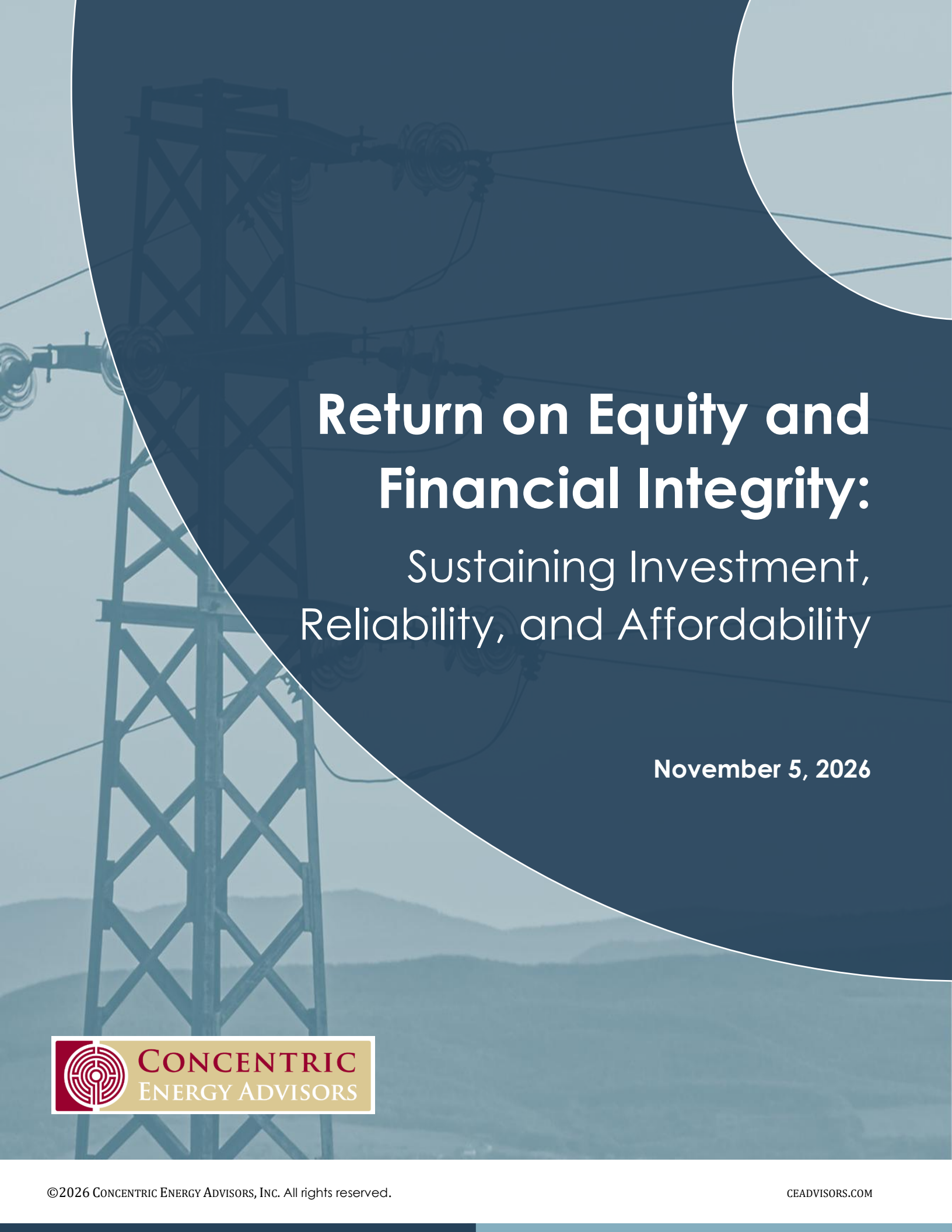


Return on Equity and Financial Integrity:

Sustaining Investment, Reliability, and Affordability

November 5, 2026

CONCENTRIC ENERGY ADVISORS

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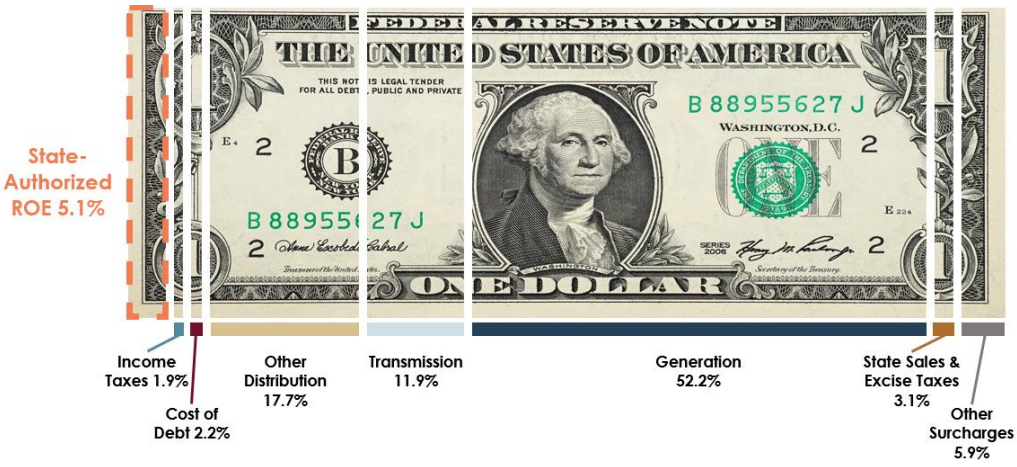
EXECUTIVE SUMMARY

This paper examines the role of return on equity (ROE) in utility regulation and, in particular, the relationship between authorized ROEs, customer bills and the cost of providing service, and utilities' ability to attract the capital needed to provide safe and reliable service.

The U.S. regulatory model has enabled electric utilities to finance exceptionally capital-intensive infrastructure with reasonably priced investor capital while protecting customers through comprehensive regulatory oversight. That structure is increasingly important as utilities undertake a major cycle of investment to meet growing electricity demand, strengthen reliability and resilience, connect new customers, and replace aging infrastructure. Maintaining utilities' ability to attract capital on reasonable terms will help ensure that this investment can be made efficiently and at the lowest reasonable long-term cost to customers. This paper reaches four principal conclusions:

1. **Outside investment is critical for regulated investor-owned utilities to meet essential public needs.** For more than a century, the regulatory compact has required utilities to serve all customers and submit their investments, rates, and operations to regulatory oversight in exchange for a reasonable opportunity to recover prudently incurred costs and earn a fair return on invested capital. Under this system, state regulators, not utilities, ultimately determine the rates that customers pay. That framework is especially valuable now to finance and build necessary infrastructure.
2. **ROE represents a relatively small component of the customer bill and should be considered in the context of the broader cost of providing electric service.**

Figure ES-1. Components of a Typical Residential Electric Bill in PJM[1]

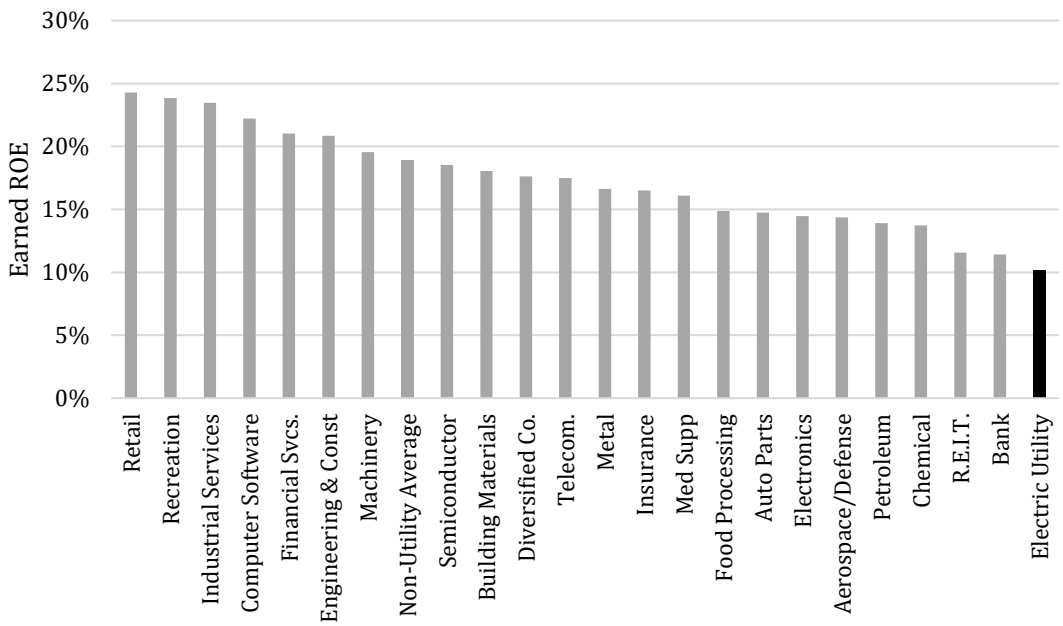


[1] State-Authorized ROE includes the equity return authorized by a state utility commission. Income Taxes includes distribution-related federal and state income taxes and the Ohio Commercial Activity Tax. Cost of Debt includes distribution-related interest on utility debt. Other Distribution includes all other costs recovered through distribution rates and distribution infrastructure riders, such as operations and maintenance expense, depreciation, and property taxes. Transmission includes retail transmission charges, which recover transmission costs including ROE that are set under FERC-regulated rates. Generation includes energy and capacity supply, calculated using default service generation rates. State Sales & Excise Taxes includes state sales, excise, and similar taxes on electricity sales and use. Other Surcharges includes other riders, such as energy efficiency, universal service, and clean energy programs.

Across the paper's national and regional analyses, the equity return associated with state-authorized ROE on distribution assets generally represents approximately 5 percent of the total electric bill, depending on the region, with the national analysis producing mean and median estimates of 4.3 to 5.1 percent. Authorized ROEs also have declined over the long term and, in recent years, have not increased commensurately with higher borrowing costs. Policymakers seeking meaningful affordability improvements should therefore focus primarily on larger and faster-growing cost drivers outside of utilities' control, including wholesale electricity prices, capacity costs, and policy and compliance costs. Figure ES-1 shows the components of a typical residential electric utility bill based on a sample of utilities in the PJM region as an example.

3. **Utility returns on equity are among the lowest compared to other industries (see Figure ES-2).** An authorized ROE is not a specified profit margin, nor is it a guaranteed profit. Rather, it represents an opportunity to earn a return if utility management operates the business efficiently, investment decisions are prudent, and regulators ultimately allow the utility to recover its costs through rates. Electric utilities' actual earned returns and total shareholder returns are comparatively modest, even as utilities are nearly three times as capital intensive as the typical non-utility company and must repeatedly access external capital because their investment needs exceed internally generated cash. The premium of authorized ROEs over corporate borrowing costs has also narrowed in recent years as authorized ROEs lagged market indicators that point to increases in the cost of capital (see Figure ES-3). In addition, actual earned returns are often lower than the authorized level.

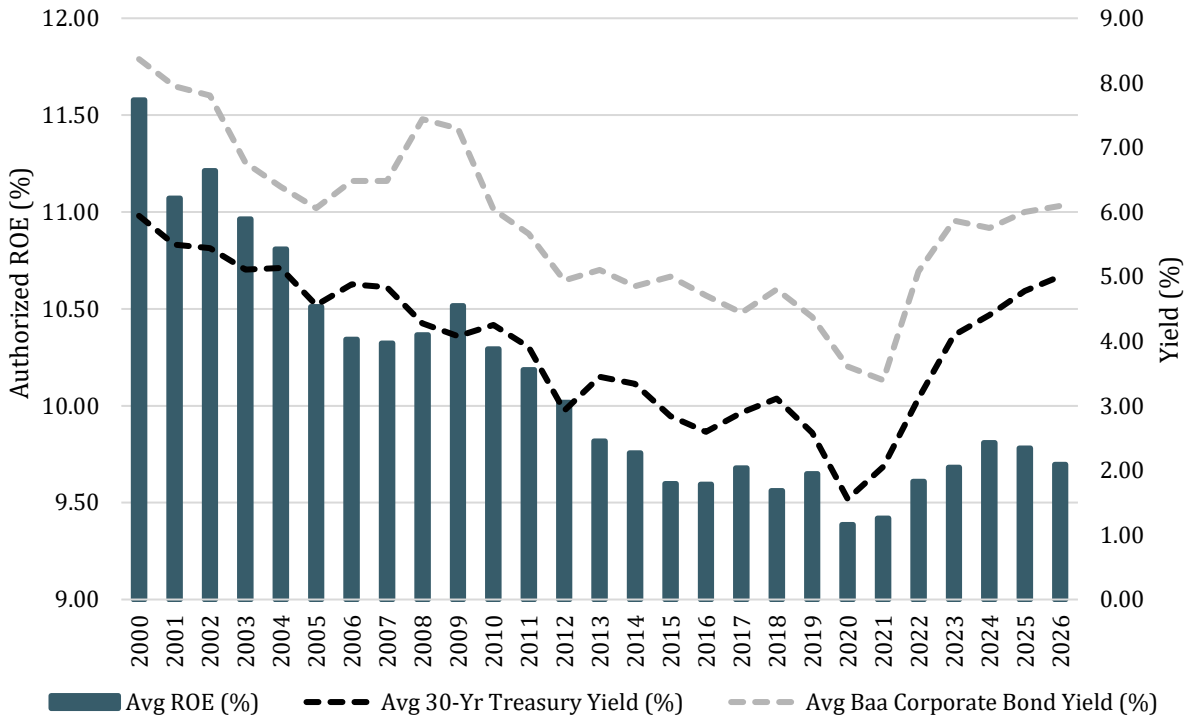
Figure ES-2. Average Earned ROEs – Electric Utilities vs. Other Sectors



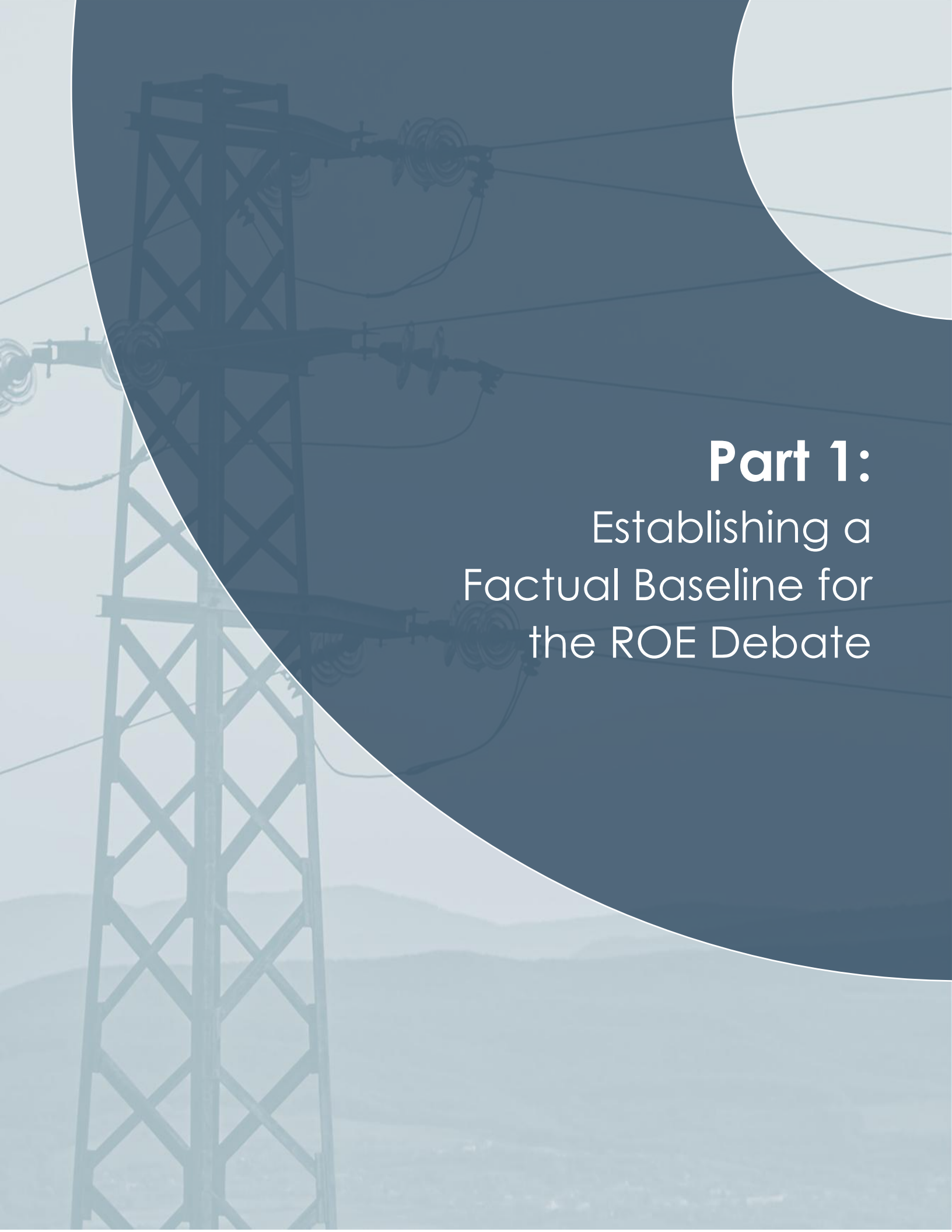
4. **Regulated utilities' ability to attract investor capital is critical for lower customer rates.** Utilities have historically leveraged the regulated utility model to access relatively low-cost capital compared to other industries and other sectors of the energy industry. That lower cost of

capital is beneficial to customers and has enabled utilities to provide electricity at prices that have increased at a rate lower than general inflation in recent decades. In other words, on an inflation adjusted basis, electricity prices in real terms have declined since 1990. This benefit to customers can only be sustained by maintaining a strong financial position. In contrast, the case studies presented in this paper show how weakened financial integrity, which can result from an insufficient ROE, can lead to credit downgrades, higher borrowing costs, constrained capital access, and deferred or reallocated investment. Because utility debt is often issued for 10, 20, or 30 years, higher financing costs can remain embedded in customer rates long after the conditions that produced them have changed. Preserving financial integrity helps utilities retain financial flexibility and fund necessary investment through changing economic conditions while maintaining safe, reliable, and affordable service.

Figure ES-3. Authorized Electric ROEs vs. 30-Year Treasury and Baa Corporate Bond Yields



Proposals to impose materially lower ROEs without clear evidence that capital costs have declined or the utility's total risk has fallen, to substitute untested methodologies, or to require utilities to finance operations with substantially more debt overlook the resulting financial risk: reduced ROEs and greater leverage can weaken credit metrics and increase both debt and equity costs, offsetting anticipated savings and ultimately raising risks and costs for customers.



Part 1:
Establishing a Factual Baseline for the ROE Debate

SECTION 1:

REGULATED UTILITIES AND THE ROLE OF ROE

The Regulatory Compact

The Regulatory Compact is a well-recognized construct existing between a utility and the public (as represented by the government and regulators who oversee public utilities). Simply put, in exchange for committing investor capital to public service (e.g., investing in assets to provide public utility service) the utility agrees to accept regulatory oversight over the prices it can charge and the terms of such service, while being provided an assurance that it will have a reasonable opportunity to recover its costs (including its investments) and receive a fair return on its investments.

Under this framework, utilities undertake obligations that are unlike those faced by most competitive businesses. Utilities are expected to serve all customers within their service territories, maintain safe and reliable operations, invest in infrastructure necessary to meet customer needs, and provide service on a non-discriminatory basis. At the same time, utility rates, investment decisions, and operating practices are subject to comprehensive regulatory review. This balance requires that regulators provide utilities with the opportunity (but not a guarantee) to recover prudently incurred costs, including an opportunity to earn a return that is sufficient to attract capital and support continued investment in utility infrastructure.

ROE and Access to Capital

Return on equity (ROE) is a critical component of this regulatory structure. An authorized ROE is not a guaranteed profit margin, nor does it represent a guaranteed return to investors. Rather, it is the return that regulators authorize on the equity capital that investors have committed to support utility operations and infrastructure investment. Equity investors bear substantial risks associated with utility ownership, including business, financial, regulatory, and policy risks. Unlike debt lenders, equity investors have no contractual right to repayment and are compensated only after all operating expenses and debt obligations have been satisfied. As residual claimants, equity investors bear greater risk than debtholders, because their returns are neither fixed nor guaranteed, and debtholders have a higher priority for repayment. Ultimately, earned ROEs depend on the financial performance of the company and an authorized ROE is not a guaranteed return for investors.

Access to investor capital is especially important in the utility sector. Electric and gas utilities are among the most capital-intensive businesses in the economy[2] and depend on continuous access to debt and equity financing to maintain existing infrastructure, replace aging assets, and meet growing demand for service. In many cases, utilities invest substantially more capital each year than they generate through internal cash flows and therefore rely on external financing to support ongoing investment programs.

Investors have many competing opportunities to deploy capital. As a result, utilities must remain financially attractive relative to other investment opportunities with comparable risk profiles. Regulatory decisions, including the authorized ROE, play a central role in shaping investor perceptions of risk and influencing the cost at which utilities can raise capital. An authorized ROE that provides a reasonable opportunity to earn market-based returns helps support continued access to capital on reasonable terms.

[2] See Section 2.6.

Financial Integrity Ultimately Benefits Customers

The financial integrity of a utility is not only an investor concern; it is fundamentally a customer concern as well. The ability to attract capital at a reasonable cost directly influences the rates customers ultimately pay for utility service. Utility infrastructure is financed through a combination of debt and equity capital, and the costs associated with attracting that capital are ultimately reflected in customer rates. If an inadequate authorized ROE weakens a utility's financial integrity, its cost of debt, which is set by the market, may rise, increasing costs to customers over the long term.

When investors are confident that regulatory outcomes provide a reasonable opportunity to earn fair returns, utilities are generally able to raise debt and equity on reasonable terms. Historically, utilities have had a lower cost of capital compared to other sectors, which has benefited utility customers through more affordable rates and reliable service. If investors view regulatory decisions as unsupportive or inconsistent with established ratemaking principles, the perceived level of risk associated with that investment increases, ultimately leading to a higher cost of capital. Accordingly, a predictable and stable regulatory environment is important for keeping rates affordable and enabling the utility's ability to undertake investments needed to maintain reliability, resilience, and system modernization.

Legal Standards for Establishing the Fair Rate of Return

The foundations of public utility regulation require that utilities receive a fair rate of return sufficient to attract needed capital to maintain critical energy infrastructure for customers at reasonable rates. The basic tenets of this regulatory doctrine originate from landmark decisions by the United States Supreme Court, notably *Bluefield Waterworks and Improvement Company v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*"), and *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591 (1944) ("*Hope*"). In *Bluefield*, the Court stated:

> *A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties…*
>
> *The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.*

Later, in *Hope*, the Supreme Court established a standard for the ROE that remains the guiding principle for ratemaking in regulatory proceedings to this day:

> *[I]t is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That*

> *return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.*

The standards established in these decisions require that authorized ROE should provide the utility with the opportunity to earn a rate of return that is: 1) adequate to allow it to attract the capital that is necessary to provide safe and reliable service; 2) sufficient to ensure its ability to maintain its financial integrity;[3] and 3) at a level that is comparable to returns required on investments of similar risk. Importantly, regulatory commissions and cost-of-capital practitioners have operated with the understanding that an authorized ROE must satisfy all three standards established by the Supreme Court in these cases and have implemented the ROE authorization processes described below in compliance with the Court's precedents. In contrast, some recent specific proposals to change the ROE authorization process, which are discussed below in Section 2.5, may not be consistent with the *Hope* and *Bluefield* standards, calling into question whether they are viable under the legal standards that have been applied by regulatory commissions for decades.

[3] The Supreme Court described what financial integrity requires – revenues sufficient to cover not only operating expenses but also "the capital costs of the business," which "include service on the debt and dividends on the stock." (*Hope*, 320 U.S. at 603). As described in the *Bluefield* decision, the return should enable the utility "to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties." (*Bluefield*, 262 U.S. at 693). In practice, this means a utility can continue to access external financing, on reasonable terms, to make the long-term infrastructure investments needed to serve its customers.

SECTION 2:

AUTHORIZED ROE VERSUS EARNED ROE

Authorized ROE is the allowed return or the percentage return a regulator allows on the equity-financed portion of a utility's rate base (i.e., depreciated asset base), established through an evidentiary regulatory process. Because electric utilities operate as regulated monopolies, regulators cannot rely on direct market competition to determine prices or investment levels. Instead, the regulatory process seeks to replicate the outcomes of competitive markets by establishing rates that allow utilities to recover prudently incurred costs and attract the capital necessary to provide safe and reliable service. The authorized ROE is a key component of that framework.

Utility rates recover many different costs of providing service, including operating and maintenance expenses (O&M), depreciation and amortization, taxes, fuel and purchased power costs, interest on debt, storm recovery expenses, and various policy-driven program expenses. ROE applies only to the portion of capital infrastructure investment funded by shareholders; ROE is not applied to other portions of a customer's utility bill (e.g., O&M expenses, sales taxes, policy/compliance costs, and in deregulated markets energy and capacity costs). As a result, changes in authorized ROE typically affect only a small portion of a customer's bill.

There is also a distinction between the authorized ROE[4] and a utility's earned return that is frequently misunderstood because the authorized ROE is often treated as synonymous with utility profits or customer bills, of which it is neither.

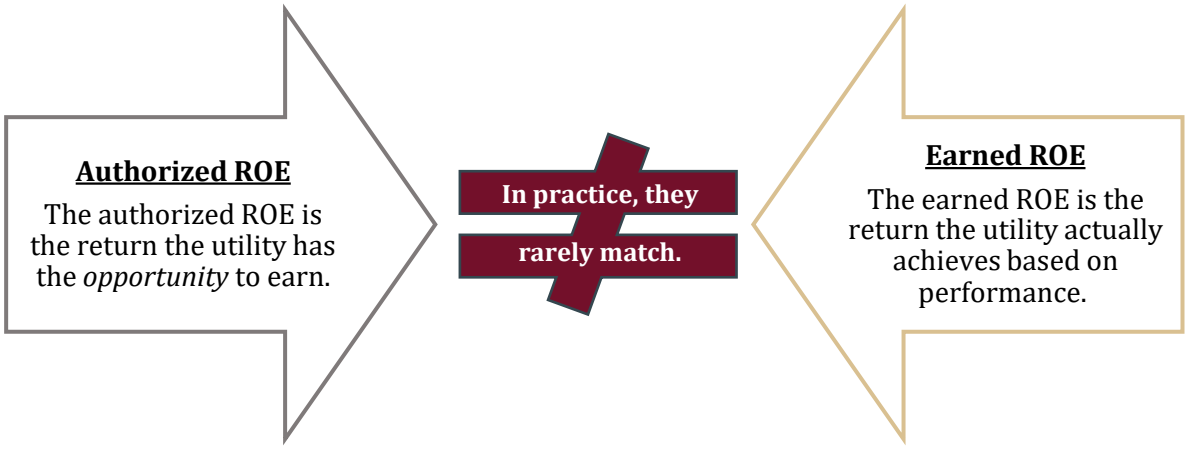
An authorized ROE is not a specified profit margin, nor is it a guaranteed profit.

