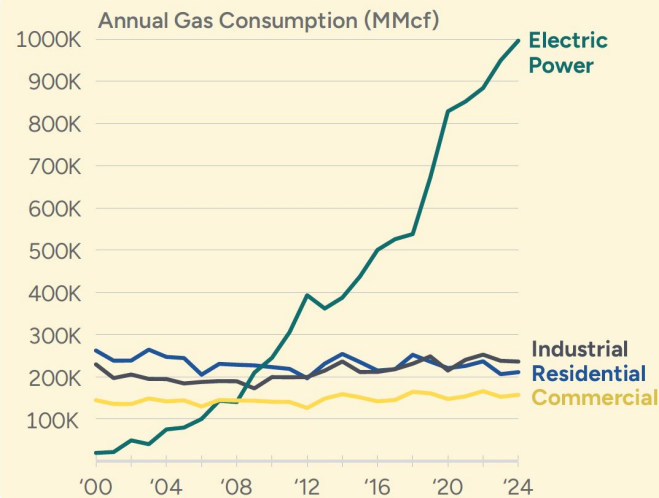
Gas system spending is
outpacing demand, creating a
"top-heavy" gas system.



Gas Infrastructure Investment Has More Than Doubled as Household Gas Use Declines and Customer Growth Slows



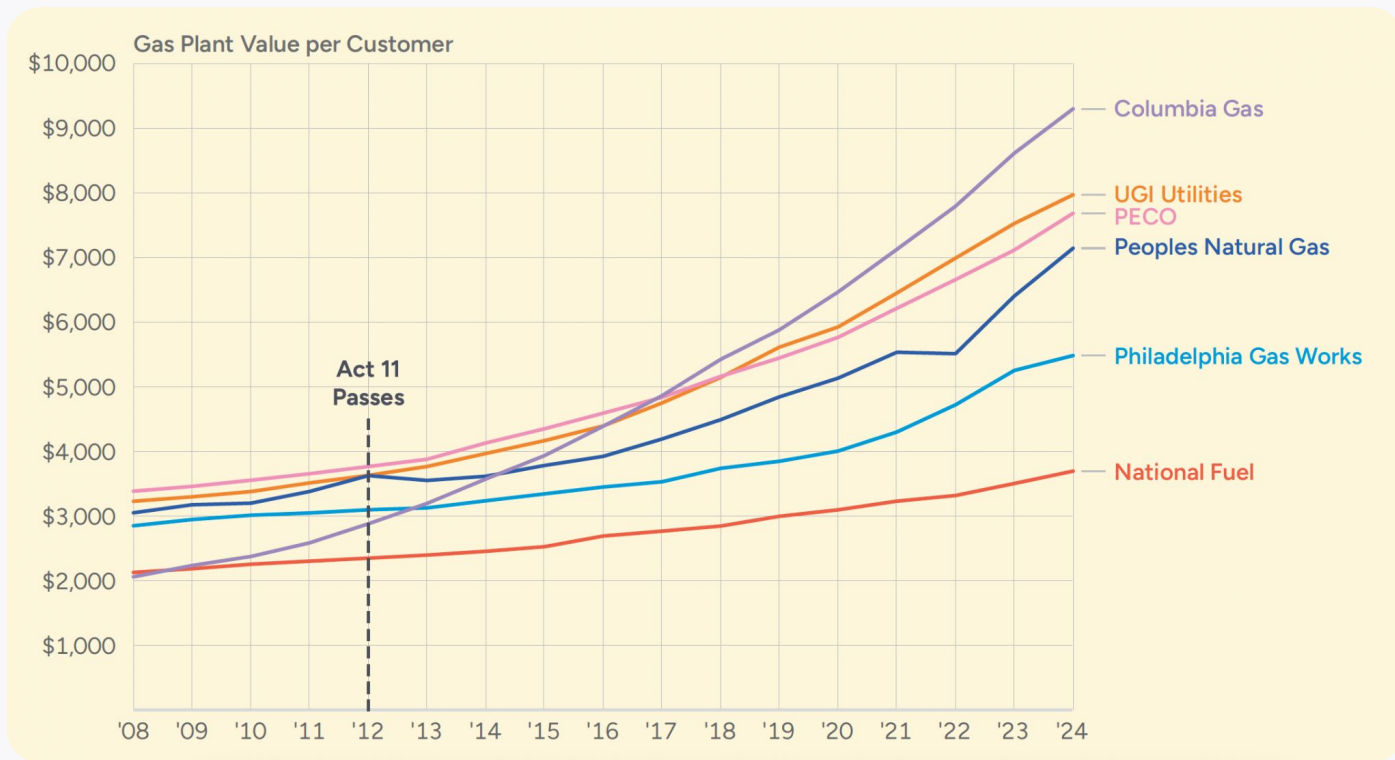
Data Source: S&P Global Capital IQ and EIA



