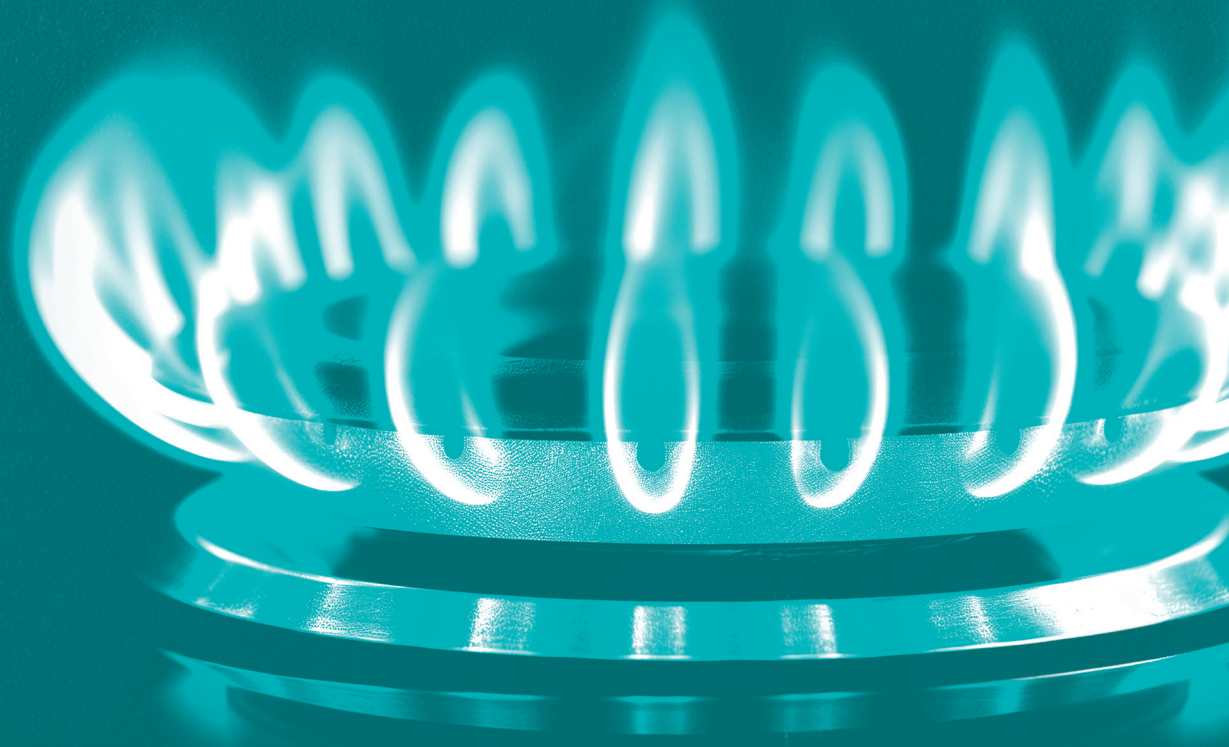


Energy Affordability in Context:

Rates, Regulations, and the
Drivers Impacting Costs



Executive Summary

Energy Affordability in Context: Rates, Regulations, and the Drivers Impacting Costs

This paper argues that energy affordability in the natural gas utility context must be understood as a whole-bill issue—one evaluated through the customer’s total bill rather than any single rate element in isolation—and therefore calls for a more integrated regulatory approach that distinguishes between utility-controlled and externally imposed costs, respects the regulatory compact, and addresses the procedural and structural factors that can materially increase customer bills over time.

Energy affordability is increasingly central to utility, regulatory, and policy discussions, yet it is often framed too narrowly around utility rates or capital investment alone. Affordability is best understood from the customer’s perspective: what matters most is the total bill and whether that bill is manageable without forcing tradeoffs with other essential household needs. A more useful framework, then, is one that looks at affordability on a whole-bill basis and recognizes the multiple forces shaping customer costs in the natural gas utility context.

That broader view begins with the anatomy of the bill itself. A natural gas bill is not driven by a single factor, but by a combination of base distribution charges, commodity costs, riders and surcharges, taxes and fees, and timing effects such as true-ups and deferred recovery. Some of those elements are influenced by utility decisions, including operational efficiency, system planning, and the timing and prioritization of proposed investments. Many others are not. Wholesale commodity prices, state and local taxes, public purpose charges, and policy-driven surcharges are largely outside utility control. Distinguishing between those categories is essential to understanding what is driving customer bills and to avoiding the mistaken assumption that utilities alone determine affordability outcomes.