Rather, it represents an opportunity to earn a return if utility management operates the business efficiently, investment decisions are prudent, and regulators ultimately allow the utility to recover its costs through rates. Actual earned returns are often lower than the authorized level.

ROE is a foundational element of the regulatory compact, connecting investor expectations, capital attraction, infrastructure investment, customer service, and the obligation to serve. Understanding what ROE is, and what it is not, is therefore a necessary starting point for any discussion of utility affordability, capital investment, or regulatory policy.

[4] The authorized ROE is interpreted as the regulator's determination of a utility's "cost of equity", which is the return that equity investors require to invest in the utility. While the authorized return on equity set by the regulator is similar in concept to the cost of equity, the authorized return on equity may be set higher or lower than the cost of equity, i.e., the rate of return that investors actually require.

Figure 1. Authorized ROEs and Financial Performance



Authorized ROEs are established by federal and state regulatory commissions, often as part of a contested evidentiary process in proceedings similar to trials, where evidence is presented, expert witnesses testify, and a judge presides. Under a traditional cost-of-service-based regulatory model, rates are set based on a snapshot of costs and sales, and rates stay fixed until the next rate case, often several years later.[5] What actually happens in between can differ from the snapshot in four main ways:

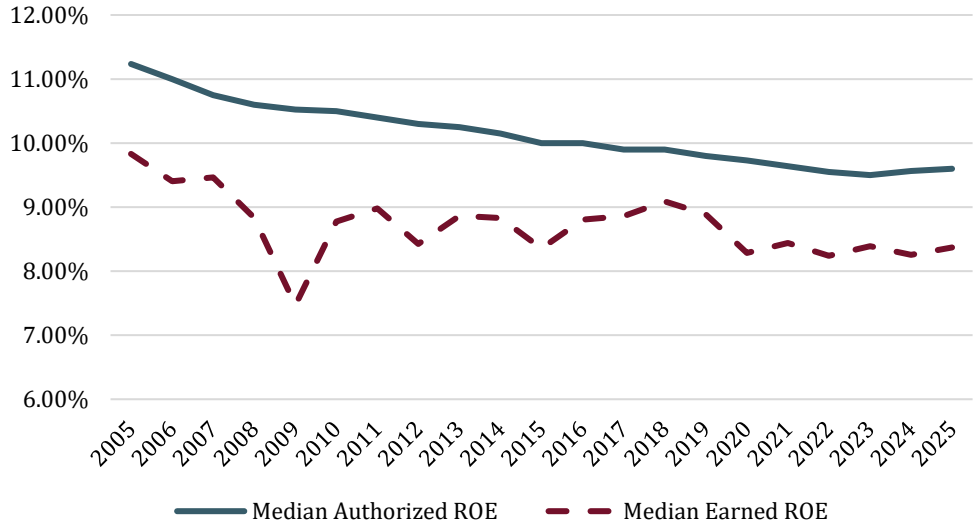
- **Lower revenue than expected:** Rates assume a certain level of customer usage. A mild summer, a warm winter, a weaker economy, or customers using less energy may result in less revenue than planned.
- **Higher costs than expected:** Inflation, higher interest rates, storm repairs, unplanned outages, and unanticipated expenses can raise costs above what rates were designed to cover.
- **Timing (regulatory lag):** When a utility commits capital on a new investment or faces a cost increase, it usually cannot recover that cost until its next rate case or it is approved through an alternative rate adjustment. In the meantime, investors absorb the cost.
- **Disallowances:** Regulators may later decide that some costs of doing business cannot be recovered from customers at all.

Equity investors are paid last, only after every other cost is covered, so shortfalls fall directly on shareholders. That is why a utility's earned ROE often differs from its authorized ROE. In short, the authorized ROE is the return built into rates. The earned ROE reflects what the utility actually achieved based on its performance and after all costs are accounted for. Treating them as the same thing leads to wrong conclusions.

Historical performance of earned ROEs as compared to authorized ROEs demonstrates that most utility companies have underearned authorized levels over the past 20 years; see Figure 2.

[5] Some regulators employ alternative approaches designed to reduce regulatory lag such as multi-year rate plans, the use of forward test years, and true-up mechanisms that modify customer rates between rate cases.

Figure 2. Authorized vs. Earned ROEs for Electric Utilities (2005-2025)[6]



Regulatory lag, unforeseeable changes in consumption, costs, inflation, and capital markets all can cause actual costs to deviate from those included in a utility company's approved revenue requirement. In addition, the upside is often bound by sharing mechanisms and rate review, while downside protection is more limited and shortfalls are borne by equity investors. Overall, the opportunity is downwardly asymmetric as earned ROEs are consistently below authorized ROEs.

[6] Regulatory Research Associates; S&P Capital IQ.

SECTION 3:

HOW ROE IS DETERMINED: PROCESS, MODELS, AND METHODS

In this section, we describe how the authorized ROE is determined. Regulatory commissions generally set authorized ROEs based on estimates of equity investors' required returns – also known as the cost of equity. This section includes an overview of the evidentiary process, a description of the common ROE estimation models and methods that are used to develop an estimate of investors' required return, as well as information on trends in authorized ROEs and interest rates since 2000.

Evidentiary Process

Authorized ROEs are established by federal and state regulatory commissions as part of evidentiary processes that generally permit interested parties an opportunity to observe, participate, and offer their opinions. A regulated utility typically presents evidence in support of its requested ROE and capital structure. Interested parties have the opportunity to intervene in the filing and probe the utility's evidence through discovery. Intervenors and sometimes Commission staff then file testimony putting forth their cost of capital recommendations and any concerns they have with the regulated utility's evidence on cost of capital. The utility then has the opportunity to respond to intervenors and Commission staff through rebuttal testimony. If the parties do not reach a settlement agreement, the Commission conducts an evidentiary hearing during which witnesses appearing on behalf of the regulated utility and the intervening parties are subject to cross examination by opposing counsel and questions from the Commissioners or the Administrative Law Judge presiding over the case. Closing arguments are then filed by all parties, and the Commission issues its decision, which is subject to appeal to the courts by all parties to the proceeding.

ROE Methods and Models

Unlike the cost of debt, the return required by equity investors is not directly observable; instead it must be inferred through rigorous analysis of investment and market data. Because the cost of equity reflects an opportunity cost (i.e., the return foregone by committing capital to a particular investment), reinforced by the comparability standard established by *Hope* and *Bluefield*, ROE models are based on analyses applied to a proxy group of companies with business and financial risk characteristics similar to those of the utility for which the return is being established. The cost of equity is then estimated for these proxy companies using financial models that have been developed through academic research to assist investors in setting their return requirements.

Analysts and academics understand that ROE models are tools to be used in the ROE estimation process, and that strict adherence to any single approach, or the specific results of any single approach, can lead to flawed conclusions. No model can exactly pinpoint the precise ROE. Rather, each model brings its own perspective and set of inputs that inform the estimate of ROE. That is consistent with the *Hope* finding that "[u]nder the statutory standard of 'just and reasonable,' it is the result reached, not the method employed, which is controlling."[7]

Although each financial model brings a different perspective and adds depth to the analysis, each model also has its own inherent limitations and should not be relied upon individually without corroboration from other approaches. Changes to inputs can have significant impacts on the results of the various analyses. This view is widely held among financial practitioners and regulators.

[7] Hope, 320 U.S. at 602.

Various financial models have been developed to estimate the cost of equity. These models include the Discounted Cash Flow (DCF) model, the Capital Asset Pricing Model (CAPM), the Bond Yield Plus Risk Premium (RP or Risk Premium) model and the Comparable Earnings approach. Each model has strengths and limitations, depending on market conditions, and no one model always produces reliable or "accurate" results. In his financial textbook, Financial Management Theory and Practice, Dr. Eugene F. Brigham writes:

> *In practical work, it is often best to use all three methods – CAPM, bond yield plus risk premium, and DCF – and then apply judgment when the methods produce different results. People experienced in estimating equity capital costs recognize that both careful analysis and some very fine judgments are required.*[8]

The key conclusion is that these various financial models provide estimates of the ROE. Regardless of which analyses are performed to estimate the investor's required return on equity, the analyst must apply informed judgment to assess the reasonableness of results and to determine the best weighting to apply to results under prevailing capital market conditions. The DCF, CAPM and Risk Premium methods are relatively simple models to estimate the cost of capital, which by its nature is complex. Only by applying multiple tests and employing reasonable judgment can we be assured of a reasonable estimate of the required return on equity.

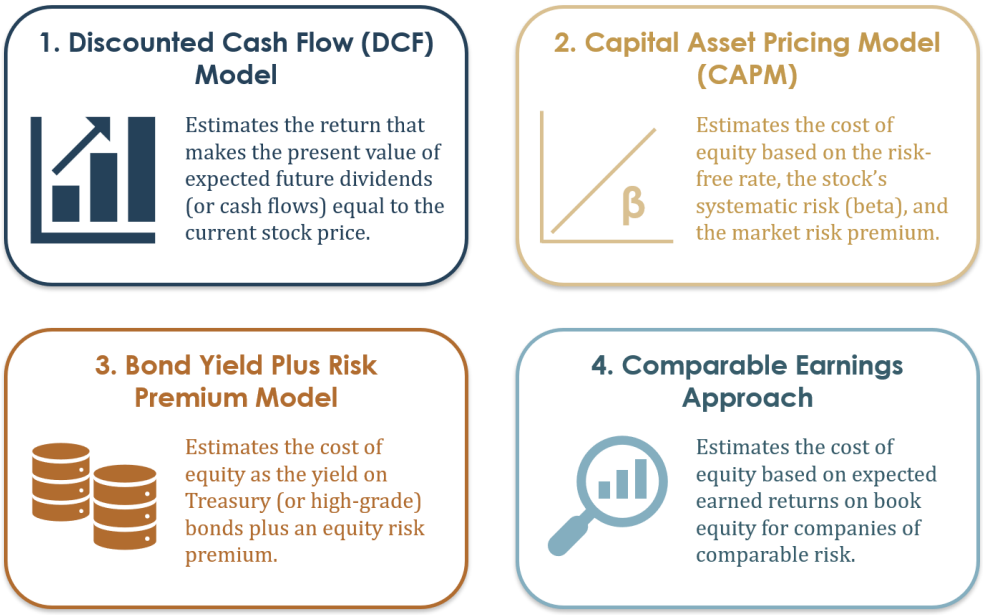
Each of these models requires inputs based on market data. It is important that the model inputs be forward-looking to the degree possible, because the objective is to set the return that investors require in today's economy and capital markets to make future investments in the common equity of the utility. The cost of equity is also a forward-looking concept because investments made today are predicated on future returns. After the ROE is estimated for the proxy group companies, the analyst then establishes a range of reasonable returns. From within that range, a specific recommended ROE is determined based on an assessment of the relative business and financial risks of the subject company to the proxy group.

The DCF model requires a dividend yield, adjusted for future growth in dividends, and an expected growth rate in future dividends. The CAPM requires a risk-free rate, a Beta coefficient, and a market risk premium. The Risk Premium model requires a current or projected Treasury bond yield and an equity risk premium. Each of these model inputs should be forward-looking to the extent possible and should reflect the expectations of investors based on the information that is known in today's capital markets. While there may be debate about the appropriate model inputs, the overall goal is the same: to estimate investors' return requirements based on forward-looking market data given the business and financial risks of the subject utility relative to a proxy group of similar companies.

Regulators consider the results of multiple models in determining a just and reasonable ROE. Figure 3 below summarizes the four primary models used to establish the authorized ROE, as well as the key inputs to each of the models.

[8] Dr. Eugene F. Brigham, Financial Management Theory and Practice, Fourth Edition, copyright 1985, at 256.

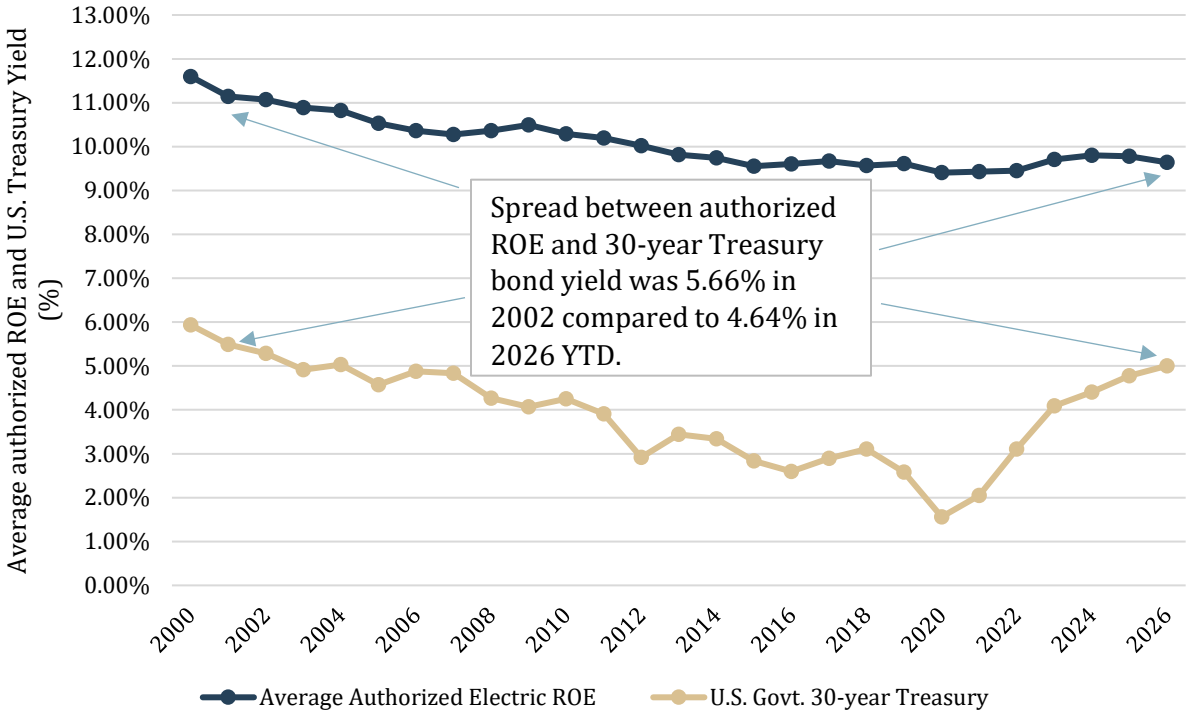
Figure 3. Models Used by Regulators to Establish Authorized ROEs



Trends in Authorized ROEs and Interest Rates

There is a direct relationship between the authorized ROE and the level of interest rates, as measured by the Treasury bond yield, although it is not a 1:1 relationship, and there is an inverse relationship between interest rates and the equity risk premium. In particular, as interest rates increase, the authorized ROE for regulated utilities increases and the equity risk premium decreases, and vice versa. Figure 4 below shows that since 2000, authorized ROEs for electric utilities have generally followed the trend in 30-year Treasury bond yields. However, in recent years, the spread between the authorized ROE and the Treasury bond yield has narrowed relative to prior periods when interest rates were at comparable levels. That is, authorized ROEs have not increased as much as Treasury bond yields would indicate they should have based on the historical relationship between the two. This is discussed in more detail in Section 2.6 of the report. For example, 30-year Treasury bond yields are currently near levels last seen in 2002-2004. When interest rates were last at these levels, average authorized ROEs for electric utilities were in the range of 10.80 percent to 11.10 percent. According to recent data from Regulatory Research Associates (RRA), the average authorized ROE for electric utilities in the first three quarters of 2026 was approximately 9.70 percent, or more than 100 basis points, or 1.00 percent, lower than the average authorized equity return in the early 2000s.

Figure 4. Trends in Authorized ROEs and Treasury Bond Yields[9]



Regulators have been slow to respond to higher Treasury bond yields, with the majority of authorized ROEs for electric utilities remaining below the 10.00 percent level, even as yields on 30-year Treasury bonds have risen to levels not seen in at least 20 years. It is imperative that authorized returns on equity reflect the interest rate environment so that utilities can continue to attract investment to support reliability for the benefit of customers.

In conclusion there is no evidence that authorized returns have systematically increased to the benefit of utility investors. Rather, the evidence shows that utility equity investors have not had the opportunity to receive the same level of authorized return as they did two decades ago when Treasury bond yields were at similar levels as they are today.

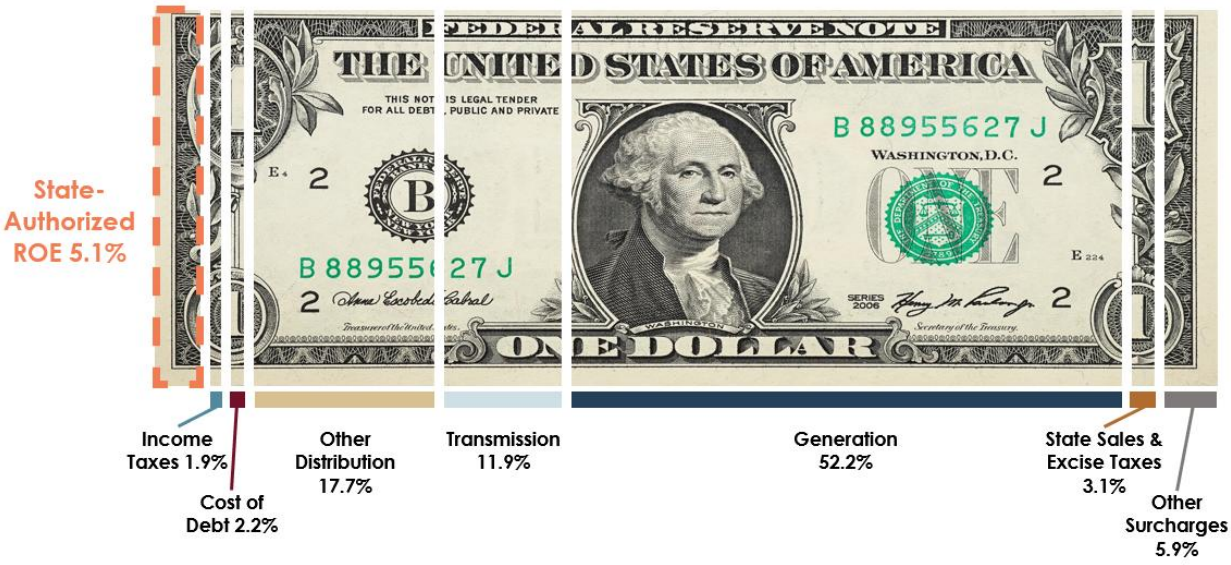
[9] Source: S&P Capital IQ Pro, data as of September 30, 2026.

SECTION 4:

ROE AS ONE COMPONENT OF THE CUSTOMER BILL

This section provides context for how equity return affects electric utility customer bills and demonstrates, through multiple analytical approaches, the magnitude of ROE relative to other components of a customer's bill. As shown below, we estimate that state-authorized ROE on distribution assets represents about 5 percent of a typical residential electric utility bill based on a sample of utilities in the PJM region.

Figure 5. Components of a Typical Residential Electric Bill in PJM[10]



Understanding Where the Equity Return Fits

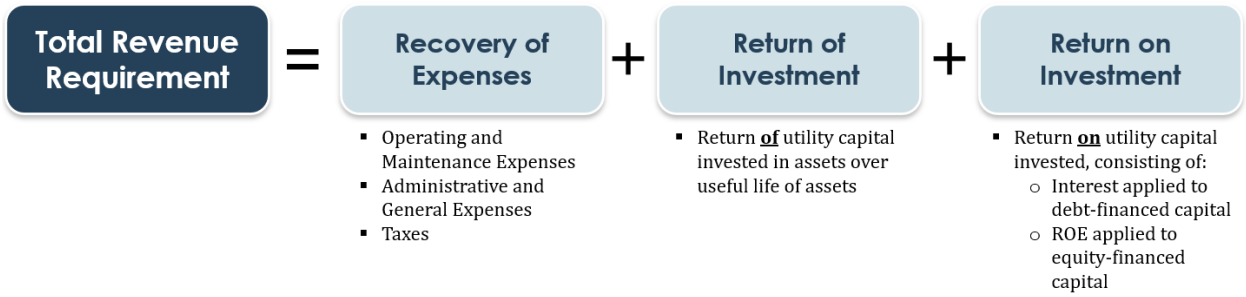
ROE is an important element of utility ratemaking because it reflects the cost of equity investor funds necessary to finance investments in utilities' systems, but it should be understood in the context of the full cost of providing service. Authorized ROE applies only to the equity-financed portion of a utility's assets; it is not a profit margin applied to total revenues or every dollar collected from customers. Utility rates recover multiple categories of costs to which the ROE does not apply, including fuel and purchased power expenses, operations and maintenance (O&M) expenses, depreciation and amortization, taxes, and debt-financing costs. Utility bills also commonly include policy-related program costs or other surcharges to which the ROE may not apply. Consequently, the authorized ROE should not be interpreted as the percentage attributable to shareholder earnings

[10] State-Authorized ROE includes the equity return authorized by a state utility commission. Income Taxes includes distribution-related federal and state income taxes and the Ohio Commercial Activity Tax. Cost of Debt includes distribution-related interest on utility debt. Other Distribution includes all other costs recovered through distribution rates and distribution infrastructure riders, such as operations and maintenance expense, depreciation, and property taxes. Transmission includes retail transmission charges, which recover transmission costs including ROE that are set under FERC-regulated rates. Generation includes energy and capacity supply, calculated using default service generation rates. State Sales & Excise Taxes includes state sales, excise, and similar taxes on electricity sales and use. Other Surcharges includes other riders, such as energy efficiency, universal service, and clean energy programs.

that is applied to customers' bills. Rather, the equity return is one component of a broader revenue requirement that encompasses all of the costs to provide utility service, rather than a return or profit margin that is earned on all utility expenditures.

A discussion focused exclusively on the authorized ROE ignores other costs customers pay and the different factors influencing those costs. Understanding this distinction is essential to evaluating both the role of equity return in customer costs and the potential bill effects of changing authorized returns. The purpose of this section is, therefore, to quantify the equity return within the broader cost of overall utility service. It is also important to distinguish the recovery of invested capital from the return earned on that capital; depreciation expense recovers investment (i.e., a return *of* investment), while the allowed return compensates for its financing (i.e., a return *on* investment). Debt and equity represent different sources of financing, and authorized ROE addresses the compensation required by equity investors, whereas interest is collected to compensate for debt-based financing. A simple illustration of a generic utility's revenue requirement is presented below in Figure 6.

Figure 6. Components of Revenue Requirement



Distinguishing ROE Changes from Overall Bill Changes

As described above, in the cost of service formula, ROE is applied to the portion of rate base that is financed by equity. Rate base reflects the property, plant, and equipment investments of the utility, plus working capital, net of depreciation and deferred taxes. In other words, ROE is not a percentage that is applied to the entirety of the cost of service, but rather it is only a portion of the cost of service. Because of that, a change in the ROE does not translate into an equivalent percentage change in the total customer bill. The customer bill impact must instead be evaluated within the utility's overall revenue requirement and the applicable ratemaking framework. This distinction is particularly important when proposals to reduce authorized returns are presented as affordability measures because the change in the return itself and the resulting change in customer rates are different quantities and should be assessed separately.

The translation from a utility revenue requirement to an individual customer bill is complicated by cost allocation and rate design across various customer classes, such as residential, commercial, and industrial customers. The scope of the utility's regulated operations matters as well because vertically integrated and distribution-only utilities recover different utility functions through their regulated rates. These distinctions do not diminish the importance of customer affordability, but rather they provide context for evaluating proposed changes to authorized ROE accurately.

Quantifying ROE Impacts on a Customer Bill

Concentric applied two approaches to quantify the portion of customers' bills that reflects the ROE. First, Concentric performed a nationwide analysis using federally-reported data. Second, we evaluated a sample of large utilities in two U.S. deregulated markets that provide relevant information regarding the multiple factors affecting customer bills: PJM and New England.

The PJM Interconnection is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia. This region is experiencing significant cost pressure as rapid forecasted load growth, generation retirements, and delays in bringing new generation and transmission infrastructure into service have tightened the balance between projected demand and available capacity, contributing to substantially higher capacity-market costs. Similarly, New England is also facing electricity cost pressure because the region's wholesale power prices are particularly exposed to natural gas prices and winter fuel-delivery constraints, paired with constrained electric transmission capacity across the New England region. Furthermore, since both regions are deregulated (i.e., electric utilities own only distribution and transmission assets, not generation assets), the regulated ROE is applied only to distribution and transmission infrastructure, meaning that a reduction in ROE does not apply to the generation portion of a customer's electric utility bill, limiting the usefulness of a reduction in ROE as a potential affordability solution.

While there is variation across utilities and regions, a central tendency does arise from the analyses: around 5 percent of a customer's electric utility bill is attributable to the state-authorized ROE.

Analysis of Nationwide Electric IOUs Using Federal-Reported Data

Methodology

To estimate ROE as a percent of total customer bills using a standardized methodology across the United States, we analyzed Energy Information Administration (EIA) data and Federal Energy Regulatory Commission (FERC) Form 1 data[11] for 115 electric utility operating companies to calculate the ratio of equity return to total revenues for each company.[12] Within the group of utilities analyzed, 38 are utilities that are not vertically integrated (i.e., electric utilities that do not own generation assets).[13] Put simply, the approach is based on calculating an equity return on distribution assets for each utility and dividing that value by total electric revenue for each utility to estimate equity return as a percent of total revenue.