Left: Declining customer growth vs. gas system investment growth; Right: Stagnant gas consumption trends in buildings



Gas Infrastructure Per Customer Has More Than Doubled Since Act 11 Passed

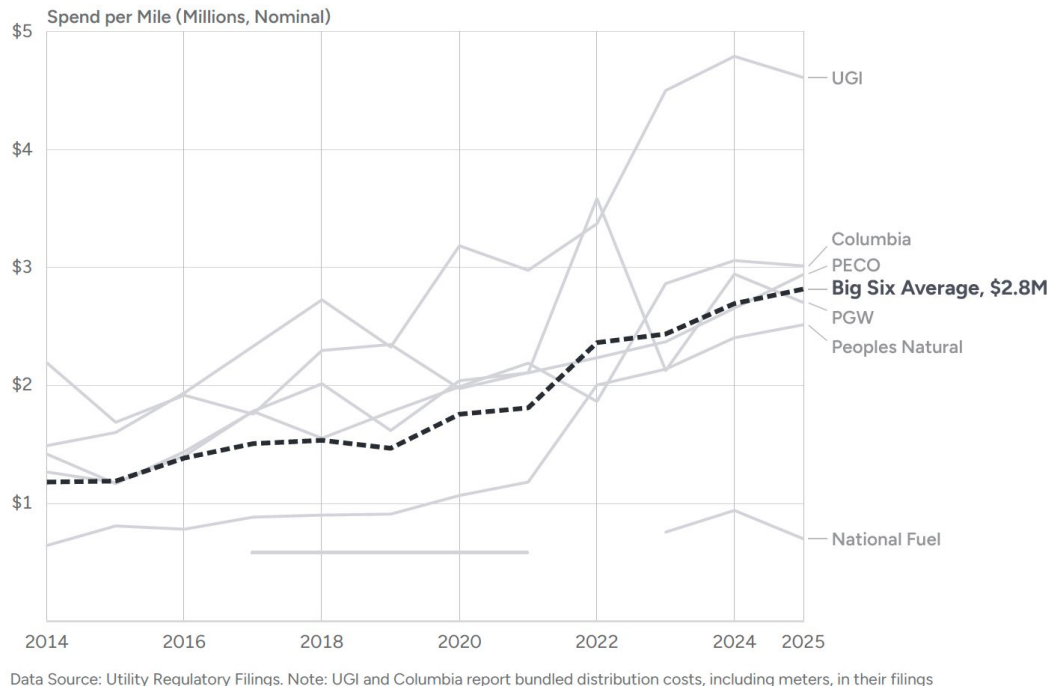


The cost of a new pipeline
can cover the costs of **clean
electric equipment.**



Per-Mile Pipeline Spending Is on the Rise

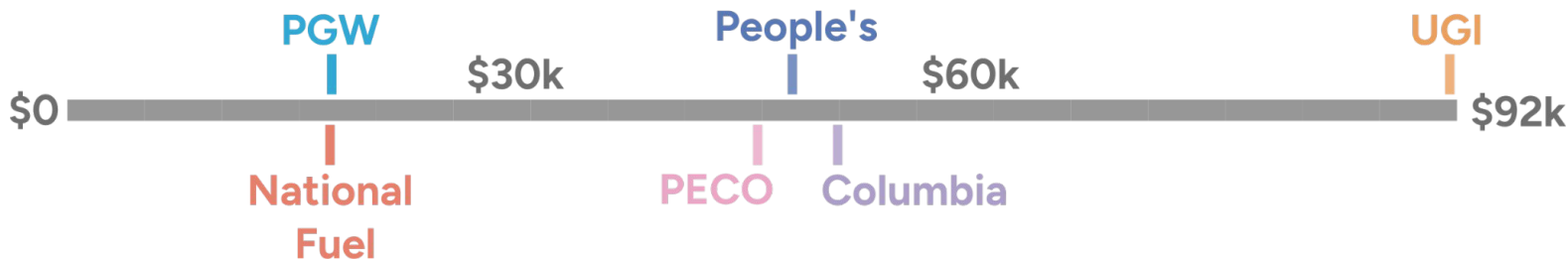
- The average pipeline replacement cost reached \$2.8M per mile in 2025, more than double 2014 levels of \$1.2—a 70% increase after inflation.
- The lifetime cost of one mile of pipe translates to \$5-\$8M in customer charges over its lifetime.