A whole-bill approach also helps clarify an important distinction between affordability and the policy and regulatory tools often invoked to address it. Affordability is not the same as the traditional ratemaking standard of just and reasonable rates. Under the regulatory compact, utilities accept an obligation to serve and submit to regulation of their rates and returns; in exchange, they are given a reasonable opportunity to recover prudently incurred costs and earn a fair return. That legal and regulatory framework is not, by itself, a measure of whether every customer can comfortably pay the resulting bill. For that reason, affordability is typically addressed through complementary tools such as rate design, bill assistance, payment arrangements, and customer protections, rather than by altering the basic principles of cost-of-service ratemaking. Focusing on any one piece of the bill in isolation—whether return on equity, a category of investment, or a single rider—cannot fully resolve affordability challenges because customers experience the cumulative effect of all bill drivers at once.

Another critical and often overlooked driver of affordability is the regulatory process itself. Customer costs are shaped not only by what is approved, but by how and when costs move through the system. When proceedings become prolonged, fragmented, or duplicative, prudent costs may be deferred and later recovered through larger step-changes, true-ups, or other adjustments that reduce bill stability and predictability. Regulatory lag - the time between when costs are incurred or investments are placed in service and when those costs are reflected in rates - can increase utility risk and financing costs, which may ultimately be borne by customers. At the same time, fragmented policymaking can allow multiple well-intended programs, mandates, and proceedings to accumulate without a clear view of their combined effect on the monthly bill. In that sense, regulatory inefficiency is not merely a procedural concern; it is an affordability issue in its own right.

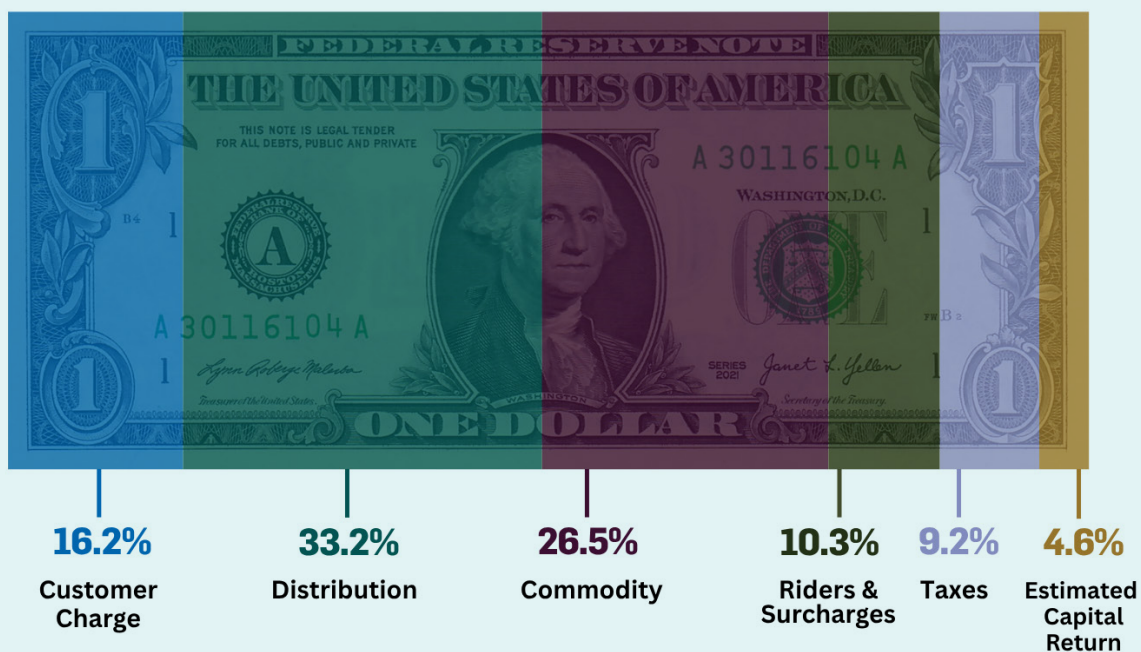
Viewed together, these dynamics make clear that energy affordability for natural gas utility customers is a whole-bill issue. A more effective approach to addressing affordability is one that distinguishes between utility-controlled and externally imposed costs, preserves the integrity of the regulatory compact, and confronts the role that regulatory lag, fragmentation, and inefficiency play in driving customer bills over time. With a more integrated and transparent framework, regulators and policymakers can better support bill stability, customer protection, energy choice, and the long-term affordability benefits of safe and reliable natural gas service.