The equity return for each utility was calculated by applying the last state-authorized ROE and common equity ratio, as of 2025, to net distribution plant.[14] In the case where ROE and equity ratio information is not available (e.g., due to a black box settlement in the utility's last rate case), a default

[11] The FERC Form 1 is a mandatory, non-confidential annual financial and operational report filed with FERC by major electric utilities.
[12] 2025 FERC Form 1 data via S&P Capital IQ; 2025 EIA Form 861, https://www.eia.gov/electricity/data/eia861/; Regulatory Research Associates.
[13] Companies that have missing or incomplete information in the FERC Form 1 for the data used in this analysis were removed from data set.
[14] Source: Regulatory Research Associates. Common equity ratios for utilities in Arkansas, Indiana, Florida, and Michigan are calculated with investor sources of capital (i.e., common equity, long-term debt, short-term debt, and preferred equity, as applicable) based on the utility's most recent rate case order.

assumption of 9.70 percent ROE and 50 percent equity ratio is used.[15] To calculate net distribution plant, we started with total distribution plant and removed accumulated depreciation for distribution plant and net accumulated deferred income tax allocated to distribution plant using the ratio of distribution plant to total electric plant in service.[16]

Revenue data is based on the EIA Form 861, Annual Electric Power Industry Report, using data for bundled customers (i.e., customers receiving default generation services from the utility). We imputed a value for total utility revenue to include all customer payments for generation service, including payments to the utility for generation service and payments to competitive suppliers in regions that are deregulated (i.e., where utilities do not own generation assets).[17]

While this approach has limitations because simplifying assumptions must be used, it provides a standardized approximation of equity return as a percent of revenue, which is useful to illustrate how much of a customer's total electric bill is attributable to the state-authorized ROE across all utilities and regions in the United States. To address the limitations of a standardized nationwide approach, we evaluated a subset of specific utilities' residential rate tariffs using a more precise approach to validate the findings of this nationwide analysis, as explained in further detail in the subsequent subsection.

Results

As shown in Figure 7 below, the nationwide analysis of U.S. electric utilities indicates that the mean and median values for the ROE on distribution assets as a percentage of total revenue were between 4.3 percent and 5.1 percent, including both vertically integrated utilities and deregulated utilities providing only transmission and distribution service. We also evaluated the first and third quartiles, which indicate that for half of the electric utilities in the U.S., the equity return as a percentage of total revenue was between 3.2 percent and 6.1 percent.

Figure 7. Nationwide Analysis of Equity Return to Total Revenues

Electric Operating Companies - National Sample

	All Companies in Sample	Excluding Vertically Integrated Companies
25th Percentile	4.1%	3.2%
Median	5.0%	4.3%
Mean	5.1%	4.3%
75th Percentile	6.1%	5.2%

[15] The default assumptions are based on generic parameters that approximate a typical U.S. electric distribution utility. As shown in Figure 29, the average authorized ROE in 2026 is approximately 9.70 percent.
[16] This involved allocating a portion of intangible and general plant to distribution using the ratio of distribution to total plant. We also removed the allocated amount of accumulated depreciation and net accumulated deferred income tax to general and intangible plant using the ratio of the sum of general and intangible plant to total electric plant.
[17] This approach applied the average dollar per kWh rate for default service customers to the kWh that were reported for customers that took delivery-only service.

Analysis of Select Electric IOUs in PJM Using Approved Customer Tariff Rates

Methodology

The second approach involved analyzing rate case orders and tariff rates for a sample of PJM electric distribution utilities to estimate allowed ROE as a percentage of a typical residential customer's total bill.[18] Unlike the nationwide and New England (discussed below) analyses, which compare an estimated equity return to total utility revenue for all customers, this approach builds a typical residential customer's monthly bill from approved tariff rates and identifies the portion of that bill attributable to the state-authorized ROE.[19] The sample includes 13 electric distribution utilities in four PJM states: four in Ohio, four in New Jersey, one in Delaware, and four in Maryland.

Each bill was then separated into its component charges, specifically distribution,[20] generation, transmission, state/excise taxes, and other surcharges (i.e., riders).[21] Distribution charges were separated into ROE, income taxes,[22] cost of debt, and other distribution costs (e.g., operations and maintenance expense, depreciation, and property taxes) using the rate base, capital structure, state-authorized ROE, cost of debt, and revenue requirement approved in each utility's most recent base rate case.[23] Charges for generation, transmission, state/excise taxes, and other surcharges were taken directly from the tariffs and were not divided further because the utility's state-authorized ROE does not apply to these charges.[24]

Finally, we estimated the monthly bill impact of illustratively reducing the state-authorized ROE by 10, 100, and 300 basis points. These estimates reflect the reduction in the ROE and associated income taxes and other percentage-of-bill charges, while holding all other bill components constant. As discussed in Section 2.2, a reduction in a utility's ROE may result in a credit rating downgrade, due to reduced cash from operations and a potential signal of a less supportive regulatory environment. A credit rating downgrade increases the cost of debt; because the magnitude of any offsetting increase in debt costs depends on numerous factors, we conservatively do not incorporate higher debt costs into this analysis.

[18] Illustratively assuming 1,000 kWh per month; results do not change significantly if a different monthly kWh usage is assumed. Uses most recent rate case order. Tariff rates are as of October 1, 2026, where available; used September 2026 tariff rates if October 2026 tariff rates were not available.

[19] Residential customers typically have proportionally higher distribution charges than large commercial and industrial customers; accordingly, the portion of the bill attributable to ROE would be higher for residential customers than the total company impacts that are analyzed in the nationwide and New England approaches, all else equal.

[20] Distribution infrastructure riders, for which the utility earns a return, are included in the distribution component.

[21] The "other surcharges" category includes policy-related and other surcharges.

[22] Commercial activity taxes are included with income taxes for Ohio utilities.

[23] For distribution infrastructure riders, we used the rider revenue requirement calculations where available and otherwise applied the same breakdown as base distribution rates.

[24] Transmission rates are regulated by FERC and include a separate FERC-authorized ROE, which is not included in the distribution company ROE in this analysis. Ohio, New Jersey, Delaware, and Maryland have deregulated generation; accordingly, the utility does not earn a return on the default service generation it provides. The New Jersey Sales and Use Tax is included in tariff rates for all charges; to increase transparency, it was removed and reported as a separate state tax.

Results

As shown in Figure 8, across the 13 utilities analyzed, the equity return associated with the utility's state-authorized ROE represents, on average, 5.1 percent of a typical residential customer's bill. Ohio, New Jersey, Delaware, and Maryland were similar, at 4.6 percent, 4.9 percent, 6.6 percent and 5.6 percent, respectively. Notably, in this analysis, a typical residential customer's bill is comprised of over 50 percent generation-related charges, which is approximately 10 times as much as the ROE component.

Figure 8. Bill Breakdown for a Typical Residential Customer in PJM[25]

Category	PJM Sample	Ohio	New Jersey	Delaware	Maryland
Authorized ROE	5.1%	4.6%	4.9%	6.6%	5.6%
Income Taxes	1.9%	1.4%	1.9%	2.5%	2.1%
Cost of Debt	2.2%	2.1%	2.1%	2.9%	2.3%
Other Distribution	17.7%	19.9%	14.0%	18.6%	19.6%
Transmission	11.9%	12.4%	15.8%	10.1%	7.6%
Generation	52.2%	52.7%	50.3%	54.2%	53.3%
State Sales & Excise Taxes	3.1%	2.3%	6.2%	0.0%	1.0%
Other Surcharges	5.9%	4.6%	4.8%	5.0%	8.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

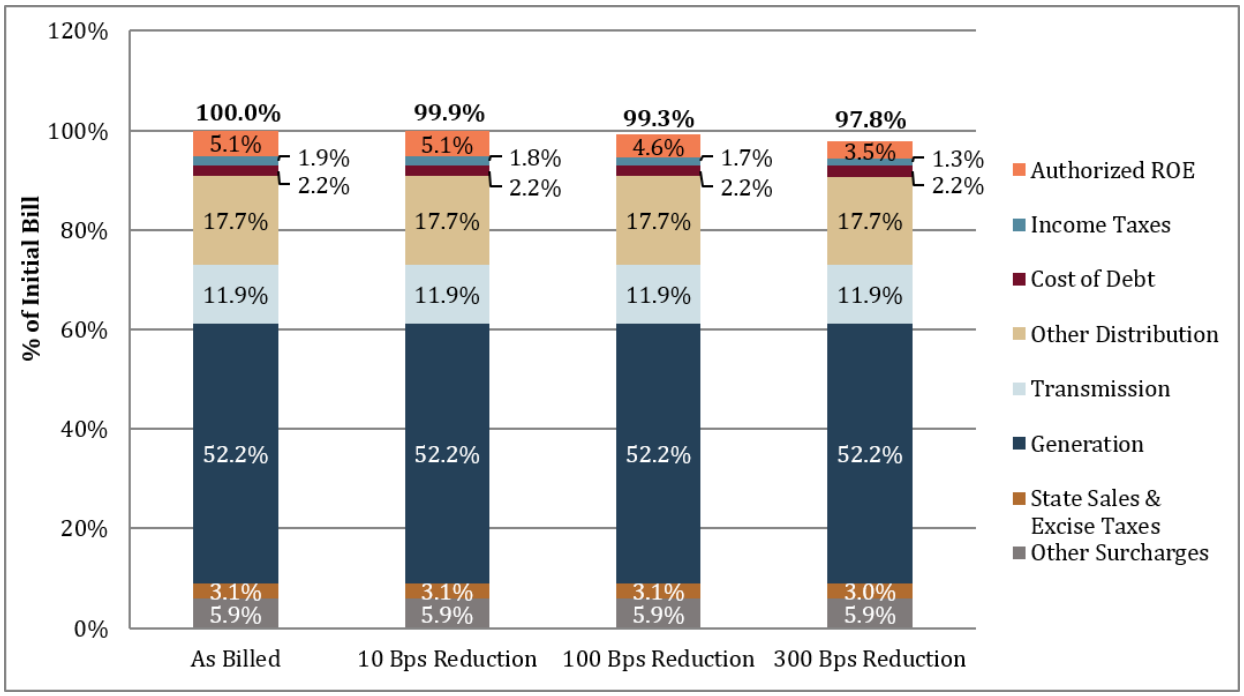
Figure 9 shows, for the PJM sample, an illustrative 10, 100, and 300 basis point reduction in the utility's ROE corresponds to a 0.1 percent, 0.7 percent, and 2.2 percent reduction in a typical residential customer's bill, respectively. These results demonstrate that changes in the utility's state-authorized ROE affect only a small portion of the total bill paid by the utility's residential customers. Because the authorized ROE component is a small portion of a customer's bill, policies that seek to address affordability concerns may have a greater impact by examining other areas of customer bills.

Further, as briefly noted above, this analysis conservatively assumes that the cost of debt does not rise with a decrease in the utility's authorized ROE. There are numerous factors that could affect a utility's cost of debt after a reduction in its authorized ROE, including current and projected interest rates, inflation, the state of the economy, the utility's credit profile, timing and tenor of the debt issuance, type of debt issuance, and other utility-specific factors. Accordingly, the impact on the cost of debt from a reduction in a utility's authorized ROE can vary, so we conservatively did not attempt to quantify it. In practice, after a meaningful reduction in a utility's authorized ROE that is not supported by market evidence, its cost of debt will likely be higher in its subsequent debt offering(s) due to a credit rating downgrade, lower cash flows, or lower confidence in the supportiveness of the

[25] Totals may not sum due to rounding. Calculated using a simple average of the operating companies in the PJM sample and each state. Using an average weighted by the number of residential customers does not significantly change the results (e.g., the PJM sample ROE impact is 5.0 percent with the weighted average compared to 5.1 percent with the simple average).

utility's regulatory framework. An example of such an observed impact is explained in Section 2.3, related to the reduction in authorized ROE that Arizona Public Service Company experienced in 2021.

Figure 9. Impact on a Typical Residential Customer's Bill from an ROE Basis Point Reduction (PJM Sample)[26]



Analysis of Select Electric IOUs in New England Using Rate Case Data

Methodology

The third approach involved analyzing rate case filings and other relevant data for a sample of large New England electric distribution utilities to estimate allowed ROE as a percentage of customers' total bills. This analysis differs from the other two analyses in several respects; however, it is similar to the nationwide analysis in that the approach is based on calculating an equity return for each utility and dividing that value by total electric revenue for each utility to estimate equity return as a percent of total revenue.

Rather than estimating each utility's rate base using standardized FERC Form 1 data, we took a more targeted approach by using the state-authorized rate base approved in each utility's rate case. From there, both the equity return and the total return for each utility was calculated by applying the last state-authorized ROE, debt cost, and equity ratio for each utility. This approach results in a more precise estimate of capital returns because it uses actual rate base values rather than estimates. Since the rate case data includes only utility revenue for transmission and distribution service, similar to the nationwide approach we also imputed total revenue from the EIA Form 861, Annual Electric Power Industry Report, to estimate each utility's return as a percentage of an overall customer bill (i.e., including all customer payments for generation service).

[26] Totals may not add due to rounding.

Results

Across the five utilities analyzed, the ROE as a percentage of total customer bills ranged from 2.6 percent to 4.7 percent, with a median value of 3.4 percent. The total return (i.e., including both debt return and ROE) as a percentage of total customer bills ranged from 3.8 percent to 6.7 percent with a median value of 5.0 percent. These results are in line with the results of the other two analyses, indicating that across various utilities, methodologies, and regions, we reach a similar conclusion regarding the value of the ROE as a percentage of total customer bills.

Figure 10. Equity Return to Total Revenues for New England Utilities

New England Utilities	Utility 1	Utility 2	Utility 3	Utility 4	Utility 5
Distribution Rate Base ($M)	$3,930	$3,861	$3,127	$1,688	$1,229
Authorized ROE	9.80%	9.25%	9.35%	9.50%	8.63%
Authorized Equity Ratio	53.21%	53.00%	52.83%	50.00%	50.00%
Weighted Average Cost of Capital	7.06%	7.09%	7.09%	6.80%	6.48%
Utility Operating Revenues ($M)	$3,272	$4,604	$3,176	$1,654	$1,101
Imputed Total Revenue ($M)	$6,197	$5,497	$5,862	$1,718	$1,509
Equity Return to Imputed Total Revenues	3.3%	3.4%	2.6%	4.7%	3.5%
Total Return (Including Debt) to Imputed Total Revenues	4.5%	5.0%	3.8%	6.7%	5.3%

Placing the Bill Impacts in Context

The purpose of this section is to place equity return in context, not to suggest that it has no effect on customer bills or that every proposed change is immaterial. The immediate revenue requirement effect of a change in ROE is only one consideration in evaluating its implications for customers as an affordability solution. The paper's broader framework, addressed in Part 2, recognizes that authorized returns also influence investor confidence, access to capital, and the cost of financing utility infrastructure. If returns are insufficient to compensate investors for the risks they bear, financing may become more expensive or less readily available, with potentially far-reaching and long-term consequences for customer costs and reliability that are likely to outweigh the immediate bill impact of a policy-driven reduction in a utility's authorized ROE. Any immediate bill reduction from an adjustment to the authorized ROE should therefore not be treated, by itself, as a complete assessment of long-term affordability for customers.

SECTION 5:

THE REGULATED UTILITY MODEL BENEFITS CUSTOMERS

Customers benefit when utilities have reliable access to capital markets. Financially healthy utilities can proactively invest in infrastructure before reliability issues emerge, connect new customers and industries, improve resilience against extreme weather events, respond to changing patterns of electricity demand, and modernize aging systems. Conversely, when regulatory policies weaken utilities' ability to attract capital on reasonable terms, investment can become more costly or constrained, ultimately increasing costs and risks for customers. For instance, adverse regulatory outcomes can and have led to credit ratings downgrades, increased borrowing rates, and other impacts that harm both utilities and their customers. Because it supports an essential service, the electrical grid requires investment in all market conditions, and the impacts of poor regulatory outcomes become even more pronounced in challenging economic conditions.

Utilities benefit from cost of capital that is generally lower than other sectors, creating a tremendous benefit for customers. The value of the regulated utility model is even more important today than it has been in the past as the electric industry enters a period of significant capital investment. Electrification, data center development, manufacturing expansion, renewable energy integration, transmission expansion, grid hardening, advanced grid technologies, and aging infrastructure are driving utility investment needs to levels not seen in decades. Meeting these needs requires substantial amounts of capital from investors. The regulatory compact, including the opportunity to earn a reasonable return on equity, plays a central role in attracting that capital and directing it toward investments that benefit customers. Now is an opportunity to leverage this construct to build the infrastructure we need. It is a moment to reinforce the system that has produced low cost of capital, not move away from it.

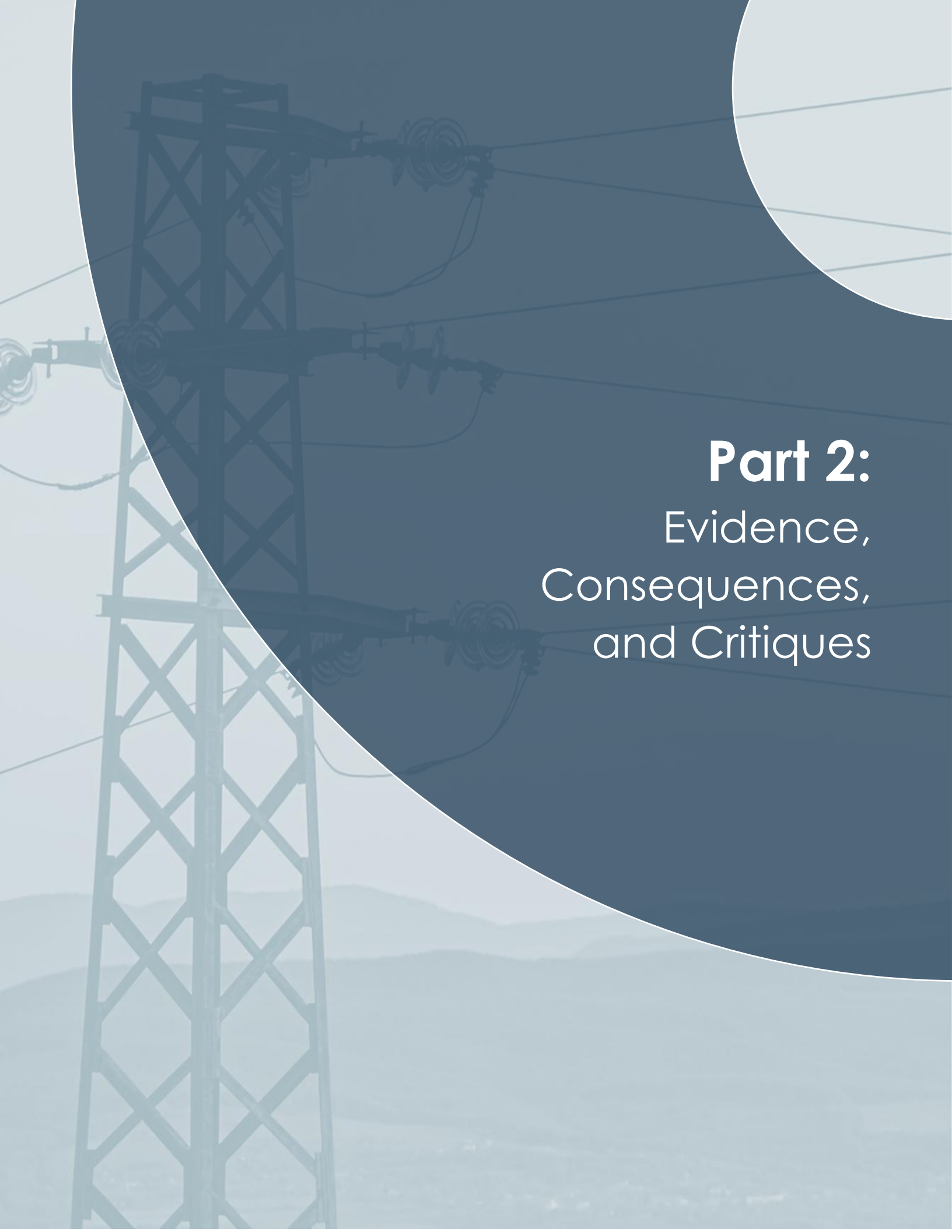
By aligning customer needs with investor incentives, the regulated utility model provides the foundation for continued reliability, long-term affordability, system modernization, and economic growth in an increasingly complex and capital-intensive industry.

The regulated utility model has served as the foundation of electric and natural gas service in the United States for more than a century. While the model is often discussed in terms of rates and cost recovery, its broader purpose is to ensure that customers receive safe, reliable, and affordable service while utilities maintain access to the capital required to build and operate essential infrastructure. The regulated utility model exists to support these outcomes and in consideration of the fact that electricity and natural gas systems require large, long-lived investments that are essential to customers and the economy. Building and maintaining generation, transmission, distribution, and increasingly sophisticated grid technologies requires substantial amounts of capital that must be invested years, and often decades, before customers realize the full benefits. The regulatory framework was developed to address this challenge by creating a structure that aligns the interests of customers and investors. This structure allows utilities to leverage investor capital at reasonable costs to deliver a public service without relying on public funding or revenue from taxes.

This alignment is achieved through the regulatory compact, a framework that balances utility and customer interests and results in a level of stability that is relied on by the providers of capital. Under that arrangement, utilities accept an obligation to serve all customers within their service territories and to make the investments necessary to maintain and expand the system. In return, regulators provide an opportunity for utilities to recover prudently incurred costs and earn a reasonable return

on invested capital. This framework creates the financial stability necessary to attract investment while subjecting utility rates and performance to regulatory oversight on behalf of customers.

The benefits of this model extend beyond capital recovery. The regulated utility framework enables utilities to pursue multiple policy objectives simultaneously, including affordability, reliability, resilience, system modernization, and economic development. Utilities are expected not only to maintain existing infrastructure, but also to plan for future needs, integrate new technologies, accommodate changing customer preferences, and respond to evolving public policy goals. The achievement of these outcomes is supported by the stability and balance of the regulatory model under the oversight of regulatory commissions and through the collaboration of regulators and utilities. Because utility assets often remain in service for decades, the ability to make long-term investments under a stable regulatory framework is critical to meeting these objectives.



Part 2:
Evidence, Consequences, and Critiques

SECTION 1:

AFFORDABILITY DISCUSSION: COST DRIVERS AND TARGETED SOLUTIONS

Overview

As widely reported and discussed in multiple regulatory and political forums, consumers are facing increasing cost pressure from a variety of sources. While these cost pressures have been driven by several geopolitical and economic conditions that are outside of the control of utilities, there has been increased scrutiny on electric bills as a source of affordability strain, and specific focus on reducing allowed ROEs as a solution. In Concentric's view, while electricity prices have increased, the issue is complex, and, because cost pressures are experienced differently and have different drivers depending on region and market structure, there is no single regulatory solution. Further, Concentric believes that the focus on authorized ROEs as an affordability solution is misplaced and risks weakening support for investment in the long-term growth of the electricity grid to meet consumer demand for safe and reliable service at a reasonable cost.

In this section, we provide an analysis of the drivers of recent changes in electricity bills both on a standalone basis and in the context of other consumer costs. We also describe practical mechanisms that utilities and regulators have taken to provide solutions to help customers that need support in paying for utility service. Importantly, these mechanisms are targeted toward finding constructive, long-term outcomes that don't result in short-term arbitrary rate reductions at the expense of customer and long-term system needs.

Understanding the Drivers of Recent Bill Increases

Effective solutions to address affordability concerns require an accurate diagnosis of the underlying cost drivers, as well as the drivers behind the different components of customers' bills. Measures intended to improve affordability are unlikely to succeed if they target those bill components that are not responsible for observed increases or if cutting them leads to unintended negative consequences. Two primary drivers of increased electricity prices are the increased cost of fuel and wholesale electricity and capacity market costs in areas with load growth and competitive capacity markets. These drivers are discussed in more detail below.

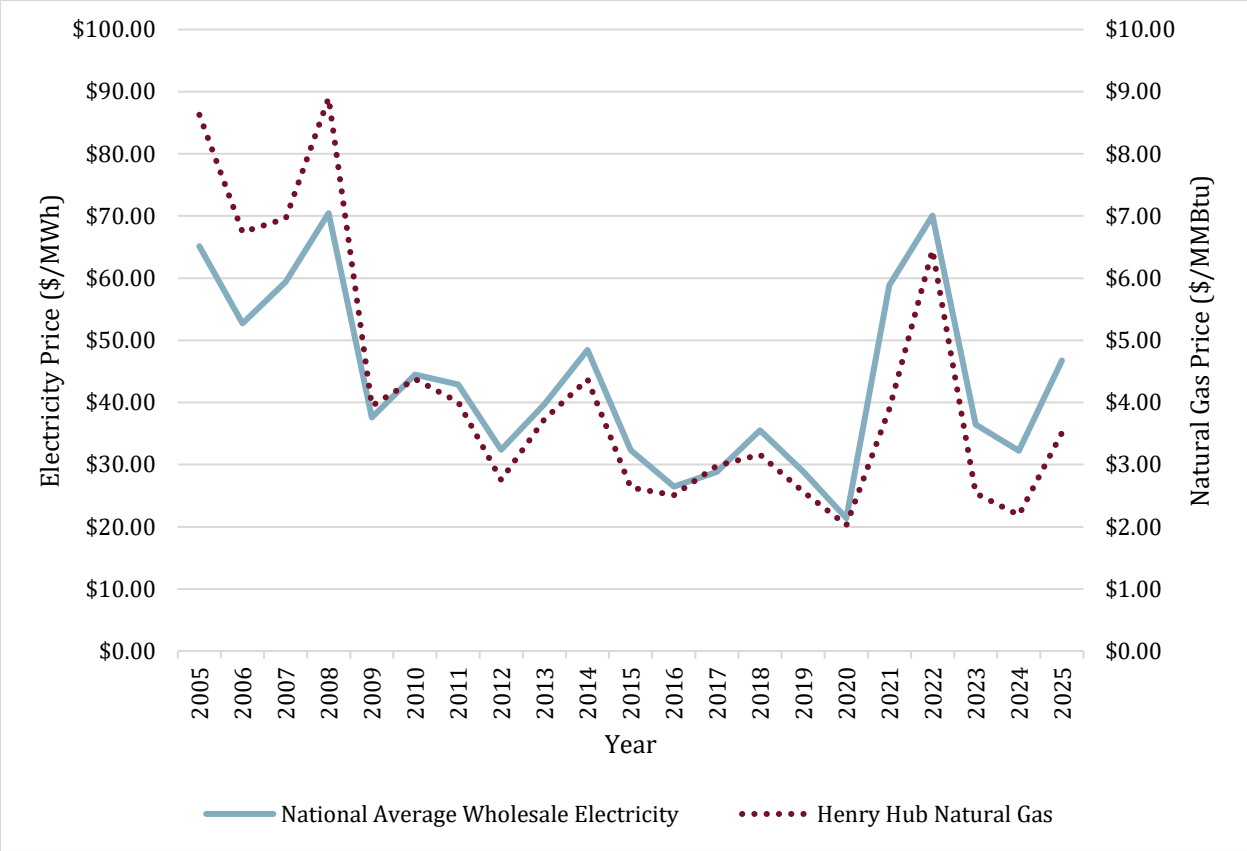
Fuel and Wholesale Electricity Costs

Recent increases in electric bills have generally been driven by a combination of factors that are largely unrelated to utility earnings or authorized returns on equity. Wholesale energy costs increased significantly following the pandemic due to fuel price volatility, supply chain disruptions, inflationary pressures across the economy, and changing generation market conditions. For example, Russia's invasion of Ukraine in 2022 disrupted global fuel markets, contributing to higher natural gas and other commodity prices that ultimately affected wholesale electricity costs.