Instead of Installing New Gas Pipelines, We Can Transition Customers off the Gas System at the Neighborhood-Scale

The average cost per customer to install a new gas main is \$40,000—enough to equip a household with all new electric appliances

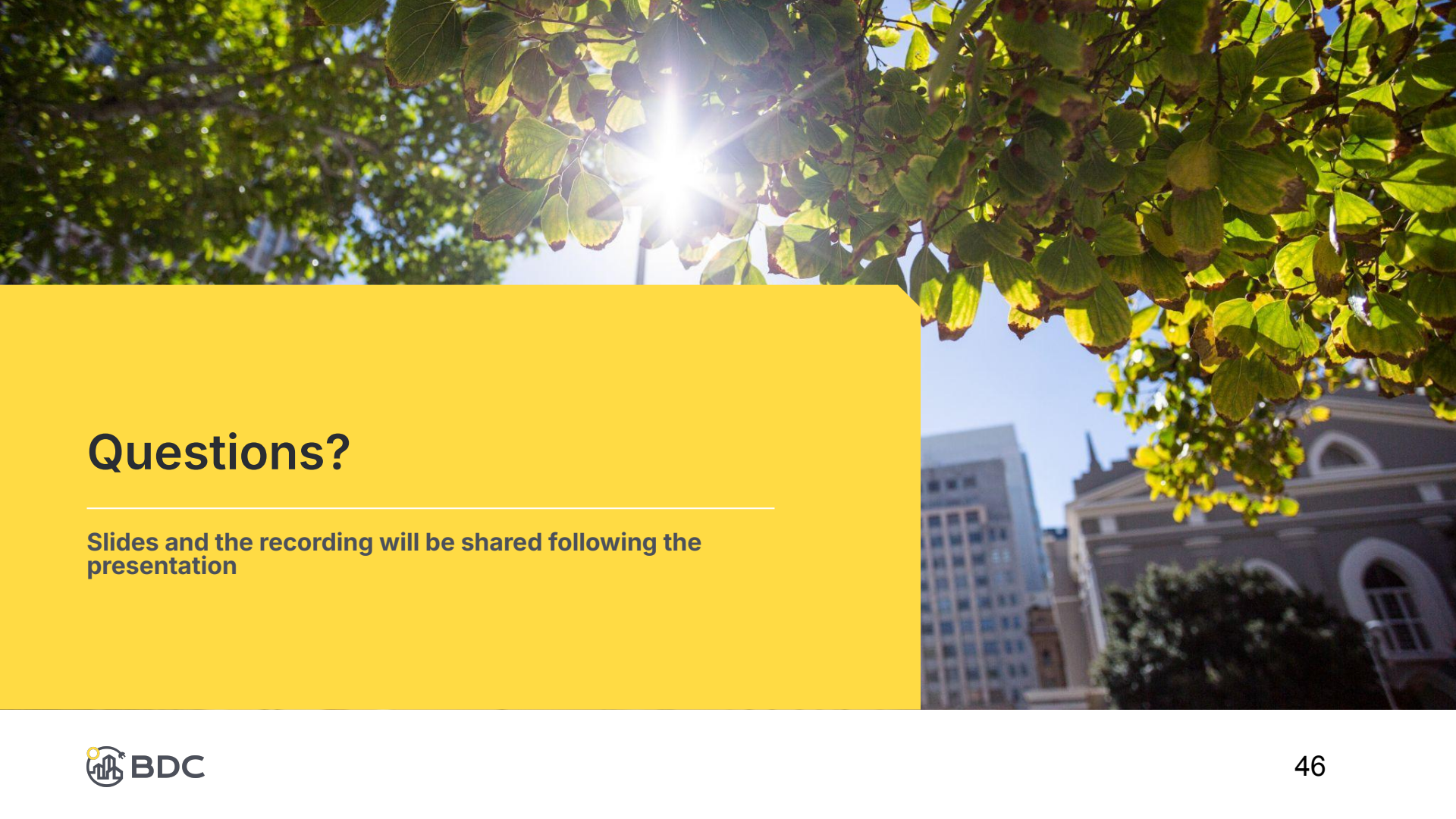
Gas main replacement cost per customer, per mile



How to Avoid Unnecessary Gas System Investments

1. End accelerated cost recovery for pipeline investments; any investments should be scrutinized through normal rate case process.
2. When evaluating like-for-like gas pipeline replacements, require them to be weighted against non-pipeline alternatives like electrification and thermal energy networks.
3. Scrutinize the risk-assessment models and cost-benefit analyses that utilities use to determine investment strategies.
4. Make utility spending more transparent.





Questions?

Slides and the recording will be shared following the presentation