When it comes to affordability, what matters to customers is their total bill.

Customers see the monthly total—not the regulatory process behind it. But that bill is driven by a stack of distinct components—usage, market prices, utility delivery costs, policy adders, taxes/fees, and the timing/true-ups of rates. In this context, energy affordability means whether the total monthly bill is manageable for customers without forcing tradeoffs with other essentials.

Provided below is a practical whole-bill framework that distinguishes between what costs natural gas utilities can influence and those they largely cannot. It also shows how regulatory inefficiency and fragmentation can turn prudent investments and well-intended programs into larger and less predictable bill impacts. Also provided is a basis for understanding affordability and how a more integrated regulatory approach—including reducing regulatory inefficiencies and addressing regulatory lag—can improve bill outcomes, stability, and predictability.

How a Typical Household Natural Gas Utility Bill Is Split



Estimated average monthly natural gas utility bill: \$106.15

Note: Residential utility bill components by region are estimated from tariffed rates for a sample of natural gas utilities from each jurisdiction and weighted by the share of revenues. In jurisdictions with separate residential heating and non-heating tariffs, the analysis used the tariff for residential heating customers. Collectively, the sample accounts for 85% of U.S. natural gas utility residential deliveries revenue in 2023. Estimated Capital Return represents the estimated average utility rate of return recovered through residential customer bills. The estimated average utility rate of return is based on each region's revenue-weighted average authorized return on equity, a 5% cost of debt, and an assumed capital structure of 55% equity and 45% debt.

Introduction

Energy affordability has emerged as a resonant issue for customers, utilities, regulators, and policymakers alike. Against this backdrop, affordability discussions have focused on utility rates and, increasingly, capital investments as the primary drivers of customer impact.

That framing, however, risks oversimplifying a more complex issue. A macro-level view of energy affordability looks beyond any single rate case or infrastructure investment to consider the overall share of household energy costs across available fuel choices. By that measure, natural gas continues to offer a meaningful affordability benefit for residential customers. For equivalent energy delivered, natural gas remains significantly less expensive than its alternatives, and households using natural gas for heating, cooking, and clothes drying save an average of \$1,030 annually compared to homes relying on electricity for those uses. Long-term federal projections further suggest that natural gas will remain a practical and cost-effective option for at least the next several decades, with prices expected to remain well below those of alternative fuels through 2050. Its comparatively stable month-to-month costs also provide an important measure of bill predictability, reinforcing the role of natural gas in supporting customer energy affordability.

While that broader context is important, focusing too narrowly on utility bills or capital investment can obscure the full complexity of the issue. Affordability should not be reduced to any single ratemaking input—such as a utility’s allowed return on equity—because customers pay a total bill shaped by multiple cost components, some of which lie outside utility control. Energy bills reflect not only regulator-approved utility spending, but also the cumulative effects of policy mandates, regulatory timing, infrastructure constraints, and broader market dynamics, such as swings in commodity prices or wholesale energy costs, that lie beyond the direct control of utilities. When these factors are considered in isolation, affordability challenges can be misdiagnosed, and solutions focused narrowly on rates or only on short-term bill relief may fail to address the underlying drivers of rising customer costs.

For natural gas utility services, energy affordability can be understood through the bills customers pay today, the cost of providing the same service through alternatives, and the extent to which long-lived infrastructure investments are reflected in rates. In practice, this means assessing total natural gas utility bill costs over time, upfront conversion costs, and how investment-related costs and risks are distributed across customers.

Meaningful analysis of natural gas utility affordability must account for total household natural gas costs over time; the difference between utility-influenced costs and externally imposed costs; the role of infrastructure availability in shaping commodity prices; and the interaction between energy access, housing affordability, and economic activity. Clarifying these dynamics is essential to developing regulatory approaches that protect customers while preserving safety, reliability, and long-term system integrity.