In organized wholesale markets, customer bills include substantial energy, capacity, fuel, and purchased power costs that are established through competitive markets or external commodity prices rather than through state utility rate proceedings. Several factors have contributed to rising wholesale power costs. Natural gas prices increased substantially during portions of the last several years, and as demonstrated in Figure 11 below, are a primary contributor to energy prices as market prices for electricity are driven by gas-fired generation, which often sets the marginal price for

generation in organized markets, and the cost of which is highly dependent on underlying natural gas commodity costs.

Figure 11. Average Wholesale Electricity Price vs. Natural Gas Price at Henry Hub, Nominal $ (2005-2025)[27]



Capacity Costs

In some regions, capacity market costs have also increased as reserve margins[28] tighten amid generator retirements and rising electricity demand. These trends have increased the overall cost of providing reliable service, irrespective of the level of authorized utility returns. In PJM, for example, capacity prices averaged approximately $90/MW-day for the period 2007-2024. In the most recent Planning Reserve Auctions, however, clearing prices increased to more than $300 per MW-day.[29] Such increases represent a fundamental change in the cost of maintaining system reliability and

[27] Nominal dollars, day ahead around-the-clock electricity prices for all ISO/RTOs. Wholesale electricity prices were analyzed across 79 ISO/RTO pricing zones. All data accessed through S&P Capital IQ.
[28] Reserve margin is the amount of generating capacity available in excess of expected peak electricity demand, providing a buffer to maintain reliability during periods of high demand or unexpected generation resource outages.
[29] PJM BRA Clearing Prices, as reported by S&P Financial.

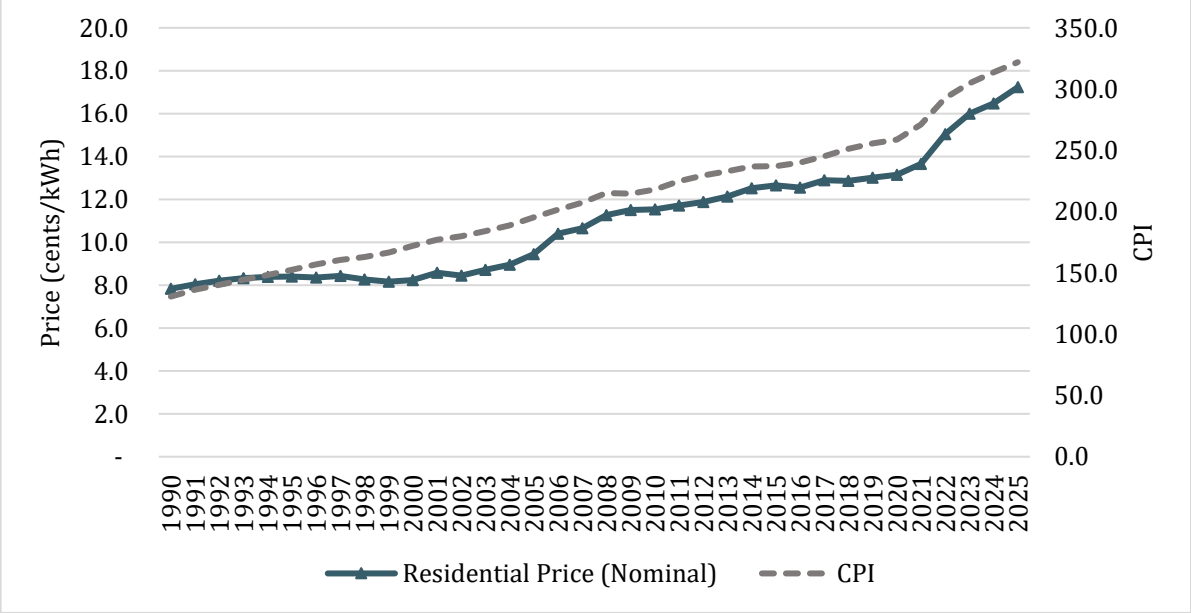
resource adequacy.[30] For a wires-only utility operating within PJM, these costs are largely determined by regional market outcomes and are passed through to customers with no markup. In that context, increases in customer bills are principally attributable to changing market conditions rather than utility returns or profitability.

Accordingly, a substantial portion of recent bill increases have originated from factors outside utility management's direct control and outside the scope of traditional cost-of-capital regulation. While authorized ROEs often receive significant attention in affordability discussions, they affect only a limited portion of total customer bills especially in regions with competitive markets, as discussed in this report.

Electric Service in an Era of Increasing Prices

Affordability of daily expenditures, including electric utility service, has become an area of increased focus nationwide as consumers have felt the impacts of rising costs. Electricity prices are not immune to these macroeconomic trends, although electricity prices have declined on an inflation-adjusted basis and their growth has generally trailed or been in line with overall consumer prices, as shown in the following figures. Specifically, the trajectory of average residential electricity rates and the Consumer Price Index (CPI) over the period 1990-2025 are provided in Figure 12.

Figure 12. 1990-2025 Increase in CPI vs. Average Residential Electric Rate[31]

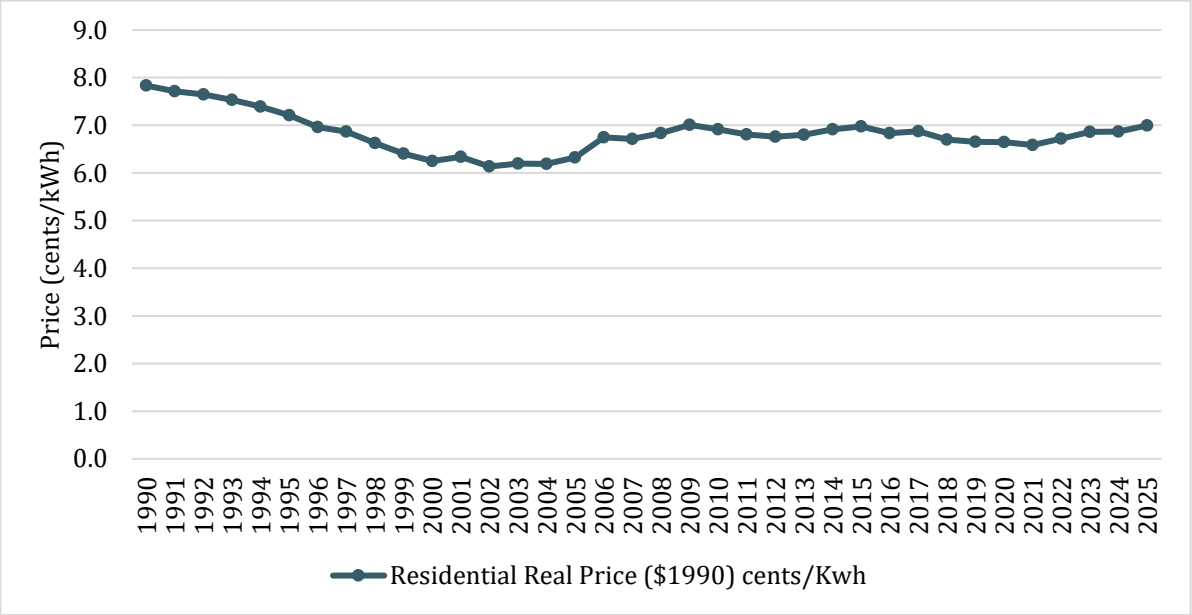


On an inflation adjusted basis, electricity prices in real terms have declined since 1990 (see Figure 13 below).

[30] Generally, Resource Adequacy (RA) is the condition in which sufficient supply is available to meet forecasted customer demand, plus appropriate reserve margins, while maintaining acceptable levels of reliability.

[31] Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers (CPI-U), Series Titles: All items in U.S. city average, all urban consumers, not seasonally adjusted. Annual Electric Power Industry Report, Form EIA-861, Annual sales to ultimate customers by state and sector, released October 7, 2026.

Figure 13. 1990-2025 Real Price of Electricity[32]



In terms of compound annual growth rates (CAGRs), overall consumer prices increased at approximately 2.61 percent per year between 1990 and 2025, while average residential electricity rates increased at approximately 2.28 percent per year. When measured in constant dollars, residential electricity rates declined by approximately 0.32 percent annually. In other words, electric rates have decreased in real terms over time.

Figure 14. 1990-2025 CPI[33] vs. Residential Rate[34] Compound Annual Growth Rates

	1990-2025 CAGR
CPI	2.61%
Residential Price (Nominal)	2.28%
Residential Real Price ($1990)	-0.32%

The comparison holds when electricity prices are evaluated against other major categories of household spending. Figure 15 and Figure 16 show that electricity prices have increased more gradually than medical care, housing, food, and gasoline over the long term. Among the major CPI components presented below, electricity exhibits one of the lowest long-run growth rates.

[32] *Id.*
[33] Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers (CPI-U), Series Titles: All items in U.S. city average, all urban consumers, not seasonally adjusted.
[34] Annual Electric Power Industry Report, Form EIA-861, Annual sales to ultimate customers by state and sector, released October 7, 2026.

Figure 15. CPI Subcomponents[35]

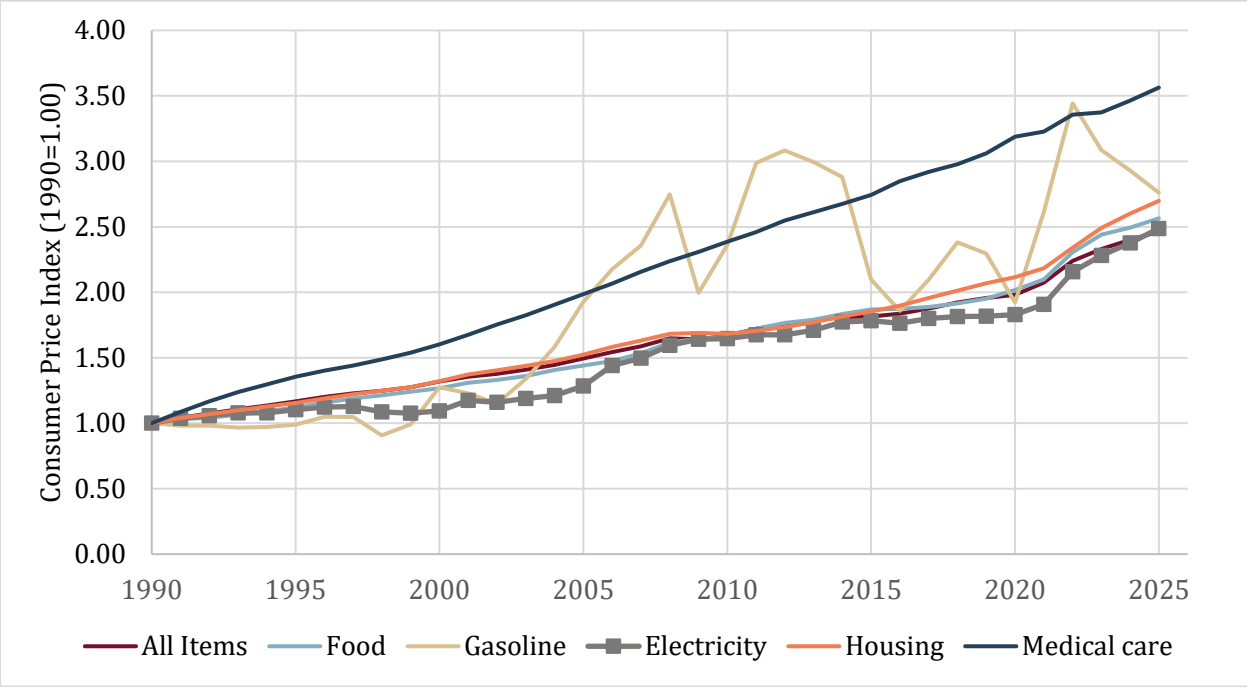


Figure 16. 1990-2025 CPI Subcomponent Compound Annual Growth Rates[36]

CPI Subcomponent	1990-2025 CAGR
Medical Care	3.70%
Gasoline	2.94%
Housing	2.88%
Food	2.73%
Electricity	2.64%

These comparisons provide context for evaluating concerns about the affordability of utility service. Customers may be experiencing overall increasing financial pressure, and electricity bills are a contributor. At the same time, the long-term data show that electricity prices have generally increased more slowly than overall inflation and many other major household expenses. The role of ROE should be considered in that context with an understanding that changes in ROE have a limited effect on the overall cost to customers given the small portion of the bill that is attributable to the equity return.

[35] Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers (CPI-U), Series Titles: All items in U.S. city average, all urban consumers, not seasonally adjusted; Food in U.S. city average, all urban consumers, not seasonally adjusted; Gasoline (all types) in U.S. city average, all urban consumers, not seasonally adjusted; Electricity in U.S. city average, all urban consumers, not seasonally adjusted; Housing in U.S. city average, all urban consumers, not seasonally adjusted; Medical care in U.S. city average, all urban consumers, not seasonally adjusted.

[36] *Id.*

Other Levers to Address Cost Pressures

Proposals intended to address the affordability of utility service should consider the magnitude of the costs being addressed by the policy or proposal. Such proposals are likely to have a greater impact when they focus on the larger drivers of customer costs and on policies that promote efficient long-term investment, reliable service, and lower overall system costs. As discussed in Section 1.4, reductions in authorized ROEs have a relatively small effect on customer bills and are therefore unlikely to produce meaningful rate relief.

Recent legislative and regulatory initiatives illustrate the range of tools available to policymakers seeking to address affordability concerns. Rather than focusing on utility earnings, many of these measures are targeted to specific customer groups, funding mechanisms, or cost-allocation issues. The following are some examples:

- Michigan's Home Heating Credit provides tax relief to income-qualified households to help offset home heating expenses.[37] By directing assistance to customers with demonstrated financial need, the program addresses affordability concerns more directly than policies that spread relatively small bill reductions across all customers, regardless of income or energy burden.
- Lawmakers in Indiana recently introduced legislation that would eliminate the 7 percent sales tax on household utility use (House Bill 1213 and Senate Bill 184).[38] House Bill 1213 proposed an immediate elimination of the state sales tax on household utilities beginning on July 1, 2026, while Senate Bill 184 proposed a four-year phase-down of the sales tax on residential utility services starting in fiscal year 2028.
- Other states have focused on identifying funding sources for low-income assistance programs. Both of the following measures reflect an effort to align emerging system costs with the customers driving those costs while providing targeted support for customers facing affordability challenges.
    - In Delaware, legislation signed in August 2026 requires large energy-use facilities to contribute to the state's Low-Income Program Fund through a dedicated volumetric charge. The resulting revenues support fuel-assistance and weatherization programs for qualifying customers.[39]
    - Maryland enacted legislation in 2026 requiring certain large-load customers to pay registration fees, with the proceeds divided equally between low-income energy assistance programs and energy-efficiency initiatives. [40]
- Pennsylvania legislators have considered a similar approach. House Bill 2150 (not yet enacted) would direct penalties assessed against data centers for reporting violations to low-income electric customer assistance programs.[41] Although the proposal remains under consideration, it reflects the same underlying policy principle: affordability concerns can be addressed through

[37] Michigan Income Tax Act of 1967, MCL § 206.527a.
[38] Indiana General Assembly, House Bill 1213, "Elimination of sales tax on household utility use" (January 5, 2026); Senate Bill 184, "Sales tax on utility service" (January 5, 2026).
[39] Delaware General Assembly, House Substitute 1 for House Bill 233, as amended (August 26, 2026); The Delaware Code Online, Title 26, Public Utilities, Chapter 10. Electric Utility Restructuring.
[40] Maryland General Assembly, House Bill 1532, "Utility RELIEF (Reducing Energy Load Inflation for Everyday Families) Act" (May 12, 2026).
[41] Pennsylvania General Assembly, House Bill 2150, "Data Center Energy and Water Reporting Act" (March 19, 2026).

targeted funding mechanisms without altering the utility's opportunity to earn a fair return on prudently invested capital.

Utilities in more than twenty states administer some form of customer assistance program, while many states operate monthly bill discount programs, annual bill credit programs, or Percentage of Income Payment Plans (PIPPs) that directly link customer energy obligations to household income levels. There are at least twelve states with monthly bill discount programs, some with fixed bill credits or fixed percentage discounts, and others with tiered percentage discounts. These are offered to customers that are a certain percentage below the Federal Poverty Guideline (FPG), State Median Income (SMI), Federal Poverty Level (FPL), or Area Median Income (AMI).[42]

States continue to expand and refine these targeted programs. In Illinois, legislation signed in July 2026 strengthened the Illinois Commerce Commission's authority to approve low-income discounts that apply to a qualifying customer's entire bill.[43] Missouri's 2025 utility legislation likewise authorizes the Missouri Public Service Commission to approve residential rates or bill discounts based in part on household utility burden, defined as the percentage of income a customer spends on electricity, natural gas, or water service.[44] Programs such as Low Income Home Energy Assistance Program (LIHEAP), PIPPs, and weatherization initiatives are specifically designed to reduce energy burdens for customers facing affordability challenges and therefore tend to provide more targeted and meaningful bill relief, rather than spreading a small (ROE) reduction across all customers regardless of need.

There are more than three dozen states with proposed or approved large load rate structures or tariffs that are active.[45] These tariffs typically include protections designed to ensure that the costs of serving large loads are not shifted to residential and small business customers. In Missouri, for example, large-load tariffs approved for Ameren Missouri and Evergy require minimum contract

[42] LIHEAP Clearinghouse (HHS/ACF): Benefit Levels for Heating, Cooling and Crisis, LIHEAP Income Eligibility for States and Territories, State Snapshots/Profiles, and LIHEAP Performance Management: Data Warehouse and Grant Recipient Profiles, at https://liheapch.acf.gov/; DSIREInsights, 50 States of Energy Affordability, Excel data set accessed September 22, 2026 at https://www.dsireinsight.com/publications; Colorado Public Utilities Commission, at https://puc.colorado.gov/energy-pipp; Illinois Natural Gas Low-Income Discount Rates at https://www.dupagecounty.gov/government/departments/community_services/programs/lidr.php#collapse185510b1925; ComEd Low Income Discount (LID) Program at https://www.comed.com/my-account/customer-support/payment-assistance/low-income-discount-program; New York Department of Public Service, Energy Affordability Program at https://dps.ny.gov/energy-affordability-program; Duke Energy Customer Assistance Program at https://www.duke-energy.com/home/billing/assistance/customer-assistance-program; Pacific Power Oregon Low Income Discount Program at https://www.pacificpower.net/my-account/payments/bill-payment-assistance/oregon-low-income-discount-program.html; NW Natural Income-qualified bill discount program at https://www.nwnatural.com/account/bill-discount-program; PGE Income-Qualified Bill Discount at https://portlandgeneral.com/income-qualified-bill-discount; Dominion Energy Percentage of Income Payment Program (PIPP) at https://www.dominionenergy.com/virginia/paying-my-bill/billing-options/percentage-of-income-payment-program; Cascade Natural Gas Corp. Income Qualified Assistance Programs at https://www.cngc.com/customer-service/income-qualified_assistance_programs/washington/; Washington Low-Income Bill Assistance Program at https://www.pacificpower.net/my-account/payments/bill-payment-assistance/washington-liba-program.html.

[43] Illinois General Assembly, House Bill 4456, Public Act 104-0540 (July 9, 2026), https://www.ilga.gov/ftp/legislation/104/BillStatus/HTML/10400HB4456.html.

[44] Missouri General Assembly, Senate Substitute No. 2 for Senate Bill 4 (signed April 9, 2025).

[45] Smart Electric Power Alliance Database of Emerging Large-Load Tariffs at https://sepapower.org/large-load-tariffs-database/, downloaded October 28, 2026.

terms of 12 years (with an optional five-year ramp period), collateral equal to two years of minimum monthly bills, minimum monthly bills that include a demand charge set at 80 percent of contracted capacity, and exit and early termination fees.[46] In Georgia, a rule approved in January 2025 allows Georgia Power to serve new customers with demand above 100 MW under customized contracts with terms of up to 15 years, minimum billing requirements, and Commission review of each contract, so that these customers pay for upstream generation, transmission, and distribution costs incurred to serve them.[47] In New York, the Public Service Commission opened a proceeding in February 2026 to reform large-load interconnection, with stated objectives that include ensuring that data centers and similar facilities bear the costs they impose on the electric system and exploring ways in which new large electric load could lead to downward pressure on rates for all customers.[48]

In addition to state action, some utilities, such as American Electric Power (AEP) are acting with similar measures. AEP is investing in its system to support record energy demand while protecting existing customers. Large customers are paying for the grid infrastructure that serves them through agreements with AEP's operating companies and innovative rate structures, which are expected to offset up to $16 billion in costs for existing customers in its vertically-integrated electric companies over the life of the contracts.[49]

As demonstrated in Section 1.4, the majority of a customer's electricity bill is dedicated to generation and transmission. There are policy opportunities that could deliver electricity affordability by focusing on reducing the cost of new generation and transmission, at a time when costs are rising. These could include reducing barriers to new generation and transmission, promoting grid-enhancing technologies (GETs) and other grid modernization investments,[50] and providing tax and financing incentives that reduce the cost of developing electric infrastructure. By lowering the cost of investment and expanding system capacity, such measures can help place downward pressure on rates while supporting continued investment in the electric sector.

Affordability and cost-of-capital issues address different regulatory objectives. Authorized ROEs are intended to maintain utility financial integrity and access to capital. Affordability concerns are generally addressed most effectively through regulatory oversight and targeted customer assistance programs rather than through modifications to the fundamental ratemaking framework or the regulatory compact.

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[46] Missouri Public Service Commission, "Utility Tariffs for Large Load Customers in Missouri," https://psc.mo.gov/General/Utility_Tariffs_for_Large_Load_Customers; Missouri Public Service Commission, File No. ET-2025-0184, *Order Regarding Ameren Missouri's Request for Approval of a Large Load Rate Plan and Associated Variance* (November 24, 2025).

[47] Georgia Public Service Commission, News Release, "PSC Approves Rule to Allow New Power Usage Terms for Data Centers" (January 23, 2025), https://psc.ga.gov/site/assets/files/8617/media_advisory_data_centers_rule_1-23-2025.pdf.

[48] New York Public Service Commission, Case 26-E-0045, *Order Instituting Proceeding and Soliciting Comments* (issued February 12, 2026); Case 26-E-0045, *Notice of Technical Conference* (issued October 2, 2026).

[49] Edison Electric Institute, Powering Customer Savings: Helping Residential Customers Save on Energy Costs, accessed at https://www.eei.org/-/media/Project/EEI/Documents/Issues-and-Policy/Customer-Programs-PDF.pdf#pagemode=none&navpanes=0&view=Fit&toolbar=0.

[50] U.S. DOE, Advanced Transmission Technologies Report, December 2020; Idaho National Laboratory (INL), A Guide to Case Studies of Grid-Enhancing Technologies, December 2022; and Advanced Conductors Scan Report, September 2024.

SECTION 2:

HOW ROES AFFECT THE UTILITY BUSINESS

Authorized ROEs Are an Important Signal for Capital Allocation

Utilities are capital-intensive enterprises that compete for investment capital on two fronts:

- Internally, with other investment opportunities within the same parent company; and
- Externally, with other investments in the capital markets.

Authorized ROEs influence future capital deployment, including a utility's ability to attract capital on reasonable terms, thereby mitigating capital costs borne by customers by supporting the investments necessary to maintain safe and reliable service. Consistent with the *Hope* and *Bluefield* standards, a fair return must be sufficient to maintain financial integrity, support credit quality, attract necessary capital, and remain commensurate with returns available on investments of comparable risk.

Internal Capital Allocation

A substantial portion of investor-owned utilities operate as subsidiaries of parent companies or holding companies. Investors provide capital to the parent company, which evaluates competing investment opportunities across its subsidiaries and other businesses when determining where to deploy that capital. A regulated utility subsidiary then makes its own capital investment decisions within the jurisdictions it serves, consistent with applicable regulatory requirements. A dollar allocated to one subsidiary, jurisdiction, or investment opportunity cannot simultaneously be invested elsewhere within the corporate structure.

Utilities have an obligation to serve and must continue to make the investments necessary to maintain safe and reliable service; however, there may be flexibility as to the amount, scope, or timing of certain utility investments. Once capital for critical investments for safe and reliable service has been committed, there are incremental investments for various customer programs that holding companies evaluate on a relative, risk-adjusted basis, considering factors such as authorized ROEs, cost-recovery mechanisms, and the predictability of the regulatory framework of the respective operating companies across its corporate enterprise. This distinction is particularly important for holding companies with regulated utilities operating across multiple jurisdictions or other businesses within the corporate structure that compete for capital.

Capital is a finite resource. It is, therefore, important to recognize that capital from the holding or parent company may not be available to each utility subsidiary in the same amount regardless of the expected return or risk profile. Authorized returns, along with the regulatory framework and available regulatory mechanisms, affect the risk-adjusted return, and ultimately, the relative attractiveness of allocating capital to a particular utility or jurisdiction. In other words, holding companies invest where returns are stable, and manage exposure to jurisdictions in which adverse regulatory conditions could produce significant financial consequences. Such strategic management decisions are consistent with financial principles and are important not only to shareholders, but also to customers. When a regulatory framework makes a jurisdiction attractive for investment, customers benefit from low-cost equity and debt. In contrast, customers ultimately bear the

consequences of adverse regulatory decisions through reduced incremental capital investment on customer programs and higher costs of capital for investments that cannot be deferred or avoided.

Capital Allocation by External Investors

From the perspective of external capital markets, investors supply capital to utilities with the expectation of earning a return on their investment.[51] Investors may provide capital through either debt or equity, each of which carries a different level of risk, and accordingly, a different cost, or required return. Debt generally carries less risk because debtholders receive contractual interest payments and expect repayment of principal. Furthermore, debtholders have a priority claim over equity holders in the event of a bankruptcy. Equity investors, by contrast, bear greater risk because their returns are neither fixed nor guaranteed, and debtholders have a higher priority for repayment. As compensation for this additional risk, equity investors require a higher return.

For equity investors, the return generally consists of periodic dividend payments and stock price appreciation upon selling the stock.[52] Consequently, an investor's willingness to supply equity capital depends on whether the expected return is sufficient to compensate for the risks assumed and is competitive with the returns available from alternative investments of comparable risk. This relationship between risk and return, and the ability to attract capital is reflected in the principles established in *Hope,* which summarizes the fundamental requirements of a fair return:

> *[T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.*[53]

Generally, a company's risk is comprised of business risk and financial risk. For regulated utilities, one of the most important types of business risk is regulatory risk.[54] From that perspective, the authorized ROE and capital structure send an important signal to investors regarding whether there is regulatory support for the financial integrity of the utility and its future investment decisions in support of serving customers. A company's cost of equity reflects the opportunity cost of investing equity capital in that company rather than in alternative investments of comparable risk. Utilities have historically maintained relatively low capital costs compared with other sectors, benefiting customers through lower financing costs. All else equal, utility regulation generally reduces risk relative to nonregulated industries. If investors and lenders perceive an investment as less risky, they can reasonably accept a lower rate of return. Accordingly, an authorized ROE that is lower than the prevailing authorized ROEs for other utilities introduces an investment risk that may inhibit the utility's ability to attract equity capital on reasonable terms or debt at comparable cost to other utilities.

[51] National Association of Regulatory Utility Commissioners, "Cost of Capital and Capital Markets: A Primer for Utility Regulators" (December 2019).
[52] *Id.*
[53] *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944).
[54] National Association of Regulatory Utility Commissioners, "Cost of Capital and Capital Markets: A Primer for Utility Regulators" (December 2019).

Investors' evaluations of utility risk are important to customers. Investor risk is directly relevant to utility customers because low perceived risk delivers to electric utilities the lowest costs of capital of any major industry in the United States, and that translates directly into affordable electricity; however, the inverse is also true – greater perceived risk among investors and lenders can increase a utility's cost of attracting capital, which is ultimately reflected in the costs borne by customers.

Capital Structure and Authorized ROE are Interrelated

A regulated utility's capital structure, or the proportions of debt and equity on its balance sheet, is important in assessing 1) its overall financial risk, 2) the adequacy of the returns necessary to support safe and reliable operations, and 3) its ability to attract capital on reasonable terms. As explained by the National Association of Regulatory Utility Commissioners (NARUC):

> *Receiving a reasonable authorized ROE and capital structure from regulators is an important contributor to financial stability. The customer benefits that result from being served by a financially healthy utility outweigh the illusory short-term "benefits" of a negative regulatory climate that heightens regulatory risk.*[55]

Capital structure and authorized ROE are interrelated and cannot be evaluated in isolation. As debt increases, fixed obligations grow, the equity buffer that protects financial flexibility narrows, and the risk of default rises. Debt and equity investors respond by requiring higher returns. In short, the short-term benefits associated with higher debt in the authorized capital structure are offset by a higher ROE and cost of debt in the long run. A fair return, therefore, depends on both the authorized ROE and capital structure together.

Although debt generally costs less than equity, customers do not necessarily benefit from substituting debt for equity in the capital structure of utilities, particularly over the long term. Importantly, both the *cost* of debt and the *cost* of equity depend on the capital structure of the utility. Equity is the buffer that supports credit quality and helps keep borrowing costs low. An adequate equity ratio and ROE benefit customers by 1) preserving the utility's financial flexibility and integrity, 2) enabling access to capital across a variety of market conditions and constraints, and 3) ultimately supporting its obligation to serve through reliable service and the ability to respond to unexpected events. Utilities have an obligation to serve customers and therefore must maintain the financial integrity to access capital even when capital markets are constrained, unexpected exogenous events arise (*e.g*. storms, wildfires, cold snaps), or unplanned infrastructure replacement is needed. By comparison, non-utilities do not have the obligation to serve and have greater discretion as to when to raise and deploy capital investments.

As leverage rises and that cushion shrinks, credit metrics weaken, financial risk increases, and the returns required by both lenders and shareholders rise. Regulators therefore recognize the interrelationship between the capital structure and the costs of debt and equity, and that a fair return is one that considers not only the relative near-term costs of debt and equity, but also balances those costs with the long-term need for financial strength, flexibility, and reliable access to capital so the

[55] National Association of Regulatory Utility Commissioners, "Cost of Capital and Capital Markets: A Primer for Utility Regulators" (December 2019).

utility can continue to serve customers safely and reliably. Put another way, when the equity portion of the capital structure is reduced, the overall riskiness of the investment rises, and the effect of higher debt can increase both the cost of debt and the cost of equity.

For these reasons, proposals to cap or reduce the authorized ROE while increasing debt are fundamentally inconsistent with the risk/return relationship, as the two changes compound rather than offset each other: greater leverage increases the risk borne by equity investors, while a lower ROE reduces compensation for bearing it. The cash flow-to-debt ratio used by credit rating agencies illustrates the effect. A lower ROE and equity ratio reduce cash flow (the numerator), while more debt increases the denominator. The resulting lower ratio signals higher financial risk and can trigger a credit rating downgrade, which raises borrowing costs that customers ultimately bear.

Sufficient equity in the capital structure is therefore essential to preserve a utility's financial integrity and investment grade credit rating, sustaining access to capital on reasonable terms under a variety of capital market environments.

Higher proportions of debt and lower authorized ROEs compound increases in risk and capital costs.

Proposals to cap or reduce the authorized ROE while increasing debt are fundamentally inconsistent with the risk/return relationship, as the two changes compound rather than offset each other: greater leverage increases the risk borne by equity investors, while a lower ROE reduces compensation for bearing it.

SECTION 3:

CONSEQUENCES OF INSUFFICIENT AUTHORIZED ROES

Constructive regulatory outcomes support utilities across a range of macroeconomic and industry conditions.

Conversely, restrictive or unfavorable outcomes can create financial and operational pressures that compound over time, potentially resulting in significant adverse impacts and higher costs for customers.

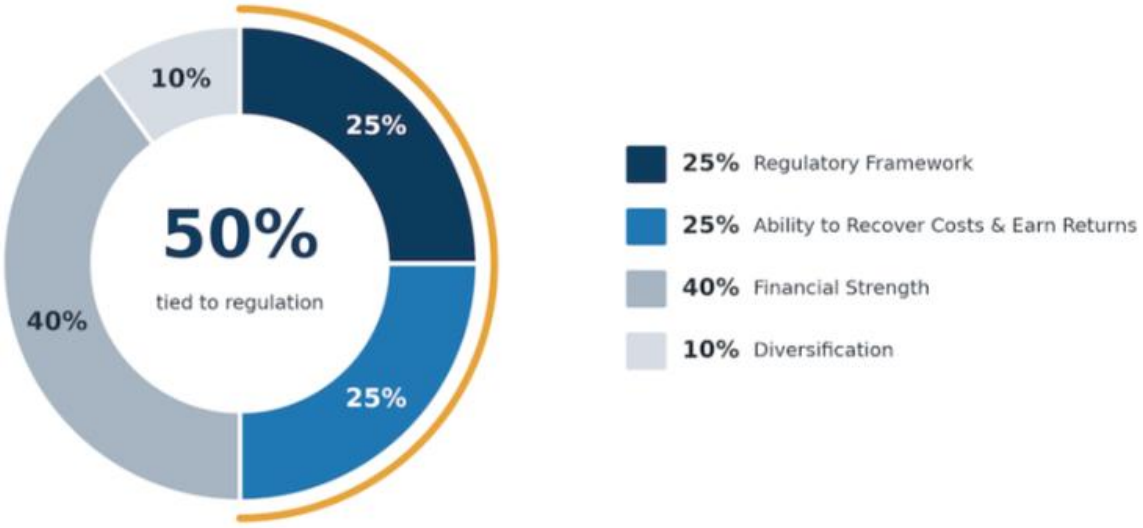
Insufficient Authorized Returns Can Impair Utilities' Ability to Raise Capital

Utilities generally operate within regulatory frameworks designed to support financial integrity and access to capital as they continue to serve customers across economic cycles, and this has been demonstrably successful in delivering enormous capital investment at very low cost of capital, as discussed above. However, the instances in which utilities did not receive an adequate authorized return have led to reduced access to capital, higher financing costs, and increased pressure on their ability to fund necessary investment. These examples are particularly instructive because they demonstrate how regulatory decisions intended to lower customer costs in the near term (*e.g.,* via a lower authorized ROE) can produce broader and more persistent costs for them over time.

Impact of Inadequate Returns on Access to Debt

Both lenders and equity investors consider the company's overall financial condition when making investment decisions. Moody's Investors Service (Moody's) is a leading credit rating agency that assesses creditworthiness and financial risk of companies and their debt obligations. For lenders in particular, Moody's assessments (*i.e.,* credit ratings) are critical when evaluating risk and making capital allocations. As shown in the figure below, 50 percent of Moody's overall assessment is directly attributable to the regulatory framework and the utility's ability to recover costs and earn returns.

Figure 17. Moody's Rating Methodology Factors for Regulated Electric and Gas Utilities[56]



Moody's notes that the converse, or a utility's inability to recover costs and operate in a predictable regulatory environment, is reflected in lower ratings:

> *A utility operating in a regulatory framework that, by statute or practice, allows the regulator to arbitrarily prevent the utility from recovering its costs or earning a reasonable return on prudently incurred investments, or where regulatory decisions may be reversed by politicians, typically receives a lower score.*[57]

Regulatory Research Associates (RRA), an arm of S&P Global, assigns regulatory rankings to "reflect the interest of equity and fixed-income investors."[58] RRA characterizes more constructive regulatory environments as lower risk from an investor viewpoint and less constructive environments as higher risk. RRA notes that "the level of regulatory risk will impact how investors and utility management deploy capital."[59]

Deterioration in a utility's credit quality and credit rating downgrades can increase the cost of debt issued by the utility and ultimately impact customers' bills via higher capital costs. Moody's notes, for example, the impact of returns and cost recovery on cash flow:

> *The ability of a utility to recover its costs and earn a return, including during different market and economic conditions, directly affects its ability to generate cash flow and*

[56] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, at 2 (August 6, 2024).
[57] *Id.*, at 10.
[58] Regulatory Research Associates, "4 jurisdictions show marked change in regulatory risk for utility investors," January 10, 2025.
[59] *Id.*

> *service its debt. Core aspects of this factor are the timeliness of recovery of operating and capital costs, and the sufficiency of rates and returns.*
>
> *The ability to recover prudently incurred costs on a timely basis and to attract debt and equity capital are crucial credit considerations.*[60]

Consequences may include higher long-term borrowing costs that are ultimately reflected in customer rates, as well as reduced access to debt that can constrain a utility's ability to maintain, modernize, and strategically invest in the assets required to provide safe and reliable service. Importantly, reduced access to debt should not be narrowly interpreted as the complete inability to attract debt capital. Even though investors may be willing to provide debt capital, that capital may come with more limitations, or financial covenants, which are financial conditions or restrictions that a company must meet to obtain and maintain financing. Examples of financial covenants include:

- Minimum interest coverage ratio,
- Maximum debt-to-EBITDA,
- Minimum liquidity or cash balance

Examples of operating restrictions include:

- Limits on paying dividends
- Limits on acquiring other companies
- Restrictions on selling assets
- Limits on additional debt

During periods of capital constraint, a utility seeking additional financing may breach (*i.e.*, violate) financial covenants. In those circumstances, the utility may incur costs to obtain amendments or waivers from lenders. Depending on the debt agreements between the lenders and utility, covenant breaches may result in a default and may trigger cross-default with other debt instruments or acceleration provisions in which utilities would need to repay lenders sooner than originally anticipated. Further, the pool of investors may shrink as credit ratings decline because many fixed income institutional investors have limits with respect to the total amount of debt that they can hold at specific rating tiers; at higher ratings, the limits are higher, and get progressively lower for each lower rating tier. As the pool of investors shrinks, pricing becomes less competitive, increasing the spread applied to the benchmark risk-free rate. In short, reduced access to capital increases customer costs, even if the utility retains access to capital of any kind. These consequences ultimately impact customers since the utility's reduced financial flexibility can constrain or delay investments needed to maintain and improve system reliability, resilience, and service quality.

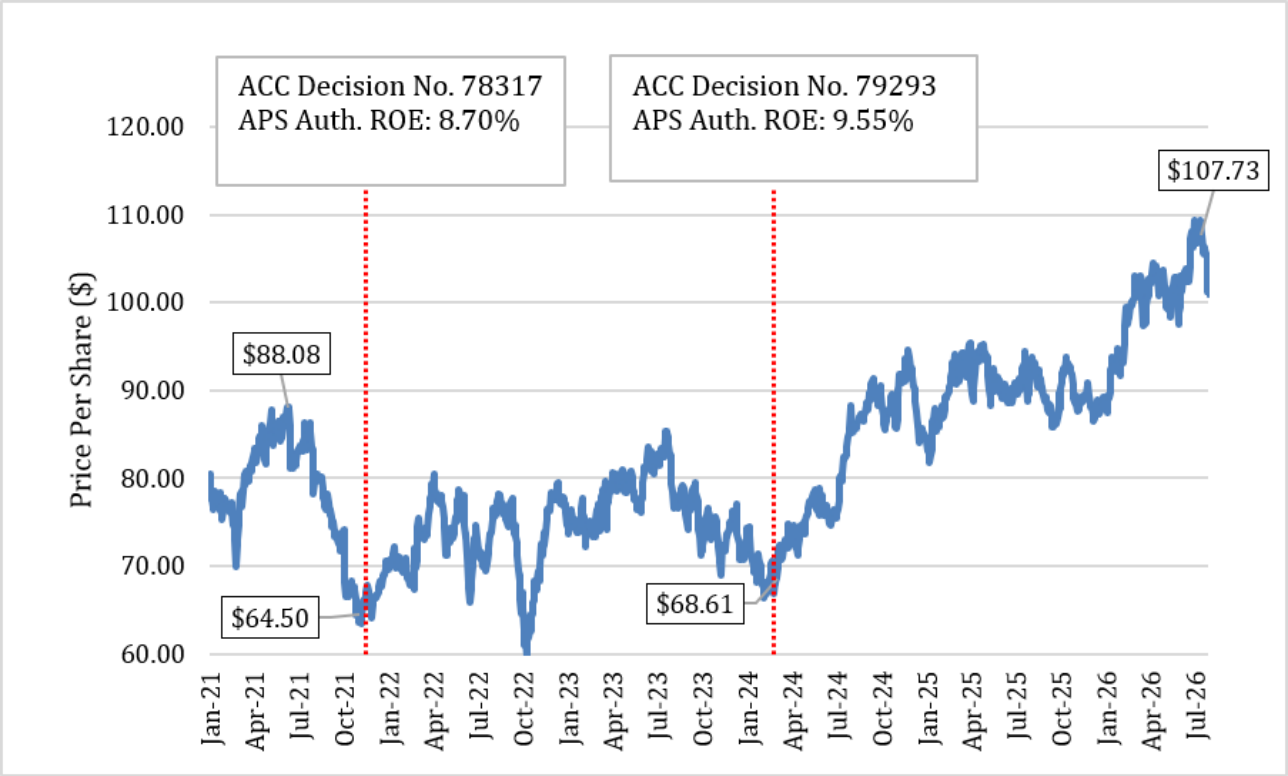
Impact of Inadequate Returns on Access to Financial Markets

To examine the direct impacts of an insufficient authorized ROE in context, it is useful to consider the adverse financial consequences that followed a 2021 regulatory decision affecting the Arizona Public Service Company (APS). In November 2021, the Arizona Corporation Commission (ACC) issued

[60] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, at 11 (August 6, 2024).

Decision No. 78317, reducing APS's authorized ROE from 10.00 percent to 8.70 percent.[61] Investor concerns developed before the ACC issued its final decision, as it became increasingly evident as the rate case progressed that APS could face a materially lower authorized ROE. The Administrative Law Judge (ALJ) initially recommended a 9.16 percent ROE, below APS's existing and requested 10.00 percent ROE. The regulatory outlook deteriorated further when, prior to the final order, the ACC voted to reduce APS's authorized ROE to 8.70 percent and took other actions affecting cost recovery. The capital market response during APS's regulatory proceeding is reflected in Figure 18 below, illustrating the decline in the stock price of APS's parent company, Pinnacle West Capital Corporation (PNW), as the ALJ and ACC made their respective ROE recommendations. By the time the final decision was made in the case, PNW's stock price declined by 27 percent from approximately $88 per share in June 2021 to about $65 per share in November 2021. APS's ROE was later increased to 8.90 percent on remand. Notably, PNW's stock price began to recover following the ACC's March 2024 decision, which increased APS's authorized ROE by 65 basis points to 9.55 percent.

Figure 18. PNW Stock Price Impact of Arizona Corporation Commission's 2021 and 2024 Decisions

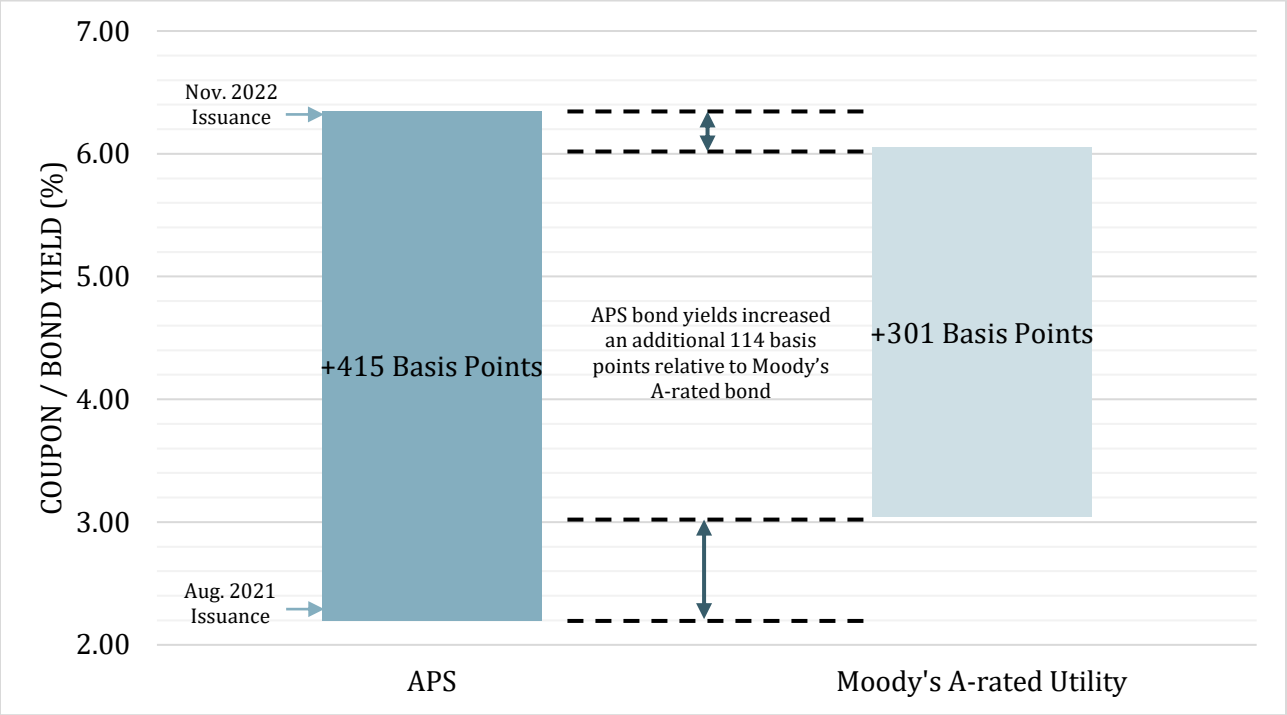


Put simply, required returns are inversely related to stock prices. In the case of PNW, the stock price decline observed in 2021 indicates the higher return investors required to commit capital to the company.

[61] Arizona Corporation Commission, Opinion and Order, Decision No. 78317, Docket No. E-01345A-19-0236 (Nov. 9, 2021); Order on Remand Adopting Joint Resolution, Decision No. 78979, Docket No. E-01345A-19-0236 (June 28, 2023).

In response to the developments in the proceeding, all three major credit rating agencies, S&P, Moody's, and Fitch Ratings, downgraded the long-term issuer rating of APS and PNW, by one notch. While PNW's stock price recovered from the sharp decline that followed the ACC's 2021 Decision, APS's credit rating has not been upgraded by the major rating agencies even after its authorized ROE was increased in 2024, demonstrating the long-term impact of negative regulatory outcomes on the cost of debt and perceived credit quality of a utility. While APS was able to issue debt following its 2021 Decision, that access came at a significantly higher cost. APS's 10-year senior debt issued on November 4, 2022 carried a 6.35 percent coupon rate, representing a 415-basis point increase from its August 11, 2021 issuance. By comparison, the Moody's A-rated utility bond yield increased by 301 basis points over the same period. That is, while the change in capital market conditions explains a portion of the increase, APS' cost of debt increased by more than 100 basis points above the shift observed by other utilities. As shown below, APS experienced a 114-basis point increase above the broader movement in utility borrowing costs, an indication of the heightened premiums investors demanded following the adverse regulatory outcome and subsequent credit rating downgrades.

Figure 19. Arizona Public Service Company's Cost of Debt Increase Relative to Utility Benchmark Yields



APS's increased cost of capital will be recovered from customers for the life of the debt instrument (*i.e.* 10 years) or until the company can refinance at lower rates, the latter carrying additional underwriting and refinancing fees.

In another example, Avangrid subsidiaries The United Illuminating Company (UI), Southern Connecticut Gas (SCG), and Connecticut Natural Gas (CNG) experienced reduced investor demand for its bonds and higher premiums on its debt as a result of a highly contentious and adverse regulatory environment in Connecticut. In Docket 22-08-08, the Connecticut Public Utilities Regulatory

Authority (PURA) authorized an ROE of 8.63 percent. [62] In a 2024 rate case filing,[63] UI explained that as a result of PURA's adverse decision in 2022 rate case, credit rating agencies expressed alarm regarding the outcome and the impact it would have on UI's financial integrity. In its 2024 filing, UI noted:

> *These investment community concerns go beyond revised credit outlooks from the credit rating agencies as they have manifested themselves in restrictions on accessing capital and higher borrowing costs. The bankers informed Avangrid that… [difficulty was due to] limited interest to invest in Connecticut utilities due to concerns over the regulatory environment impacting current ratings. The potential inability to borrow funds… is now a very real risk for UI and its affiliates.*[64]

As a result of the 2022 rate case outcome, UI was unable to secure capital at its anticipated costs, consequently raising its financing costs by approximately $300,000 – $450,000 per year, demonstrating the difficulty of securing reasonably-priced capital from investors. Importantly, these financial consequences can ultimately affect customers through higher financing costs and reduced financial flexibility, illustrating how actions that reduce cost recovery in the near term may increase the cost of producing reliable utility service over the longer-term.

Endangering Capital Access in Challenging Market Conditions

To illustrate the importance of utilities maintaining strong balance sheets, it is instructive to consider periods in which adverse capital market conditions significantly constrained utilities' access to capital. In late 2008, the deterioration of the subprime mortgage market developed into a broader financial crisis and global recession. Underwriting standards tightened and investor scrutiny increased as major financial institutions that traditionally served as sources of capital were acquired, restructured, supported by government intervention, or failed.

These capital market constraints coincided with substantial financing requirements for electric utilities. At the time, the industry faced significant capital needs associated with infrastructure investment, modernization, changing electricity requirements, energy efficiency initiatives, and environmental objectives.[65] Also at the same time, declining customer demand constrained internally generated cash, while depressed utility stock prices made common equity issuance comparatively unattractive. Thus, utilities' continuing need for external financing coincided with a period in which obtaining that financing had become more difficult and expensive.

During this time, access to debt became scarcer and more costly.[66] For example, on October 7, 2008, the Wall Street Journal reported, "[t]he corporate bond markets are at a standstill."[67] According to the Wall Street Journal, debt issuances for electric, gas, and water utilities decreased by 50 percent

[62] Connecticut Public Utilities Regulatory Authority, *Application of the United Illuminating Company to Amend Its Rate Schedule*, Decision, Docket No. 22-08-08 (August 25, 2023).
[63] The United Illuminating Company, *Application of The United Illuminating Company to Amend its Rates Schedules,* Direct Testimony of the Revenue Requirements Panel, at 23-24, Docket No. 24-10-04 (November 12, 2024).
[64] Direct Testimony of United Illuminating Company's Revenue Requirements Panel at 23-24, Connecticut Public Utility Regulatory Authority Docket No. 24-10-04. [Clarification added.]
[65] Cannell, J., "The Financial Crisis and Its Impact on the Electric Utility Industry," at 8 (February 2009).
[66] Cannell, J., "The Financial Crisis and Its Impact on the Electric Utility Industry," at 8 (February 2009).
[67] The Wall Street Journal, "Long-Term Bond Markets Dry Up," October 7, 2008.

in the third quarter of 2008 as compared to the second quarter.[68] The commercial paper market also experienced significant difficulties as the market effectively shut down.[69] In addition, the spread between the LIBOR and short-term Treasury rate spiked and then remained significantly elevated compared to pre-financial crisis levels. This spread is indicative of the perceived risk between interbank loans versus "risk free" government-issued securities, and by extension, an indicator of the perceived risk in the nongovernment credit market in general.