Defining Energy Affordability

Energy affordability is not solely a question of today's prices or rates, but whether customers can reliably access essential energy services without financial hardship or sacrificing other basic needs. Regulators and policymakers generally evaluate affordability through several core dimensions: 1) **burden** — the share of income devoted to energy costs; 2) **bill stability** — stability and predictability across seasons and over time; 3) **continuity** — or the scale of customers' ability to maintain service and avoid arrearages or disconnection; and 4) **fairness** — the distribution of costs and impacts across customer groups.

Affordability challenges are often most acute for low-income households, fixed-income customers, and energy-vulnerable populations. These customers often have little to no ability to absorb sudden or sustained increases in energy costs and are more likely to face high energy burdens relative to income. For many, affordability challenges are compounded by housing conditions, health needs, and limited financial flexibility, making reliable access to reasonably priced energy especially critical.

Anatomy of a Natural Gas Utility Bill

A typical customer bill consists of several distinct charges: distribution charges, commodity costs, riders/surcharges, taxes and fees. Utilities can influence some of these components through planning, operations, and regulatory approval. Others are shaped by markets, policy, and factors outside utility control.

Bill component	Examples	Primary driver(s)	Utility control
Base distribution charges (delivery)	Safety Programs, cybersecurity, operations & maintenance, meters	Regulator-approved spending; rate design; rate base growth; productivity	Partial
Gas commodity (supply) cost	Gas purchase cost passed through	Wholesale prices; weather; infrastructure constraints; storage; basis differentials	Limited
Riders / surcharges / public purpose charges	Energy efficiency, emissions programs, low-income programs	Legislative / regulatory mandates; program scope; cost allocation	Often limited
Taxes & local fees	State / local taxes, franchise fees	State/local policy choices	No

Another part of the bill is not reflected in a discrete line item but still must be considered: **timing effects**. Timing effects capture the way regulatory lag, deferrals, true-ups, and

other procedural delays shape when costs appear on a customer's bill. As a result, the bill a customer sees in a given month may reflect not only current costs, but also prior-period costs, phased-in adjustments, or delayed recoveries tied to earlier system conditions.

Defining and Measuring Affordability

Although affordability is a frequent subject of utility regulation and public policy discussion, it is not consistently defined in statute, regulation, or commission precedent. In practice, utility commissions generally assess affordability through a range of analytical frameworks and proxy measures intended to evaluate customers' ability to manage total household energy costs.

A central tenet of affordability is energy burden, defined as the percentage of household income spent on energy bills. This measure reflects the reality that energy is an essential service rather than a discretionary expense and that customers' ability to reduce consumption is constrained by health, safety, climate, and operational requirements. A 6% energy burden is generally recognized as the threshold at which household energy costs become high relative to income. This benchmark is widely used in affordability analysis and reflects the longstanding view that when energy costs exceed this share of household income, customers are more likely to face difficult tradeoffs among other basic necessities.

$$\text{Energy Burden (\%)} = \left(\frac{\text{Annual Household Energy Expenditures}}{\text{Annual Household Income}} \right) \times 100$$

In addition to established burden-based metrics, commissions and stakeholders may apply bill-to-income or residual-income approaches. These frameworks look beyond the size of the utility bill in isolation and consider whether a household retains sufficient income after paying for utility service and other essential expenses. Such approaches are intended to provide a more complete view of customer burden by recognizing that affordability depends on broader household financial circumstances, not simply on the level of rates themselves.

Commissions may also consider indirect indicators of affordability stress, including arrearage levels, service disconnections, requests for payment arrangements, and participation in customer assistance programs. While these indicators do not establish a single affordability threshold, they can help identify where bills are creating payment challenges for particular customer groups or within particular service territories.

Affordability analysis may be further refined through customer segmentation, such as by income level, housing type, heating source, or other demographic and usage characteristics. This enables commissions to distinguish between general rate effects and the disproportionate impacts that may fall on low-income, fixed-income, or otherwise vulnerable households.

Taken together, these approaches demonstrate that affordability is generally assessed at the household or total-bill level, with emphasis on the customer's overall ability to pay. It is therefore conceptually distinct from traditional cost-of-service ratemaking, which focuses on the prudence, allocation, and recovery of utility costs. While the two concepts may intersect in regulatory proceedings, affordability is broader in scope and is typically used to inform customer protection, bill assistance, and equity-focused policy considerations rather than to redefine the underlying mechanics of ratemaking.