For those entities that did have the ability to issue new debt, it came at a much higher cost, particularly for those issuers with lower credit ratings. Investment grade electric utilities issued debt during that year at coupon rates ranging from 5.75 percent to 9.80 percent.[70] We Energies, rated by S&P as BBB+ at that time, secured debt on September 25, 2008 at both a higher cost and a shorter term than planned.[71] Similarly, PECO Energy, also rated by S&P as BBB+ at that time, issued debt at a relatively high cost on September 25, 2008, and expressed concern before the issuance that there might not be a market for its debt.[72] AmerenUE rated BBB- by S&P and Missouri's largest utility, also expressed concern regarding access to capital markets.[73] In addition, Illinois Power Company (d/b/a AmerenIP) announced in 2008 a private placement of $400 million of long-term senior secured notes at 9.75 percent.[74]

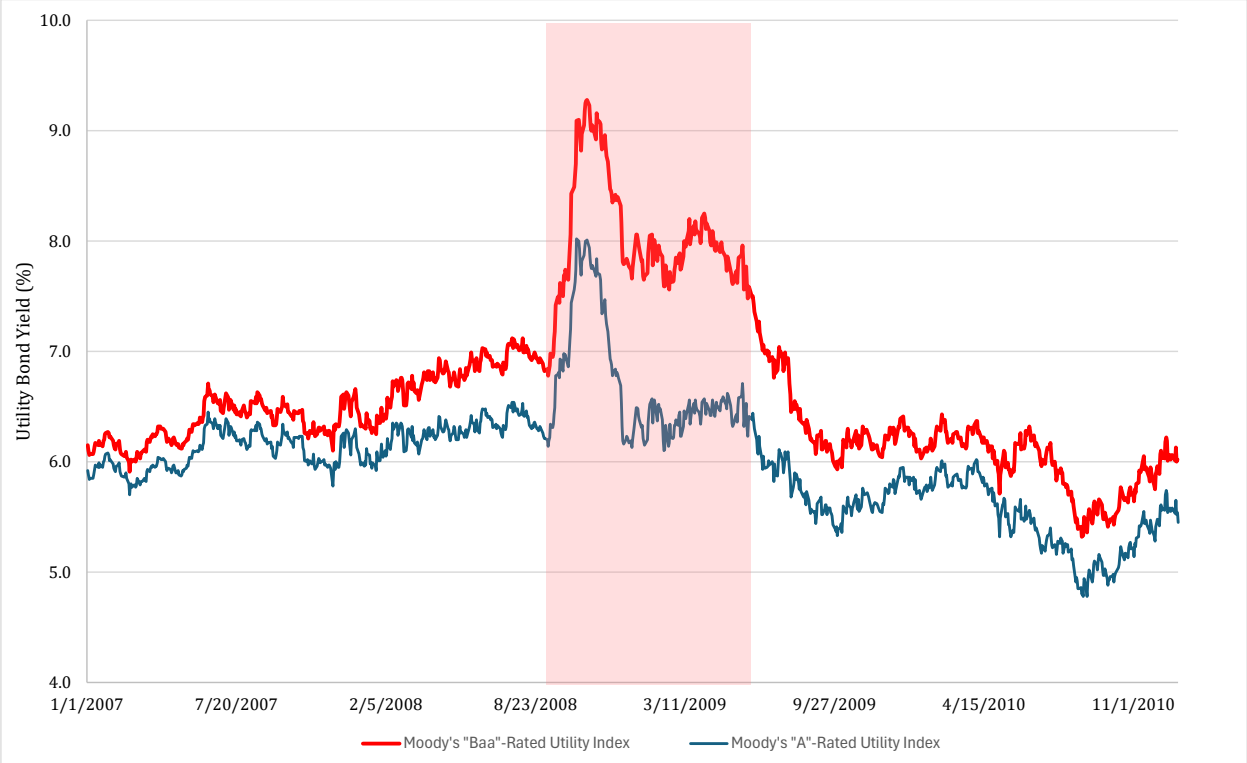
For non-investment grade rated companies, the cost of securing loans at that time was particularly high.[75] For example, Reliant Energy, rated B+ by S&P as of October 3, 2008, announced that it had received a $650 million senior secured, four-year term loan with a borrowing rate of LIBOR plus 450 basis points (4.50 percent).[76] The three-month LIBOR rate as of September 29, 2008 (the date Reliant announced that it had secured the loan) was 3.88 percent, which would provide for a total debt cost of 8.38 percent. This represents a 566-basis point (5.66 percent) premium over the five-year Treasury rate as of September 29, 2008.

Equity markets also experienced significant volatility. As of October 24, 2008, the S&P 500 index was down approximately 40 percent for calendar year 2008, with the steepest declines coming after mid-September.[77] Utility stocks were similarly affected by the challenging market environment, with the S&P 500 Utilities Index declining approximately 32 percent over the course of 2008.

As previously discussed, equity investors bear greater risk than debtholders. Accordingly, the return on equity must be sufficient to compensate equity investors for assuming that additional risk. During the financial crisis period, however, the differential between authorized ROEs and debt costs was unusually compressed, as the interest rates increased substantially. Figure 20 below demonstrates that the cost of debt for utilities eclipsed 9.0 percent at its peak.

[68] The Wall Street Journal, "Utilities' Plans Hit by Credit Markets," October 1, 2008.
[69] See, e.g., St. Louis Post Dispatch, "Credit Crisis Hits Home for AmerenUE," October 16, 2008; Associated Press, "Fed to buy commercial paper from mutual funds", October 21, 2008.
[70] Cannell, J., "The Financial Crisis and Its Impact on the Electric Utility Industry," at 6 (February 2009).
[71] The Wall Street Journal, "Utilities' Plans Hit by Credit Markets," October 1, 2008.
[72] The Wall Street Journal, "Utilities' Plans Hit by Credit Markets," October 1, 2008.
[73] St. Louis Post Dispatch, "Credit Crisis Hits Home for AmerenUE," October 16, 2008.
[74] Ameren Corporation, Press Release, "Ameren Corporation Announces AmerenIP Refinancing", October 21, 2008.
[75] Fitch Ratings, "The Rising Corporate Default Wave", October 22, 2008.
[76] Reliant Energy, Investor Call Presentation, September 30, 2008.
[77] S&P Capital IQ.

Figure 20. A-rated and Baa-Rated Utility Bond Yields During the 2008-2009 Financial Crisis[78]



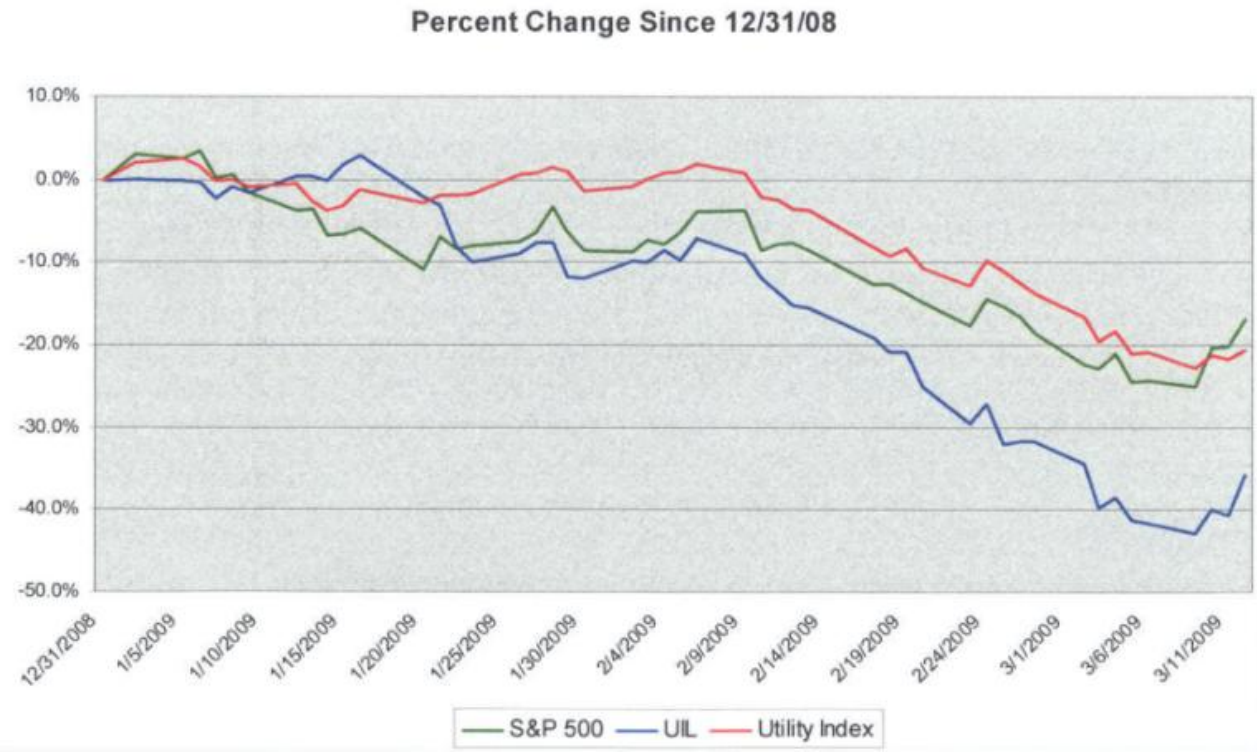
These statistics point to the extreme volatility and uncertainty equity markets faced following the 2008 financial crisis. Unlike unregulated companies that can adjust the timing and amount of major capital expenditures to align with economic cycles and defer investments to better match market conditions, the obligation to serve constrains utilities' flexibility to do so. Regulated utilities often cannot delay raising capital to a time with more favorable conditions. Accordingly, a strong financial profile, combined with constructive and supportive regulation, becomes critically important during periods of economic and capital market stress. In other words, financial strength today helps ensure the utility maintains access to capital on reasonable terms during volatile and stressed market environments.

To put into perspective the potential consequences of an unsupportive regulatory outcome during a period of already challenging capital market conditions, one can look to a Connecticut Department of Public Utility Control (DPUC) decision during the financial crisis. In 2009, the DPUC authorized an ROE of 8.75 percent for The United Illuminating Company (UI),[79] which was approximately 175 basis points below the average state commission-authorized ROE for electric and gas utilities in 2008.[80] Consequently, UI filed a motion on March 13, 2009, seeking reconsideration of the decision. In its Motion, UI reported that its parent company's stock price (UIL Holdings Corporation, UIL), had

[78] Source: Bloomberg Financial.
[79] Connecticut Department of Public Utility Control (DPUC), Docket No. 08-07-04, Application of the United Illuminating Company to Increase its Rates and Charges, Decision, at 139 (February 4, 2009).
[80] Regulatory Research Associates, RRAlert – Connecticut DPUC issues decision on reconsideration of United Illuminating rate order (June 5, 2009).

declined by nearly 40 percent since December 31, 2008, and asserted that "market forces have impacted UI/UIL in a more profound way than the rest of the market" (*see,* Figure 21 below).[81]

Figure 21. UIL Holdings Corporation's Stock Price Performance (First Quarter 2009)[82]



UIL stated that investors were selling UIL stock, "sending a clear message that investors' required equity investment return is higher than the return available to them from owning UIL stock."[83] A lower stock price indicates that a higher return on equity is required to induce investors to commit capital. As such, UIL's access to equity markets was diminished as a higher return was required. In addition to the company's inability to access the equity markets, UI/UIL were also restricted from issuing additional debt due to covenants on existing debt instruments limiting the amount of debt in the capital structure. To mitigate its financial situation, UIL announced that it would reduce capital expenditures in 2009 by approximately 40 percent[84] until access to equity capital "can be achieved at reasonable terms."[85] The company's limited access to capital and resulting need to reduce capital expenditures increased the risk that it would be unable to make the investments necessary to maintain reliable service until reasonable access to capital could be restored. Although UIL's stock price partially recovered as capital market conditions and the company's financial position stabilized,

[81] UIL Holdings Corporation, Re: Docket 08-07-04- Application of The United Illuminating Company to Increase its Rates and Charges (March 13, 2009).
[82] Reproduced from UIL Holdings Corporation, Re: Docket 08-07-04- Application of The United Illuminating Company to Increase its Rates and Charges (March 13, 2009).
[83] UIL Holdings Corporation, Re: Docket 08-07-04- Application of The United Illuminating Company to Increase its Rates and Charges (March 13, 2009).
[84] UIL Holding Corporation, News Release: UIL Holdings Reduces Capital Expenditures, Affirms 2009 Earnings Guidance, Has No Present Intention to Issue Equity (March 11, 2009).
[85] UIL Holdings Corporation, Re: Docket 08-07-04- Application of The United Illuminating Company to Increase its Rates and Charges, (March 13, 2009).

the immediate market reaction to the DPUC's decision and UIL's subsequent response demonstrate how an unsupportive regulatory outcome can compound the challenges facing a utility during periods of constrained capital markets.

Reallocation of Capital

When regulatory outcomes reduce expected returns below risk-adjusted alternatives, investors may direct capital to other business units, industries, or investment opportunities.

For example, in May 2024 Eversource Energy announced that the company would reduce investment in its Connecticut operations by up to $500 million over five years, citing a "lack of alignment between state policy and regulatory decisions."[86] Eversource further noted that "[a]s it stands, regulatory policies in Connecticut discourage investment and utility innovation, as well as our participation in a wide range of clean energy initiatives that rely on our balance sheet and our capital resources."[87] Eversource subsequently announced that it would reduce its capital programs and reliability investments in its Connecticut Light and Power Company (CL&P) in 2025, citing that "the state's regulatory environment has made it difficult to guarantee cost recovery."[88] CL&P further noted that "[t]he impact of budget reductions over multiple years is expected to result in a drop in system reliability in the range of 12-15 percent over the next five years…Customers will experience this decline in service levels through more frequent and longer outages, both during storms as well as on blue-sky days, although reliability will remain above baseline levels set by law."[89]

Similarly, Exelon Corporation announced that it would reduce capital spending by $1.25 billion in its Illinois utility, Commonwealth Edison Co., following a 2023 regulatory decision in which the Illinois Commerce Commission rejected the company's multi-year grid plan and a contentious ROE decision. The Commission authorized an ROE of 8.91 percent, striking down the Administrative Law Judge's recommended 9.28 percent and the utility's requested 10.50 percent.[90] These regulatory actions heightened uncertainty surrounding Commonwealth Edison Co.'s ability to recover its costs and earn a return on invested capital, prompting S&P to characterize the developments as credit negative:

> *We assess this rate order as negative for credit quality… Reflecting this rate order, we expect ComEd's stand-alone financial measures will weaken. At the same time, we expect the company will likely take steps such as decreasing capital spending to offset this weaker-than-expected rate case order… If this trend persists, it is likely that we would revise downward our assessment of Illinois' regulatory construct.* [91]

[86] Refinitiv Streetevents, Eversource Energy Earnings Call, Edited Transcript, at 4 (May 2, 2024). Accessible at https://investors.eversource.com/static-files/9fb99d29-bfeb-408f-a44a-e63ebb5f1416.
[87] *Id*.
[88] S&P Global Energy, "Eversource pares back Connecticut investment plan, risking grid reliability," December 31, 2024.
[89] Eversource Energy, *PURA Annual Review of the Rate Adjustment Mechanisms of The Connecticut Light and Power Company,* Cover Letter, Docket No. 19-03-01 (December 30, 2024).
[90] Illinois Commerce Commission, *Illinois Commerce Commission on its Own Motion vs. Commonwealth Edison Company,* Order Requiring Commonwealth Edison Company to file an Initial Multi-Year Integrated Grid Plan and Initiating Proceeding to Determine Whether the Plan is Reasonable and Complies with the Public Utilities Act, Docket 22-0486, 23-0055 (December 14, 2023).
[91] S&P RatingsDirect, "Commonwealth Edison's Rate Case Outcome Pressures Credit Metrics" (December 21, 2023).

SECTION 4:

CASE STUDIES IN FINANCIAL DISTRESS

Financial distress creates difficulty raising capital, leads to underinvestment, and harms customers through higher costs or reduced reliability.

Financial Distress Harms Customers

The importance of regulatory predictability has been reflected in the Supreme Court's recognition that the ratemaking methodology itself plays an important role in defining the risks borne by utility investors. In *Duquesne Light Co. v. Barasch,* the Supreme Court cautioned that a state's decision to "arbitrarily switch back and forth between methodologies" in a manner that requires investors to bear the risks of unsuccessful investments while denying them the benefits of successful investments "would raise serious constitutional questions."[92]

Transparent and predictable regulation better supports the financial integrity of a regulated utility and therefore has direct implications for customers because the provision of electric service depends upon continuous access to capital on reasonable terms. When a utility's financial condition deteriorates, its ability to access capital on reasonable terms becomes impaired. The resulting increase in financing costs, deferred investment, and operational constraints ultimately affect the quality, reliability, and cost of service provided to customers.

Case Studies

The prior section provided anecdotal examples of the consequences of insufficient authorized ROEs. The following examples provide more holistic case studies of financial distress. These case studies provide an introductory thesis, case background, and key takeaways about the effect of financial distress on the quality, reliability, or cost of service provided to customers.

Regulated utilities and their customers have long benefited from regulatory frameworks that support financial stability and access to capital at reasonable costs. Although legislative or regulatory actions that result in severe financial consequences are relatively uncommon, the four case studies in this section spanning the past 50 years illustrate that negative regulatory outcomes can drastically undermine utilities' financial position. These negative impacts ultimately lead to increases in capital costs that translate to higher costs for customers. On the other hand, financially strong utilities and supportive regulatory and legislative outcomes can prevent catastrophic financial situations for utilities and costs for customers. The case studies that follow illustrate these dynamics in real-world settings. While no two situations are identical, they collectively demonstrate a consistent principle underlying the regulatory compact: maintaining access to capital on reasonable terms is not an end in itself, but a means of ensuring that utilities can continue to provide safe, reliable, and affordable service. These case studies demonstrate how weakened financial integrity can translate into credit deterioration, higher borrowing costs, constrained access to capital, deferred investment, and,

[92] United States Bankruptcy Court, District of New Hampshire, *In re: Public Service Company of New Hampshire, Debtor*, BK88-00043 (May 17, 1990), referring to *Duquesne Light Co. v. Barasch,* 488 U.S. 299, 109 S. Ct. 609, 619, 102 L. Ed.2d 646 (1989).

ultimately, increased costs or reduced service benefits for customers. They also demonstrate that the consequences of financial distress often persist long after the precipitating event has passed.

Figure 22: Summary of Case Studies of Financial Distress

Case Study	Main Takeaways
Pacific Gas and Electric Co., 2026	California's Senate Bill 492 addressing wildfire liability did not receive a final Assembly vote before the deadline in August 2026, falling short of the reforms PG&E and other investor-owned utilities had been seeking. As a result, PG&E launched a strategic review of the company and cut 2027 investments, leading to decreases in its share price and a negative outlook issued by Fitch Ratings. Ultimately, the unresolved policy risk resulted in lower infrastructure investment and higher financing costs, with customers bearing the consequences of both.
Niagara Mohawk, 1981-1998	New York's Six-Cent Law required utilities in the state to enter above-market based power contracts. Niagara Mohawk subsequently lost its investment grade rating in 1995 followed by multiple credit downgrades. As part of its financial restructuring, the company incurred additional debt at lower credit ratings and committed all free cash flow to debt repayment for seven to eight years. The law's short-term objectives led to higher customer costs in the longer term.
Public Service Company of New Hampshire, 1988	New Hampshire's anti-CWIP law, enacted after construction of the Seabrook project had begun, contributed to the deterioration of Public Service Company of New Hampshire's financial condition and its eventual Chapter 11 filing. As part of the company's subsequent acquisition, customer rates increased by 5.5 percent annually for seven years.
Winter Storm Uri, 2021	One Gas incurred extraordinary costs for natural gas purchases when Winter Storm Uri sharply reduced natural gas production and pushed prices to unprecedented levels. One Gas was a financially strong utility, allowing it to access capital quickly at relatively low cost. Additionally, legislation was passed allowing the company to securitize the costs, which S&P viewed as favorable for credit quality. This example demonstrates how an extraordinary cost shock can quickly weaken a utility's finances and access to capital, but a financially strong utility in a supportive regulatory and legislative environment can persist and mitigate the adverse consequences for both customers and the utility.

Pacific Gas and Electric Co. (PG&E)

PG&E's experience in 2026 shows how unresolved policy risk can quickly raise a utility's cost of capital, limit access to capital at reasonable costs, and force it to cut back on investment. California faces some of the highest wildfire risks in the country and has a unique legal framework that puts the financial obligation for wildfires on utilities and utility ratepayers, even if they act prudently.[93] The

[93] As stated in the California Public Utilities Commission's Response to Governor's Request: "Under California law, including California's unique application of inverse condemnation as applied by California courts, the

state passed legislation in 2019 to stabilize its investor-owned utilities in the face of these unique risks.[94] However, the magnitude of wildfires in January 2025 introduced significant questions about the sustainability of California's 2019 wildfire policy framework. In August 2026, California's Senate Bill 492 addressing wildfire liability did not receive a final Assembly vote before the legislative deadline.[95] On the last day of the legislative session, August 31, 2026, PG&E Corporation's shares fell roughly 20 percent because the legislation fell short of the reforms PG&E and other investor-owned utilities had been seeking.[96] Given its negative free cash flow profile, PG&E concluded that continuing its prior capital program would require too much high-cost borrowing and would ultimately put upward pressure on customer bills. On September 2, PG&E launched a strategic review of the company. The company also announced it would defer some 2027 investment by approximately $2.0 billion, from $13.4 to $11.4 billion, with a matching cut in expected debt financing, while keeping critical safety and wildfire mitigation work funded.[97] Its shares fell another 5 percent, and on September 16, Fitch Ratings kept PG&E's credit ratings at BBB- but revised its outlook from Stable to Negative, warning that without policies and progress to better socialize wildfire costs, future downgrades are likely.[98] In a November 2026 report, the California Public Utilities Commission summarized an S&P discussion, noting that "without California's existing wildfire protections, PG&E and SCE could face substantially weaker credit ratings, potentially in the single-B category."[99] In that rating category, even the credit rating of bonds secured by utility assets, such as First Mortgage Bonds, would also be rated sub-investment grade.

As the California Public Utilities Commission's Response to Governor's Request states, "[l]iability risks and utility credit rating downgrades cause a cycle that impacts ratepayers."[100] Increased utility liability risks can lead to credit ratings downgrades, which can increase utility borrowing costs and lead to constrained capital access, liquidity strain, and erosion of investor confidence.[101] The PG&E case shows that when a utility faces outsized risk without adequate cost recovery or returns, investors respond quickly, and capital becomes more expensive and harder to raise. The result is lower infrastructure investment and higher financing costs, and customers ultimately bear the consequences of both.

electric utility must pay the full costs for a wildfire ignited by the utility's electrical equipment, even if the utility acted reasonably and complied with its wildfire mitigation plan and safety obligations. Utility ratepayers are often responsible for all or a portion of these costs." (California Public Utilities Commission, Statewide Impacts of Wildfires on Utility Credit and Access to Capital, Response to Governor's Request, November 1, 2026, at 1.)

[94] Assembly Bill No. 1054 was approved and filed on July 12, 2019.

[95] (2026, September 1). California wildfire liability bill dies in Assembly without a vote. CBS News. Retrieved September 22, 2026, from https://www.cbsnews.com/sacramento/news/california-lawmakers-set-to-vote-wildfire-liability-deal/.

[96] Reuters, PG&E launches review, defers $2 billion in spending after wildfire bill setback, September 2, 2026.

[97] PG&E Corporation News Release, PG&E Launches Strategic Review to Build a Better, More Affordable Energy Future for California Customers, September 2, 2026; PG&E News Release, Answers to Common Questions About PG&E's Revised 2027 Investment Plan, September 11, 2026.

[98] Fitch Ratings, Fitch Revises PG&E Corporation's and Pacific Gas and Electric Co.'s Outlooks to Negative, September 16, 2026.

[99] California Public Utilities Commission, Statewide Impacts of Wildfires on Utility Credit and Access to Capital, Response to Governor's Request, November 1, 2026, at 31.

[100] *Id*., at 38.

[101] *Id*.

Niagara Mohawk

The consequences experienced in the case of Niagara Mohawk illustrate how regulatory and policy risks can materially weaken a utility's financial condition, constrain its access to capital, and ultimately increase financing costs borne by customers.

New York's "Six-Cent" law, enacted in 1980 and amended in 1981, required electric utilities to enter into long-term contracts to purchase power from certain qualifying facilities and established a minimum purchase price of six cents per kilowatt-hour. Niagara Mohawk entered into long-term power purchase arrangements with independent generators at prices established under the prevailing regulatory framework. As market electricity prices subsequently declined, some of those contractual purchase obligations became substantially more expensive than prevailing market alternatives. By the mid-1990s, those above-market obligations had become a significant financial burden for Niagara Mohawk.

Lenders reduced or capped their credit exposure to several New York utilities perceived to be adversely affected by these price mandates.[102] Over time, Niagara Mohawk's credit quality deteriorated significantly as the Company lost its investment-grade rating in 1995 and was subject to an additional credit rating downgrade in 1996. Niagara Mohawk also suspended its common dividend payments in 1996. The company's PowerChoice restructuring provided relief from above-market purchase contracts, but that relief came at a substantial cost: $3.2 billion of incremental unsecured debt, with virtually all free cash flow expected to be devoted to repayment for seven to eight years.

The financial consequences extended beyond the initial crisis. Niagara Mohawk's debt increased between 1995 and 1998, requiring the company to raise capital after its credit metrics and financial condition had deteriorated. In other words, the company had to raise debt capital precisely when investors demanded greater compensation for the heightened risk. Although Niagara Mohawk's financial condition subsequently improved and the Company regained an investment grade credit rating in 1998, recovery did not necessarily eliminate the heightened financing costs incurred during the company's financial distress. Higher borrowing costs can remain embedded in outstanding debt for years, continuing to affect customer rates after the underlying financial pressures have eased. In 2007, New York Commission Staff observed that the problems associated with the law arose because "long-term contracts had prices set on an administrative, rather than a market basis."[103]

These consequences illustrate that regulatory policies designed to achieve short-term objectives, but that conflict with market fundamentals can expose utilities to severe financial distress with lasting consequences for customers. Furthermore, this case study underscores that preserving a utility's financial integrity is not merely an investor concern, but an important safeguard against higher long-term costs for customers.

Public Service Company of New Hampshire

Public Service Company of New Hampshire's (PSNH) 1988 bankruptcy illustrates how restrictions on utility cost recovery can compound construction risk and impair a utility's access to capital.

[102] *Proceeding on Motion of the Commission as to the Rates, Charges, Rules, and Regulations of Rochester Gas and Electric Corporation for Electric Service*, Direct Testimony of Robert Gillham, at 6. (May 16, 2003), Case 03-E-0765, 03-G-0766.

[103] *Proceeding on Motion of the Commission to Establish a Long-Range Electric Resource Plan and Infrastructure Planning Process*, Order Initiating Electricity Reliability and Infrastructure Planning, at 60. December 24, 2007, Case 07-E-1507, 06-M-1017.

Construction of the Seabrook nuclear project began in July 1976, with PSNH serving as the lead owner. Three years later, in May 1979, New Hampshire enacted its "anti-CWIP" law, which prohibited utilities from recovering the costs of unfinished construction projects from customers through rates. Thus, as construction of Seabrook continued, PSNH could not recover its investment or associated financing costs through rates until the plant entered service and instead had to rely heavily on external financing to fund construction. That restriction became increasingly consequential as Seabrook experienced substantial cost increases and delays.

As financial pressures and perceived risk increased, investors became less willing to provide additional capital and undermined the company's financial position. Ultimately, PSNH could no longer service its debt while maintaining normal utility operations and filed for Chapter 11 protection in January 1988.