Affordability, the Regulatory Compact, and Just and Reasonable Rates

Utility regulation distinguishes between the legal standard for rates and consumers' ability to pay, distinctions often blurred in affordability debates. The "just and reasonable" standard is designed to allow utilities to recover prudently incurred costs and have a reasonable opportunity to earn a fair return. Affordability, by contrast, concerns consumers' ability to pay the resulting bills and is typically addressed through targeted programs and rate design rather than through base cost recovery.

The separation of roles is rooted in the regulatory compact: utilities accept an obligation to serve all customers within a defined service territory and submit to regulation of their rates, investments, and returns. In exchange, regulators allow utilities a reasonable opportunity to recover prudently incurred costs and to earn a fair return on investment.

Commissions apply the statutory and constitutional standard that rates be "just and reasonable." Courts have interpreted this standard to balance consumer and utility interests. Rates may not deprive the utility of the opportunity to earn a fair rate of return nor exceed a fair rate of return. The standard is grounded in cost causation,

prudence, and financial integrity, and it is designed to balance utility and customer interests in the aggregate. As a result, a rate can be just and reasonable even if it burdens some customers more than others.

Commissions typically address affordability through mechanisms that operate alongside base rates rather than by redefining cost-of-service principles. These mechanisms include rate design choices, targeted bill assistance programs, payment plans, disconnection protections, and the socialization of affordability program costs across the broader customer base. This approach allows regulators to mitigate bill impacts for vulnerable customers while preserving the integrity of the regulatory compact and the legal standard of just and reasonable rates.

Why This Matters for Natural Gas Utilities

Investment needs are rising, driven by safety requirements, system and customer growth, aging infrastructure, resilience, and, in some jurisdictions, emissions-related mandates. Commissions are increasingly pressed to maintain safe, reliable service while limiting bill impacts, even as costs outside utility control (market pricing, taxes, policy riders) add pressure to the total bill.

For local natural gas distribution companies, affordability should be viewed through three lenses: 1) the customer's bill today, 2) the total cost to obtain the same end-use service using an alternative technology, and 3) how long-lived capital investments and risks tied to them flow through rates and are allocated to customers. Looking at affordability through only one of these dimensions can produce an incomplete picture.

On a whole-service basis, natural gas remains the most cost-effective option for many consumers. That comparison should account not only for monthly fuel costs, but also for total household energy bills, reliability during peak-demand periods, and the upfront and ongoing costs associated with alternative technologies. Comparisons between gas service and electrification that focus narrowly on fuel prices or modeled operating costs can miss major affordability factors, including customer conversion costs, exposure to winter electric peak pricing, and the risk of shifting system costs to non-participating customers.

Affordability is also tied to how capital investments are planned and recovered. Modernization and resilience investments are necessary to maintain safety and reliability, but they can increase near-term bills if rate base growth outpaces customer or throughput growth. Where long-term forecasts are more uncertain, affordability can depend on disciplined investment strategies that prioritize safety and no-regrets projects, demonstrate credible avoided costs, and account for the risk of spreading fixed system costs over a changing customer base.

Growth policy is another lever for affordability. Line extension rules determine how growth costs are shared between new customers and existing ratepayers and are designed to ensure equitable access to service while minimizing cross-subsidies. Line extension allowances (LEAs) can support access to energy services and economic development. Removing LEAs disproportionately harms low-income consumers, first-time homebuyers, and affordable housing developers by significantly increasing the upfront connection costs and incentivizing a switch to higher-cost energy sources. From an affordability perspective, extension policies must balance customer contributions, realistic revenue expectations, and long-term system impacts.

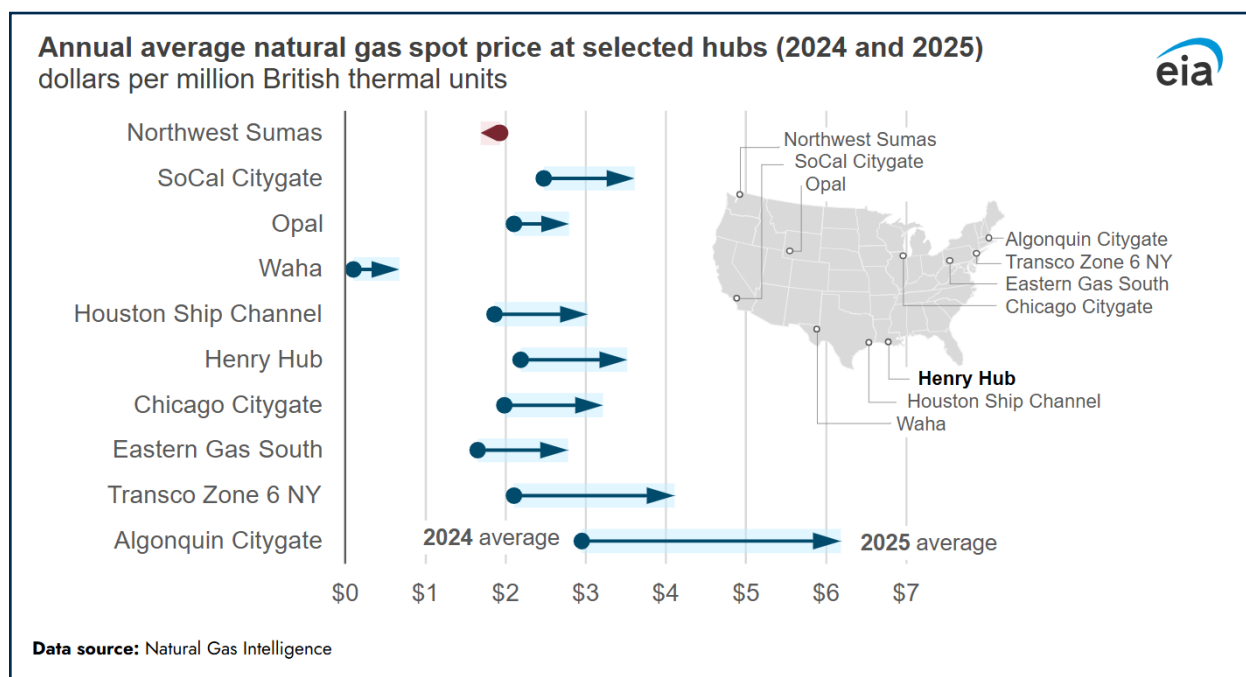
A critical—and often overlooked—element of affordability is separating the portions of the bill utilities can influence from those driven largely by external policy choices and market conditions. Utilities can meaningfully affect operational efficiency, system planning, and the timing and prioritization of capital investments proposed for regulatory approval. But they do not control many charges customers see each month—such as state and local taxes, public purpose program surcharges, policy-mandated riders, or commodity prices shaped by regional and national market dynamics. When affordability debates ignore these distinctions, they risk assigning full responsibility for bill outcomes to utilities even when a substantial share reflects mandates, policy choices, or constraints beyond utility control.

In practice, affordability pressures are often intensified not only by base rates but also by the cumulative layering of policy costs onto utility bills. Emissions reduction mandates, energy efficiency requirements, low-income assistance programs, and local taxes or fees are often implemented through riders or surcharges. While each policy may be individually justified on public interest grounds, customers experience their combined effect as a single, rising bill. This cumulative approach can obscure the drivers of bill increases and reinforce the perception that affordability outcomes are solely the result of utility spending, even where a growing share reflects broader policy objectives established by legislatures and regulators.

Upstream infrastructure availability—and the policies that shape it—also directly affect delivered natural gas costs, typically outside a distribution company's control. In many regions, resistance to siting or expanding energy infrastructure—including pipelines, compression, and storage—has constrained supply and increased exposure to price spikes during peak demand. These constraints can raise commodity costs without being reflected in utility rate base or investment decisions. Although utilities can sometimes mitigate this through hedging or gas procurement practices, financial tools cannot fully offset the structural cost impacts of inadequate infrastructure and constrained supply. As a result, higher bills driven by supply limitations and commodity pricing are often attributed to

utilities even when underlying cost drivers stem from policy and permitting barriers that limit the development of infrastructure needed to deliver lower-cost energy reliably over time.

One way to illustrate this is depicted in the chart below: where commodity prices increased in 2025, the largest increases were in areas constrained by pipeline capacity.



Taken together, affordability for natural gas utilities is best understood as a portfolio and system-level question: how to meet safety, reliability, and emissions objectives at the lowest reasonable total cost, while allocating risks and costs in a way that supports bill stability for existing customers and preserves access for future customers.