PSNH's case study demonstrates why deterioration in a utility's financial conditions ultimately impacts customers. As a utility becomes financially distressed, access to capital can become more constrained and the cost of obtaining incremental financing can increase as lenders require greater compensation for heightened risk. This is further highlighted in the 1989 agreement in which Northeast Utilities agreed to acquire PSNH. This agreement included an authorization for PSNH to increase its rates by 5.5 percent per year for seven years.[104]

Winter Storm Uri

One Gas's experience during Winter Storm Uri demonstrates how a sudden, extraordinary cost shock can quickly weaken a utility's finances and access to capital, even when it has cost recovery mechanisms in place. It also demonstrates that a supportive regulatory and legislative environment, combined with a strong financial profile, prevented a catastrophic financial situation, benefitting customers in the long term.

In February 2021, Winter Storm Uri sharply reduced natural gas production and pushed prices to unprecedented levels. One Gas incurred approximately $2.2 billion in extraordinary costs for natural gas purchases and related costs across its Oklahoma, Texas and Kansas utilities. As a result, the company delayed its quarterly earnings announcement and took on $2.5 billion in short-term debt, later refinanced with senior notes, to pay for the gas. The amount of debt on One Gas's balance sheet more than doubled between 2020 and 2021. S&P responded by downgrading One Gas two notches, from 'A' to 'BBB+', with a negative outlook, pointing to the risk associated with gas commodity cost recovery and an expected reduction in the key funds from operations (FFO) to debt metric from approximately 20 percent to about 13 percent.[105] The fact that One Gas had an 'A' rating and a 60 percent equity ratio when Winter Storm Uri hit was crucial to its ability to access capital quickly at relatively low cost to mitigate the adverse consequences of the unexpected event for both customers and the utility. All three states later passed legislation allowing the company to securitize the costs, and S&P upgraded One Gas to 'A-' in August 2022.[106,107]

The One Gas case demonstrates that events outside a utility's control can push even a financially strong company into distress almost overnight. Mitigating adverse consequences of these events

[104] Connecticut General Assembly, Office of Legislative Research, *Utility Bankruptcy in New Hampshire,* Report No. 97-R-1098 (October 1, 1997).
[105] S&P Global Ratings, Research Update, "One Gas Inc. Downgraded To 'BBB+' From 'A' On Unprecedented Weather Conditions; Outlook Negative," February 23, 2021.
[106] 2022 SEC Form 10-K, One Gas, Inc., at 18-21.
[107] S&P Global Ratings, "One Gas Inc. Upgraded to 'A-' on Securitization Financing in Oklahoma; Outlook Stable," August 25, 2022.

depends on a strong financial profile combined with timely support from regulators and legislators. In the meantime, the strain on the balance sheet may limit the amount a company can borrow for its planned capital spending, reducing the investment available to keep serving customers reliably. In this case, a supportive regulatory treatment and legislation allowing for securitization prevented more costly consequences for customers.

SECTION 5:

COMMON ANALYTICAL ERRORS AND SPECIFIC PROPOSALS UNDER CONSIDERATION

Some cost of capital practitioners and other stakeholders have applied certain methodologies that are fundamentally flawed and inconsistent with fair return principles. Several common errors discussed below arise when certain financial concepts are applied inappropriately or without full consideration of all evidence. The objective of addressing these errors is to emphasize the importance of the evidentiary regulatory process, based on robust financial analysis using sound methodologies to determine a just and reasonable return that satisfies the three standards established by the *Hope* and *Bluefield* decisions.

Common Analytical Errors

Error 1: Treating Market-to-Book (M/B) Ratios Above 1.0 as Proof of Excessive ROEs

A market-to-book ratio compares the forward-looking market value of a company with a historical accounting valuation of a company (i.e., book value). Some cost of capital practitioners claim that an M/B ratio greater than one indicates that authorized ROEs are excessive. Advocates of this methodology suggest that a utility's authorized ROE should be set to equate the utility's market value with its book value. Notably, the authorized ROEs that these cost of capital practitioners calculate to equate market and book value are often substantially below all U.S. utility authorized ROEs since at least 1980,[108] and would consequently fail the *Hope* and *Bluefield* comparability standard (see Section 1.1).

As a practical matter, utility operating companies, which provide service to customers and to which an authorized ROE applies, typically do not have a market value because they are not publicly traded, and the market value of consolidated parent holding companies can reflect multiple utilities across different jurisdictions as well as unregulated operations. Moreover, growth prospects and other investor considerations affect market value, while differences in various accounting measures affect book value. Assuming they should be equal is akin to equating apples and oranges. The M/B ratio is an outcome and should not be a regulatory target.

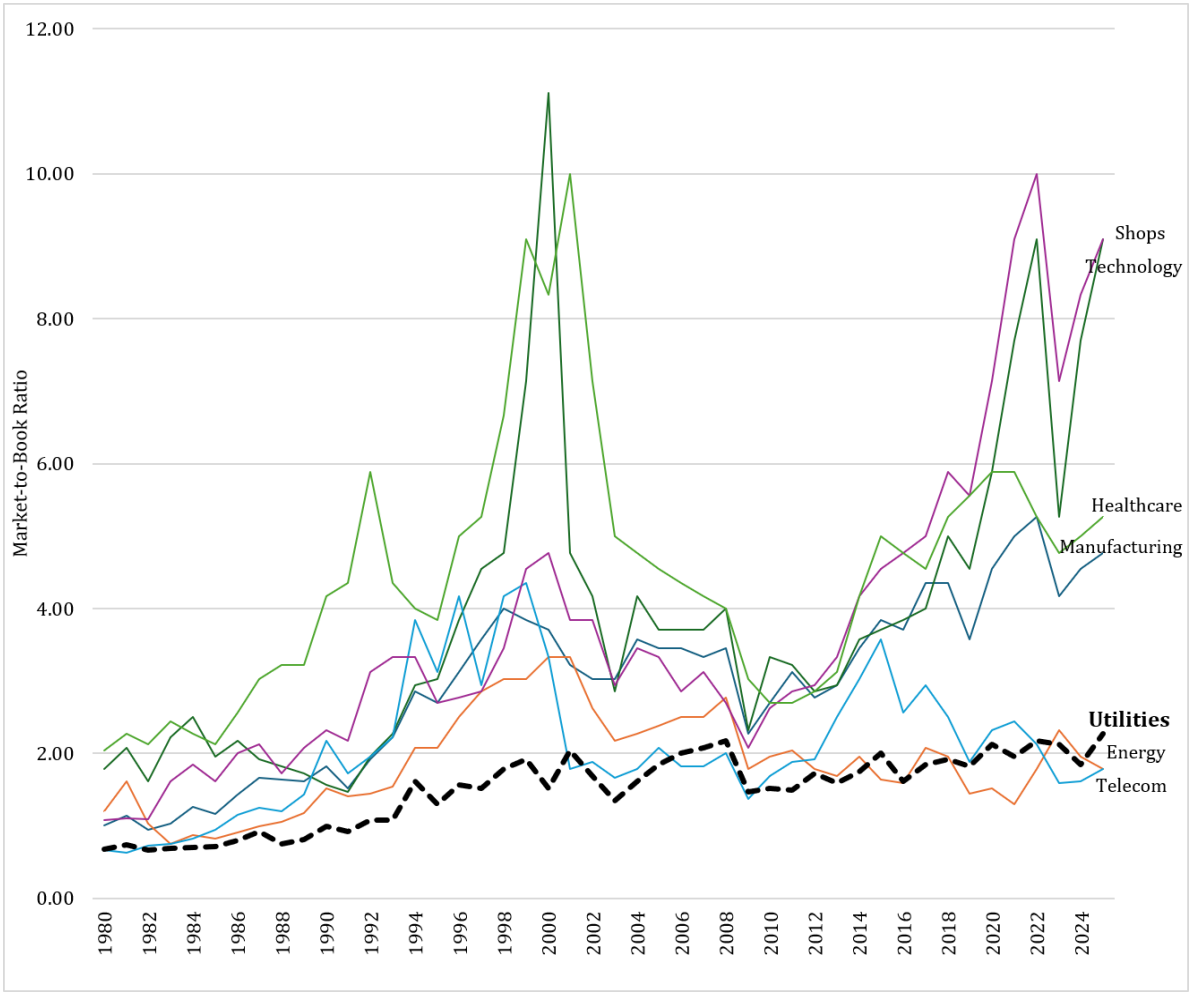
Figure 23 demonstrates that M/B ratios across all sectors have increased over recent decades, and the utility sector has a lower M/B ratio than most other sectors. The fact that utility M/B ratios have remained steadily below those of most other sectors is consistent with the regulatory model that does not allow utilities to capture pricing power and growth opportunities that may lift valuations in competitive markets. Further, utilities compete for capital with other nonregulated enterprises. Deliberately driving utility valuations down to book value while those alternative investments remain above book value would make utility financing less attractive, and would not reflect investors' required return. As Dr. Roger Morin notes, "M/B ratios are determined by the marketplace, and utilities cannot be expected to compete for and attract capital in an environment where industrials are commanding M/B ratios well in excess of 1.0 while regulation reduces their M/B toward 1.0."[109]

[108] Source: RRA. Excludes authorized ROEs in which the ROE is set automatically based on changes in Treasury bond yields or authorized ROEs that include ROE penalties.

[109] Roger A. Morin, Ph.D., New Regulatory Finance, at 377 (2006).

This is an additional reason that this approach would fail the *Hope* and *Bluefield* comparability standard.

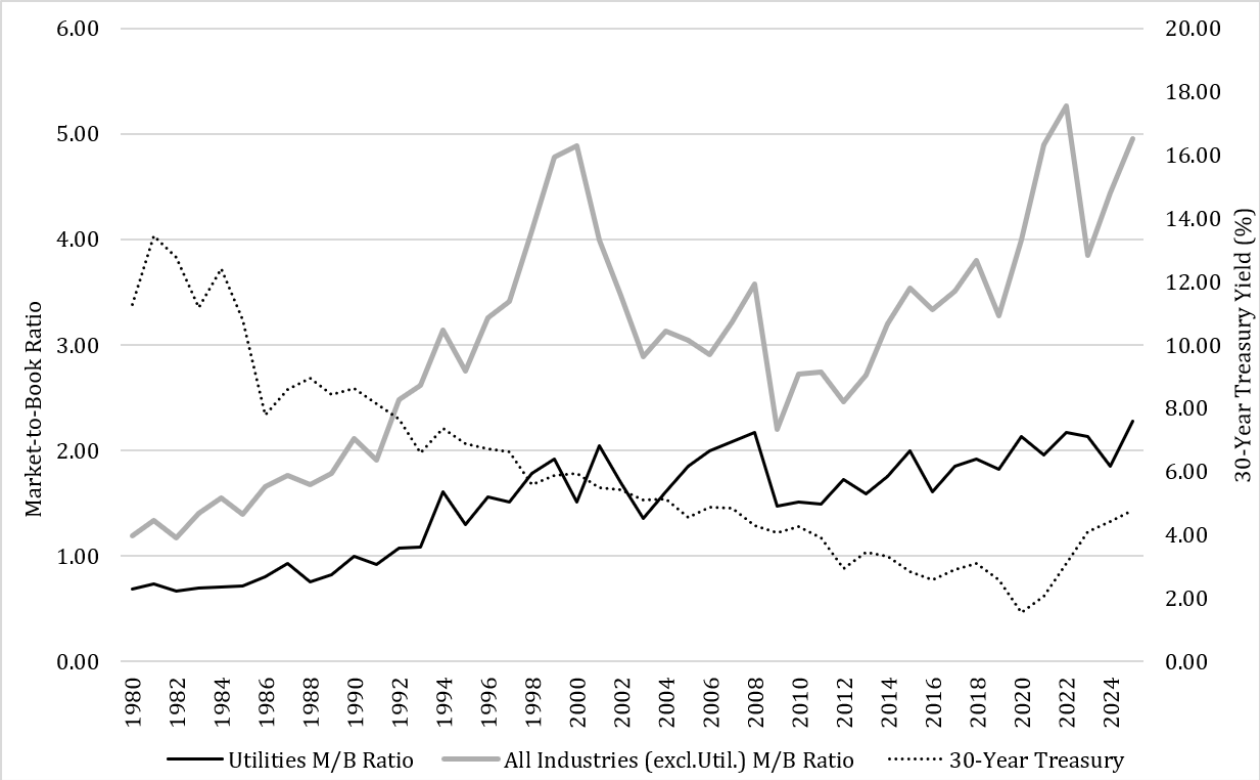
Figure 23. M/B Ratios by Industry [110]



All else equal, lower bond yields cause stocks to be more attractive relative to bonds, raising share prices without an increase in the corresponding book value. For this reason, declining 30-year Treasury yields were accompanied by rising M/B ratios from 1980 to 2025. Figure 24 provides an illustration of this concept.

[110] Source: Dartmouth Data Library, Eugene F. Fama and Kenneth R. French Current Research Returns. Accessible here: https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Figure 24. Utility M/B Ratios vs. 30-Year Treasury Yields (1980 – 2025)[111]



Error 2: Conflating What Investors Expect to Earn with the Return They Require to Invest

As supposed evidence that utility authorized ROEs are too high, some cost of capital witnesses have pointed to forecasts of stock market returns that investment firms use to develop capital market assumptions. However, a forecast of what an asset management firm models as an *expected* market return is not the same as the return investors *require*. These are fundamentally different financial concepts: an *expected* return is a forecast of what an investor anticipates earning; whereas a *required* return is the compensation needed to invest given risk and alternative investment opportunities. To make an analogy, this is akin to the forecasted arrival time of a flight versus the deadline of when a person must arrive; predictions and requirements are not one and the same. An authorized ROE is meant to reflect the *required* return that investors need to commit equity capital, given the utility's risks and the investor's other investment options. A market forecast, by contrast, also includes predictions about whether stock prices will rise or fall, which can be driven by many factors that are separate and distinct from the risk of investing in a utility.

[111] Source: Dartmouth Data Library, Eugene F. Fama and Kenneth R. French Current Research Returns, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

A recent BlackRock forecast can help put these concepts in context. BlackRock, a prominent asset manager with trillions of dollars in assets under management, projects that U.S. stocks will return 9.44 percent per year (on average) over the next five years.[112] That forecast has three parts:

- Earnings growth: 11.55 percent;
- Dividend yield: 1.51 percent; and
- Repricing: negative 3.63 percent.

Earnings growth and dividend yield reflect what investors receive from owning the underlying business and comprise the investor's *required* return. Repricing reflects an assumption that stock prices will not grow as quickly as earnings over the next five years; it does not reflect the return investors require and is not representative of the underlying business. Setting a utility's authorized ROE based on predicted changes in stock prices is not representative of the underlying business and would understate the return needed to attract equity capital, typically resulting in a cost of equity estimate that would be below all U.S. utility authorized ROEs since at least 1980.[113]

Error 3: Treating ROE Reductions as an Affordability Solution

Reducing utility authorized ROE has frequently been proposed as an affordability solution because it lowers the calculated revenue requirement, all else equal. The problem is that lowering ROE does not leave "all else equal" so it is not a practical solution. Section 1.4 explains that a utility's authorized ROE is one component of customer costs, which represents approximately 5 percent of a typical residential customer's electric utility bill. Energy supply, infrastructure needs, operating costs, and the cost of debt also affect customer rates, though at a much larger magnitude. Figure 25 demonstrates that there is no relationship between residential electricity prices and authorized ROEs.[114] Further, analyzing this from a statistical perspective shows that the R-squared value, which explains how well utilities' authorized ROEs explain variation in residential customers' electricity rates, is 0.004. This means that authorized ROEs explain 0.4 percent of the variation in a residential customer's electricity rate, which is neither statistically significant nor economically relevant.[115]

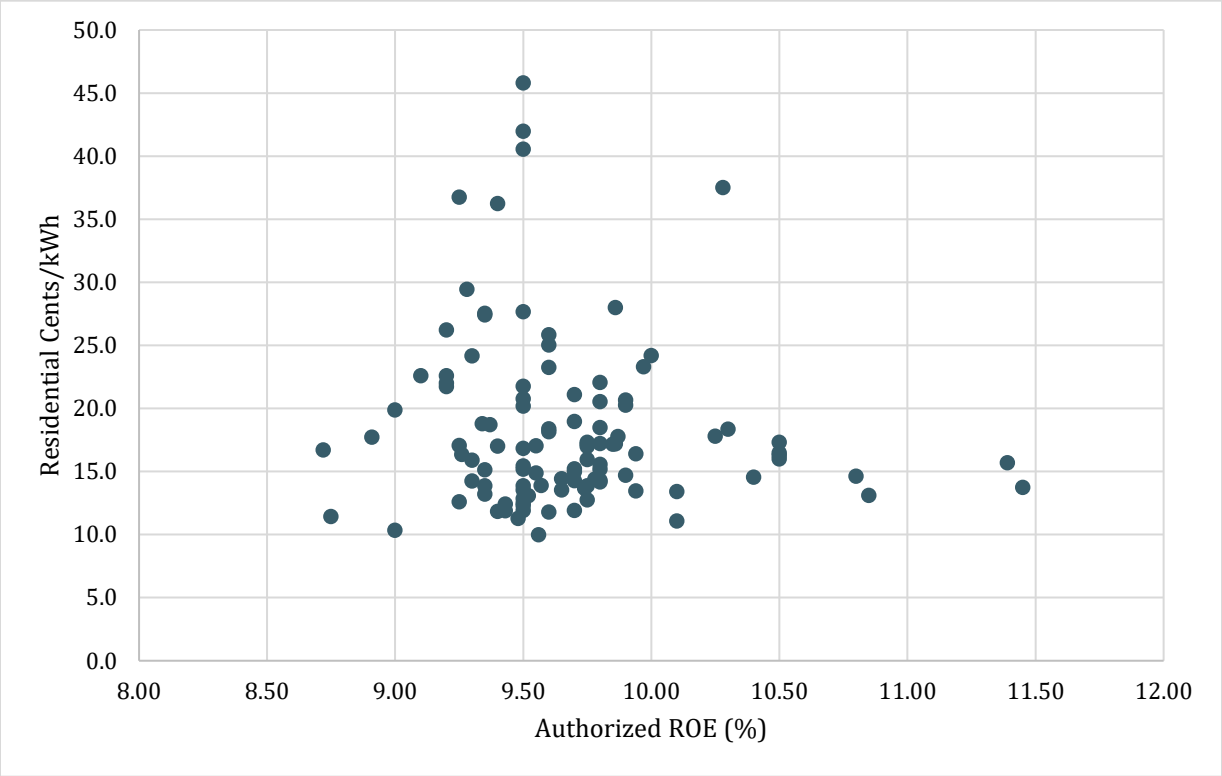
[112] BlackRock, *Capital market assumptions*, data as of June 30, 2026, https://www.blackrock.com/institutions/en-us/insights/thought-leadership/capital-market-assumptions.

[113] Source: Regulatory Research Associates. Excludes authorized ROEs in which the ROE is set automatically based on changes in Treasury bond yields or authorized ROEs that include ROE penalties.

[114] A similar conclusion is reached by looking at all classes.

[115] Regression p-value is 0.43. Typically, a p-value is statistically significant at the 95 percent confidence level when it is below 0.05.

Figure 25. Residential Cents/kWh Electricity Rate vs. Authorized ROE[116]



Connecting the Errors to Proposals Under Consideration

It is important to evaluate proposals to replace or constrain conventional utility authorized ROE methodologies. Any novel methods or approaches should be assessed on their economic merits. A lower indicated return is not evidence of a better method unless it supports capital attraction at comparable risk and reasonable long-term customer cost.

Treasury Yields Plus a Fixed Equity Premium

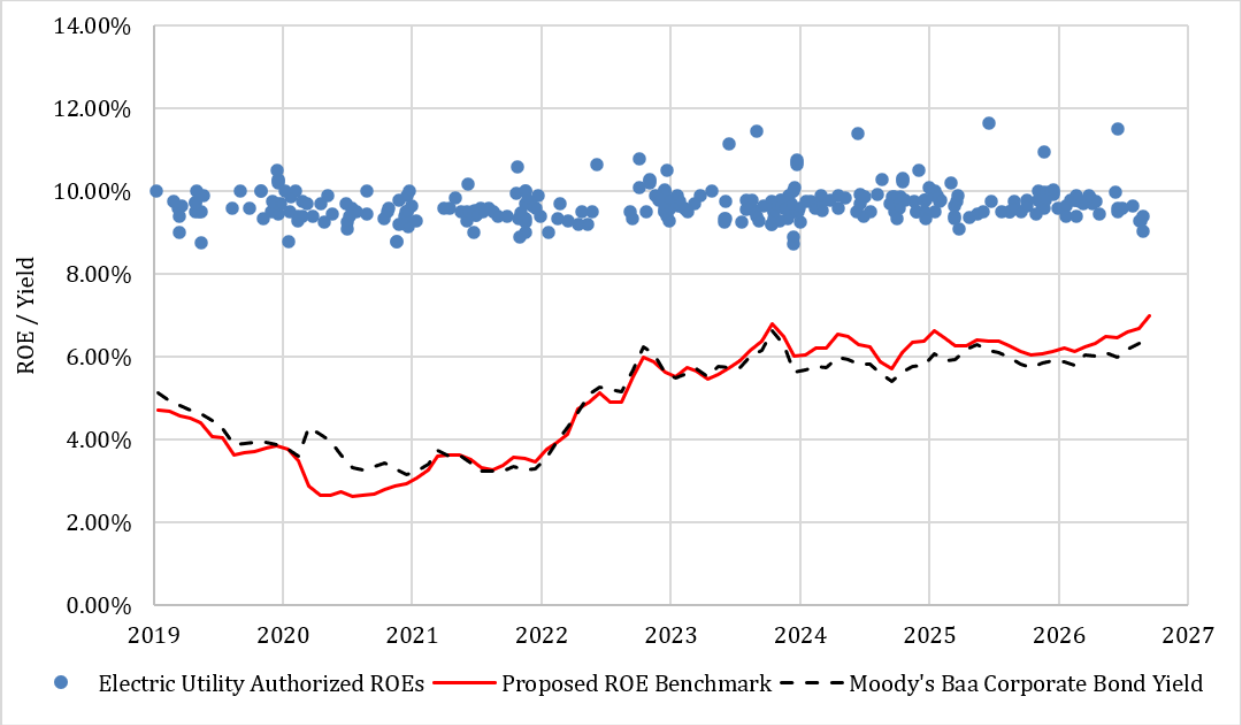
Certain proposals seek to establish a default utility authorized ROE equal to Treasury bond yields plus a fixed basis point premium.[117] First, these proposals are not grounded in quantitative evidence and the proposed equity premium may be arbitrary. Second, it seeks to determine the ROE through a single generic formula, eliminating the robustness provided from a comprehensive assessment of multiple models. As noted earlier, the cost of equity is not observable and each methodology provides a unique perspective on the investor required return. The use of multiple methodologies prevents a single model from skewing the ROE estimate, either upward or downward. Moreover, although Treasury bond yields are relevant, the equity risk premium is not a fixed quantity. The Bond Yield Plus Risk Premium analysis often presented in utility rate proceedings demonstrates that authorized ROEs tend to go up when bond yields go up (and vice versa), but not on a one-to-one basis. Therefore, utility authorized ROEs need not move one-for-one with Treasury bond yields. A simplistic formula

[116] Regulatory Research Associates; 2025 EIA Form 861, https://www.eia.gov/electricity/data/eia861/.
[117] See, e.g., New York State Senate, Senate Bill S10424, *Fair Authorized Investment Returns Act*, introduced May 15, 2026, https://www.nysenate.gov/legislation/bills/2025/S10424.

can overstate or understate financing needs across varying market conditions. Further, a generic, formulaic approach may not distinguish business or financial risks of the subject utility from other utilities in the jurisdiction, contrary to the financial principle of risk and return.

As a practical matter, proposals to determine authorized ROEs on the basis of Treasury bond yields plus a fixed basis point premium produce results that are incompatible with investors' required returns. As an example, New York State Senate, Senate Bill S10424 and Pennsylvania House Bill 2224 would set a default authorized ROE equal to the ten-year US Treasury bond yield plus two hundred basis points. As shown in Figure 26 below, the proposed ROE benchmark closely tracks the cost of debt and is meaningfully removed from every authorized ROE for utilities since (at least) 2019. An equity return that is more comparable to the cost of debt will fail to attract equity investors. There is no reason for investors to accept the incremental risk of equity investment when a lower risk debt investment offers a comparable return. Further, the fact that the methodology could result in ROEs below three percent as recently as 2020, demonstrates that such a simplistic mechanism fails to account for changes in capital market conditions.

Figure 26. Authorized ROEs, Illustrative ROE Benchmark, and Debt Rates[118]



Auctions to Determine Authorized ROEs

Certain proposals seek to establish an auction process to determine a utility's authorized ROE.[119] These proposals seek to set the authorized ROE through a vaguely defined auction process that is

[118] Sources: RRA, FRED. Excludes authorized ROEs in which the ROE is set automatically based on changes in Treasury bond yields or authorized ROEs that include ROE penalties.

[119] See, e.g., Pennsylvania General Assembly, House Bill 2224, introduced May 18, 2026, https://www.palegis.us/legislation/bills/2025/hb2224.

distinct from how other companies, including utility parent holding companies, typically raise equity capital.

These proposals are untested, and it is not clear how an authorized ROE auction would work in practice. The administrative costs that may be required to conduct such an auction are unclear, an issue that should not be dismissed or disregarded. There are numerous other questions about the practicality of such an auction process that have not been addressed by those who have suggested such an approach.

Proponents of a potential auction have not established that equity investors would be likely to commit capital to procure equity via a riskier auction process compared to what they could earn investing in a similar-risk utility that uses a stable, conventional process to set its authorized ROE. Investors often invest in utilities due to their lower risk compared to more volatile sectors such as technology and energy (see Section 2.6); adding additional risk and uncertainty is unlikely to entice investors to reduce their return requirements on an equity investment. Further, as explained in Section 1.1, historically utilities have had a lower cost of capital compared to other sectors, which has benefited utility customers through more affordable rates and reliable service.