Regulatory Lag and Regulatory Inefficiency as Affordability Drivers

These dynamics suggest that affordability debates often focus too narrowly on visible rate outcomes while overlooking how the regulatory process itself can shape customer costs. Rising customer bills reflect a combination of regulatory lag, fragmented policymaking, infrastructure constraints, and the cumulative impact of policy mandates implemented without a holistic assessment of total customer costs.

Regulatory lag—the time between when costs are incurred or investments are placed in service and when those costs are reflected in rates—matters for affordability because it affects both the timing and volatility of bill impacts. When proceedings extend for long periods, costs accumulate while recovery is delayed, encouraging deferrals and true-ups that can translate into larger step-changes later. Customers may therefore experience sharper bill increases and less predictable bills even when the underlying investments are prudent and necessary for safety, reliability, and resilience. Additionally, lag increases the risk profile of a natural gas utility, increasing investment costs for the company, and ultimately increasing costs for customers.

Beyond lag, regulatory inefficiencies can also erode affordability even when individual decisions appear reasonable. Inefficiency can take many forms: duplicative or sequential proceedings that treat interdependent issues separately; inconsistent requirements across dockets or jurisdictions; extended discovery and litigation; and permitting or siting delays that increase project timelines and costs. When costs are approved, layered, delayed, or constrained across multiple forums, the cumulative effect can raise total system costs, reduce bill stability, and blur accountability for what is driving the total bill.

Regulatory fragmentation can also cause affordability-related measures to accumulate without sufficient coordination. Public purpose programs, emissions initiatives, modernization investments, and customer protections are often evaluated in separate proceedings with limited visibility into their combined bill impacts. Customers, however, experience one bill. Without structured cumulative-impact review and explicit tradeoffs, incremental actions can build over time without delivering commensurate bill relief.

This is one reason proposals to lower customer costs by reducing allowed return on equity (ROE) by a predetermined number of basis points can be misleading. Such proposals focus on a single financing parameter while leaving untouched the process-related drivers that can materially increase total customer costs over time, including delayed recovery, duplicative proceedings, inconsistent standards, and project delays. Even if a lower allowed ROE modestly reduces one component of delivery rates, it does not address many of the structural and procedural factors that shape total customer bills, and it may reduce regulatory clarity while increasing financing risk and disincentivizing investments needed for safety and reliability.

Moreover, proposals to reduce authorized returns or rely more heavily on debt financing can overlook how capital markets evaluate risk. Utilities depend on a balanced mix of debt and equity capital to finance the investments required to maintain safe, reliable, and resilient energy systems. When regulatory policies increase perceived risk or authorize returns below investor expectations, investors typically demand higher returns elsewhere, credit quality can come under pressure, and financing costs may rise. As a result, measures intended to

lower bills through changes to capital structure or ROE policy can produce outcomes that are inconsistent with long-term affordability objectives.

Addressing affordability calls for a more integrated regulatory approach that aligns policy objectives, infrastructure planning, and cost recovery with how customers experience costs on their bills. Practical steps include clearer case schedules and issue scoping, coordinated review of related programs and riders, consistent evaluation standards, and mechanisms that reduce unnecessary volatility while preserving incentives for efficiency and prudent investment. Over time, reducing regulatory lag and inefficiency can lower costs, improve predictability, and better support affordability objectives.

Conclusion

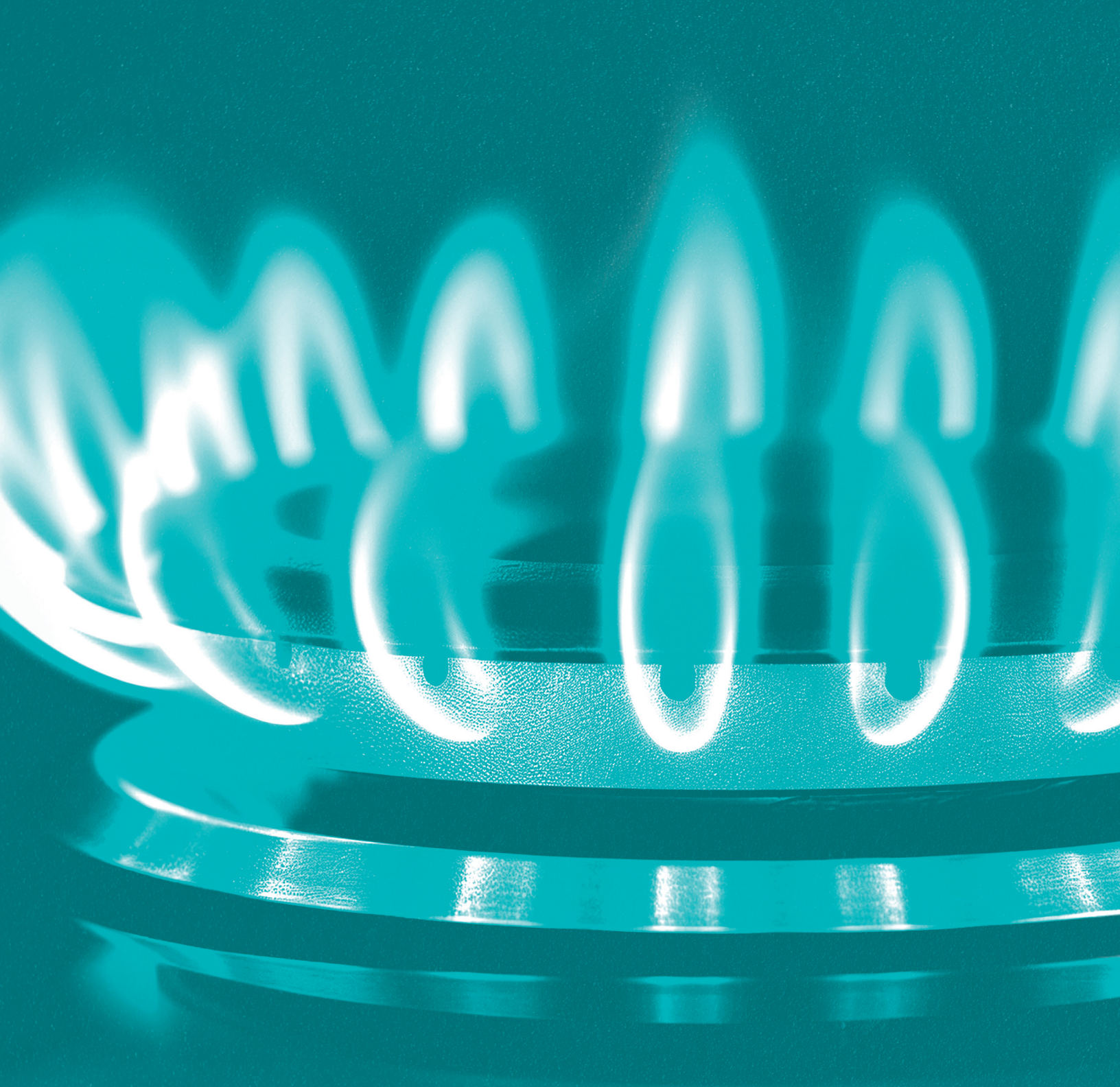
Energy affordability debates often begin and end with utility rates and infrastructure investment, but customer bills reflect a broader and more complex set of influences. For natural gas utilities, affordability outcomes arise from the interaction of utility investment decisions with commodity markets, regulatory lag, fragmented policymaking, infrastructure constraints, and policy mandates layered onto bills over time—many of which are outside utility control. When these drivers are evaluated independently rather than holistically, responsibility for rising costs can be misassigned and policy responses can target symptoms rather than the underlying sources of affordability pressure.

At a macro level, natural gas service has historically provided customers with energy that is manageable, stable, and predictable in cost, particularly when evaluated on a whole-bill basis and compared to available alternatives for delivering the same end-use services. That does not mean affordability concerns are absent, particularly for low-income, fixed-income, and energy-vulnerable households. It does mean, however, that affordability should be evaluated in the context of total customer bills, bill stability over time, and the broader system conditions that shape energy costs.

Addressing affordability therefore requires an integrated regulatory approach rather than reliance on any single ratemaking tool in isolation. Narrow measures—whether focused only on base rates, capital investment, or one component of cost recovery—cannot by themselves resolve broader affordability pressures driven by market conditions, policy layering, regulatory inefficiency, and infrastructure limitations. A more effective approach is one that aligns policy objectives, infrastructure planning, cost recovery, and customer protections with how customers actually experience energy costs on their bills.

By treating affordability as a whole-bill, system-level challenge, regulators and policymakers can better protect customers, improve bill predictability, preserve energy choice, and support the long-term affordability benefits that safe, reliable natural gas service continues to provide.

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