Authorized Capital Structures Selected for Bill Impact Rather Than Financial Risk

Lastly, some have proposed to materially change a utility's capital structure by mandating that a higher proportion of debt is used rather than equity.[120] First, it is not clear that these proposals contemplate the additional financial risk that increased debt financing presents. Mandating a higher proportion of debt to finance a utility increases financial risk and reduces a utility's financial flexibility to respond to exogenous events. Heightened financial risk may lead to a credit rating downgrade, which increases the cost of both debt and equity, as explained in Sections 2.2 and 2.3. For example, in March 2025, Moody's downgraded AEP Texas from Baa2 to Baa3 (Moody's lowest investment-grade rating). In doing so, Moody's noted that:

> *The downgrade of AEP Texas to Baa3 with a stable outlook, from Baa2, is driven by elevated capital expenditures that, in accordance with its relatively low regulatory allowed equity layer, will be funded primarily with debt. Despite a relatively supportive rate case outcome last year, AEP Texas' regulatory allowed equity layer remains low, and at 42.5% is among the lowest of its peers in other US regulatory jurisdictions. We expect this to drive a significant growth in debt to fund [its] capital expenditure program….*[121]

A lower credit rating may introduce additional debt covenants or other financial restrictions as well. Further, proposals to set a utility's authorized equity ratio equal to its parent holding company's equity ratio or the average of its holding company peers ignore the fact that operating utilities and holding companies have different business risks and obligations; a holding company does not have the obligation to serve like the regulated operating utility does. A holding company equity ratio is not the right benchmark for a utility that is obligated to serve customers.

[120] See, e.g., Governor Josh Shapiro, letter to Pennsylvania utility leaders, April 29, 2026, https://www.latitudemedia.com/wp-content/uploads/2026/05/2026.4.29-JDS-Utility-CEOs-letter-v2.pdf.
[121] Moody's Ratings, "Rating Action: Moody's Ratings affirms AEP's Baa2 rating; downgrades AEP Texas to Baa3; and changes Indiana Michigan Power's outlook to positive" (March 27, 2025). [Clarification added.]

Affordable, reliable service depends on access to reasonably priced capital. An evidence-based cost of capital evaluation grounded in established financial models, which has been performed by numerous commissions across the U.S. for decades, is the most appropriate framework for determining a utility's authorized ROE and capital structure.

SECTION 6:

COMPARATIVE BENCHMARKS

The Supreme Court's decisions in *Hope* and *Bluefield* establish that a utility's authorized return should be comparable to the returns available on other investments of similar risk. As the Court explained in *Hope*, "the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."[122] Utilities compete for capital in the same markets as every other enterprise, and a company's cost of equity is defined by, and equal to, the opportunity cost of investing in that company. If higher returns are available from other investments of comparable risk, investors have an incentive to direct their capital to those investments, and a utility must pay more, or invest less, to attract the capital its customers depend on.

Utilities depend on outside capital more than nearly any other sector. Ordinarily, a business that is cash flow negative and needs to consistently raise capital to fund its operations would have to offer high returns to attract that capital. Utilities have been able to raise capital – both equity and debt – at comparatively modest cost, helping to keep rates affordable for customers, because of the regulatory construct: investors accept lower returns in exchange for confidence that regulators will provide a fair opportunity to recover prudently incurred costs and earn a reasonable return. The authorized ROE is the most visible part of that model. Setting it below the cost of equity in an attempt to address affordability concerns risks eroding the very confidence that makes low-cost capital possible, raising the cost of both debt and equity and, over time, offsetting the intended savings.

This section compares electric utilities to other sectors of the economy across seven benchmarks: (1) total shareholder returns; (2) earned and projected ROEs; (3) market risk, as measured by Beta; (4) the premium of authorized ROEs over interest rates and corporate borrowing costs; (5) capital intensity; (6) free cash flow; and (7) risk profiles. Taken together, they show that customers continue to receive a public service at costs that are modest relative to the rest of the market, while utilities' need for external capital is greater than that of nearly any other sector.

Utility Shareholders Have Accepted Lower Returns Than the Broader Market

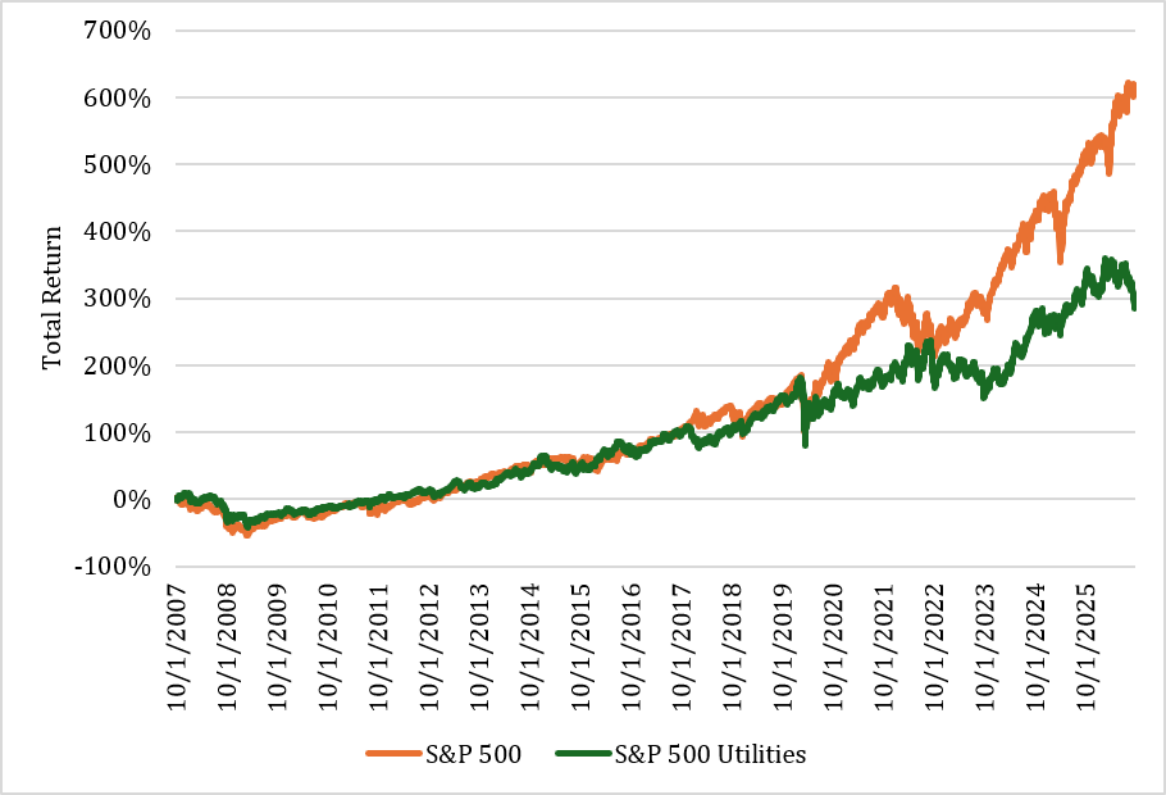
Investors in utility stocks have accepted substantially lower returns than investors in the broader, more volatile, and more risky market. As shown in Figure 27, from October 1, 2007, through September 30, 2026, the S&P 500 Index produced a cumulative total return (including reinvested dividends) of approximately 610 percent, while the S&P 500 Utilities Index returned approximately 287 percent, less than half as much, which is primarily driven by divergence over the past few years. In other words, $100 invested in the S&P 500 on October 1, 2007, would have grown to approximately $710 by September 30, 2026, compared to approximately $387 for the same investment in utility companies. While utilities have limited upside as compared to the broader market, the strength of the regulatory compact is necessary to limit the downside of utility performance in order for utilities to compete for capital with other industries. Absent stable, predictable, and timely cost recovery and the opportunity to earn a reasonable return, utilities would be unable to compete for capital compared to other industries offering higher returns.

The gap is not confined to the long term. The S&P 500 Utilities Index underperformed the S&P 500 over the most recent ten-, five-, and three-year periods, and over the past year, utilities returned a

[122] Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944); see also Bluefield Water Works and Improvement Co. v. Public Service Comm'n, 262 U.S. 679, 692 (1923).

negative 7 percent, compared with approximately positive 16 percent for the S&P 500. Some difference is to be expected for comparatively lower-risk, income-oriented investments, but the magnitude and persistence of the gap are difficult to reconcile with claims that utility authorized ROEs are above their cost of equity.

Figure 27. S&P 500 Index vs. S&P 500 Utilities Index Cumulative Total Return (Oct. 1, 2007 – Sep. 30, 2026)[123]



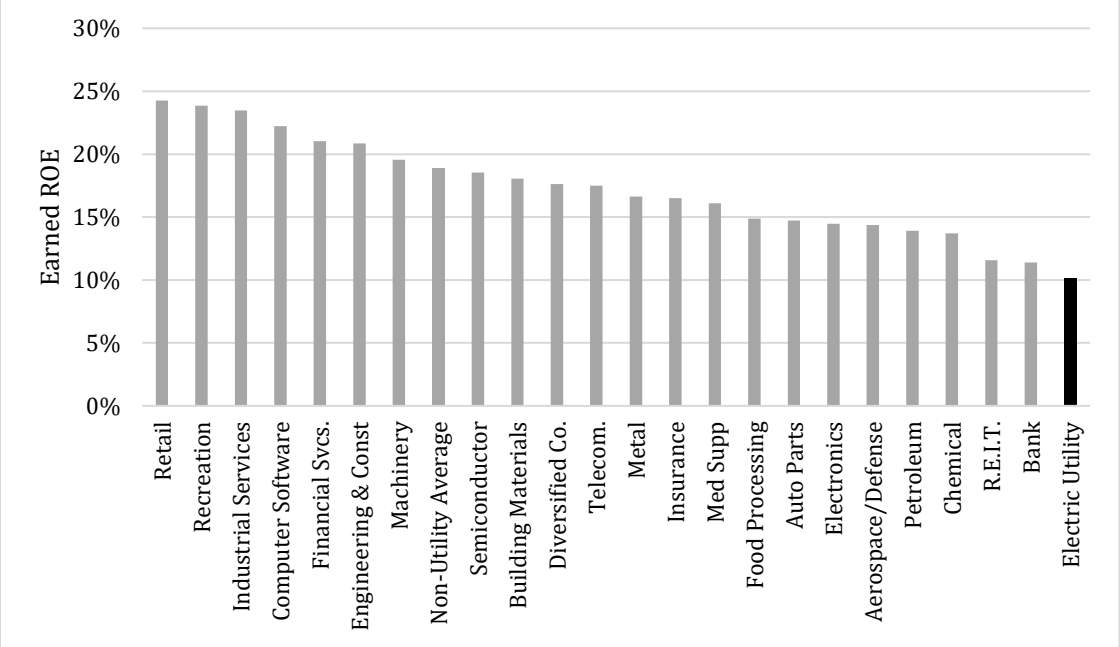
Utility ROEs Trail Nearly Every Other Sector

Accounting returns tell a similar story. Figure 28 compares the most recent reported earned ROEs for the 36 U.S. and Canadian electric utilities covered by Value Line with those of the 1,255 non-utility companies in the same data set. These electric utility holding companies on average earned an ROE of approximately 10.1 percent, and Value Line projects an average earned ROE of approximately 10.5 percent.[124] By comparison, the average non-utility company earned approximately 18.9 percent and is projected to earn approximately 20.2 percent, or approximately 880 to 970 basis points more than electric utilities on average.[125] Of the 71 non-utility industry groups in the data set, 68 reported a higher average earned ROE than electric utilities, and 70 are projected to earn a higher average ROE.

[123] Source: S&P Global Market Intelligence. Total return includes reinvested dividends.
[124] Source: Value Line screener, accessed on October 8, 2026. Value Line does not specify exact dates for earned or projected ROEs in its screener tool, though earned ROEs would generally be in the past year, while projected ROEs would generally be over the next four to six years.
[125] *Id.*

These results are consistent with the structure of utility regulation. Unlike firms in competitive industries, a utility cannot raise prices to capture the value of strong demand or a new product; its earnings opportunity is effectively bounded by its authorized ROE, while shortfalls due to regulatory lag, disallowances, and unanticipated cost increases are borne by shareholders. That electric utilities earn, and are expected to earn, returns near the bottom of the distribution of industries is inconsistent with claims that utility returns are excessive.

Figure 28. Average Earned ROEs – Electric Utilities vs. Other Sectors[126]



Lower Market Risk Does Not Explain the Gap

Beta, the measure of market (systematic) risk used in the CAPM, reflects how much a security's returns move with the overall market (e.g., the S&P 500). A security with a Beta coefficient less than 1.0 is less sensitive to market movements, while a security with a Beta coefficient above 1 is more sensitive. To compare utility Beta coefficients to other sectors, Beta coefficients were estimated over rolling five-year windows, calculated relative to the S&P 500 using weekly returns, for the Utilities Select Sector SPDR Fund (XLU) and eight other sector funds from October 2007 through September 2026. Over that period, the utility sector's Beta coefficient averaged 0.74, nearly identical to consumer staples (0.73) and modestly below healthcare (0.84).[127]

The takeaway is that companies with comparable market risk earn considerably more than utilities. Value Line companies in the food processing, beverage, and household and personal care industries, which are broadly representative of the consumer staples sector, reported an average earned ROE of approximately 17.7 percent and a projected average ROE of approximately 16.9 percent, compared

[126] Source: Value Line screener, accessed on October 23, 2026. Earned ROE reflects Value Line's reported return on shareholders' equity; projected ROE reflects Value Line's estimated return on shareholders' equity. Figure 28 is limited to sectors with 20 or more companies.
[127] Source: S&P Global Market Intelligence. Beta coefficients are calculated using 261 weekly price returns relative to the S&P 500 and adjusted using the Blume adjustment (two-thirds of the raw Beta plus one-third).

with approximately 10.1 percent and 10.5 percent for electric utilities, respectively.[128] This is consistent with the regulatory model that does not allow utilities to capture the pricing power and growth opportunities that companies in competitive markets can capture.

The Premium Over Interest Rates and Corporate Debt Has Narrowed

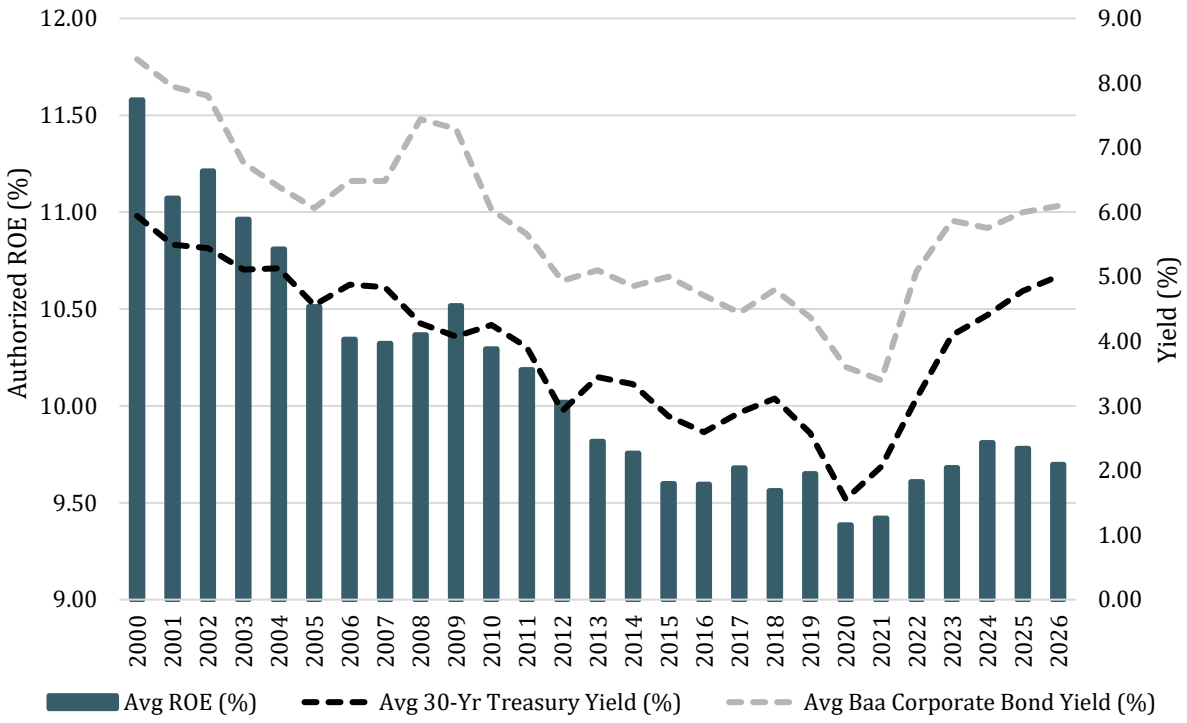
Because equity investors bear more risk than lenders, the premium of authorized ROEs over the cost of debt provides a useful market-based check on whether authorized returns remain adequate. Corporate bond yields are a particularly relevant benchmark because they are set by the bond market and reflect the return investors require to lend to companies, including utilities. Financial principles and empirical evidence indicate that higher bond yields generally increase investors' required returns on equity.[129] Figure 29 compares the authorized ROEs in 908 vertically integrated and distribution electric rate case decisions from January 2000 through September 2026 with the 30-year Treasury yield and the Moody's Baa corporate bond yield.

Interest rates have risen substantially since 2020, but average authorized ROEs have barely moved. The average electric utility authorized ROE increased from 9.39 percent in 2020 to 9.70 percent in 2026 through September, or 31 basis points. Over the same period, the average Baa corporate bond yield rose by 250 basis points (from 3.60 percent to 6.10 percent), and the average 30-year Treasury yield rose by 345 basis points (from 1.56 percent to 5.01 percent). As a result, the premium of the average authorized ROE over the Baa yield has narrowed from 579 basis points in 2020 to 360 basis points in 2026, its narrowest level since 2009, and the 2026 premium over the 30-year Treasury yield (469 basis points) is the narrowest of the entire period. Moreover, average authorized ROEs have fallen by 11 basis points since 2024, in contrast to Baa corporate and 30-year Treasury bond yields, which have risen by 34 and 60 basis points, respectively.

Periods in which corporate borrowing costs were similar to today's are informative. In 2010, when the monthly average Baa corporate bond yield was within 6 basis points of its average 2026 level (6.10 percent), the electric rate case decisions issued had an average authorized ROE of 10.29 percent. Recent ROE authorizations have lagged market indicators with the 2026 average authorized ROE nearly 60 basis points lower than 2010 levels despite slightly higher corporate borrowing costs. A further reduction in authorized ROEs would compress the equity risk premium making it more difficult to attract equity capital at reasonable rates. Even holding authorized ROEs constant when interest rates are increasing makes utility equity investments less attractive compared to bonds or investments in other sectors.

[128] Source: Value Line screener, accessed on October 23, 2026.
[129] See, e.g., Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management at 33-45 (Spring 1985).

Figure 29. Authorized Electric ROEs vs. 30-Year Treasury and Baa Corporate Bond Yields (2000 – 2026)[130]



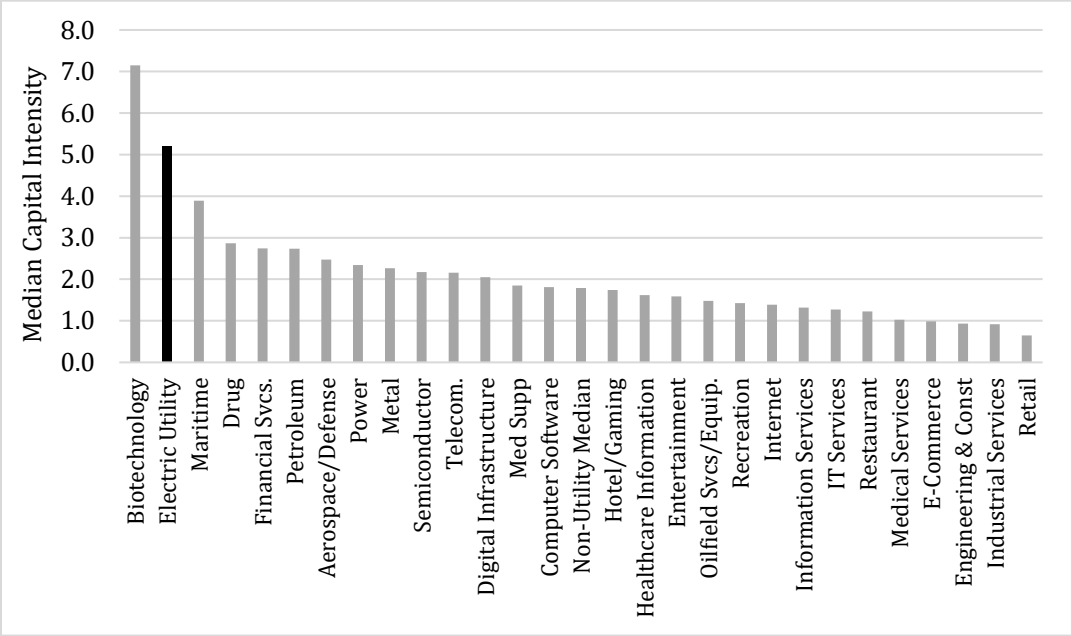
Electric Utilities Are Among the Most Capital-Intensive Businesses in the Economy

Capital intensity, measured here as the ratio of total assets to annual revenue, indicates how much capital a business must deploy to generate a dollar of revenue. As shown in Figure 30, the median electric utility in Value Line's coverage universe holds $5.20 of assets for every dollar of annual revenue, nearly three times the median of $1.77 for non-utility companies. Electric utilities are also more capital intensive than industries commonly regarded as infrastructure-heavy, including oil and gas distribution (4.4 times), cable television (3.5 times), railroads (3.4 times), petroleum (2.7 times), and telecommunications (2.2 times).

Capital intensity determines how reliant a business is on investors. Electric utilities must finance generation, transmission, and distribution infrastructure before recovering those costs from customers over asset lives measured in decades, which means the terms on which that capital is raised affect customer costs long after the investment is made. Utilities have an obligation to serve in all market conditions; investors have no obligation to supply capital.

[130] Source: S&P Global Market Intelligence (Regulatory Research Associates); Federal Reserve Bank of St. Louis, FRED Economic Database (series DGS30 and DBAA). Data through September 30, 2026.

Figure 30. Median Capital Intensity – Electric Utilities vs. Other Industries[131]



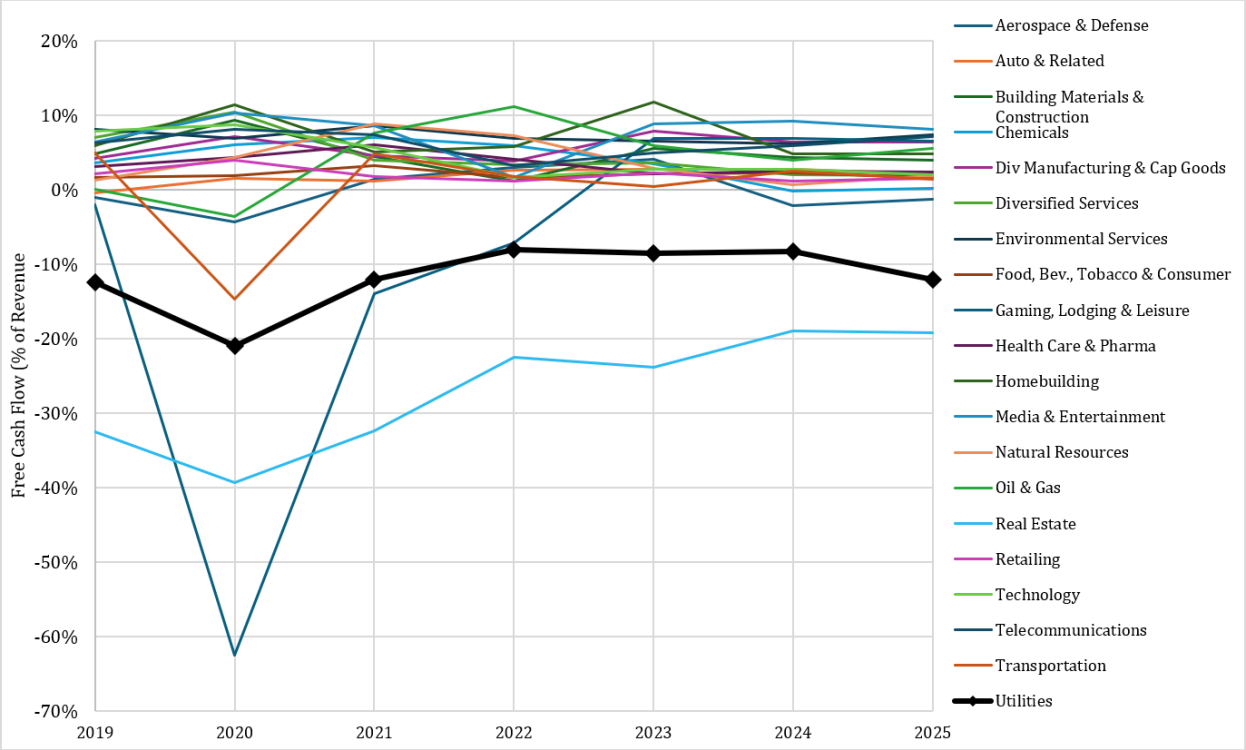
Utilities Consistently Invest More Cash Than They Generate

The practical consequence of that capital intensity is visible in utilities' cash flows. Figure 31 presents free cash flow for Fitch-rated U.S. companies by sector, based on the data underlying Fitch Ratings' June 2026 Global Corporates Cash Flow Monitor. Utilities are one of only two sectors, along with real estate, whose aggregate free cash flow (FCF) was negative in every year from 2019 through 2025. This means that utilities invest more cash building and maintaining their systems than they collect from customers and must make up the difference by borrowing or raising money from investors. Over that period, U.S. utilities' average annual FCF margin was approximately negative 12 percent, compared with positive 3.2 percent for all other sectors combined. Moreover, the cumulative U.S. utility FCF shortfall totaled approximately $422 billion. Even before paying dividends, utilities' operating cash flow fell short of capital expenditures in every year from 2019 through 2025. Fitch projects the U.S. utility FCF shortfall to widen to approximately 15 to 16 percent of revenue in 2026 and 2027 as capital spending accelerates.

Persistently negative free cash flow means that utilities must obtain external debt and equity capital year after year simply to fund the investment required to serve customers. A utility's access to capital, and the price it pays for that capital, therefore depends directly on investors' confidence that the regulatory framework will provide a return commensurate with the risks they assume. That is the mechanism through which authorized ROEs affect customer costs.

[131] Source: Value Line screener, accessed on October 23, 2026. Capital intensity equals total assets divided by net operating revenues.

Figure 31. Free Cash Flow as a Percent of Revenue – U.S. Utilities vs. Other Sectors (2019 – 2025)[132]



Utilities Have Higher Financial Risk Than Other Sectors, Which Is Mitigated by the Regulatory Compact

Utilities' relatively low market risk should not be confused with low financial risk. When evaluating a company's creditworthiness and assigning a credit rating, S&P examines both the business risk and financial risk of the company. Figure 32 shows that utility operating companies have lower business risk than the S&P 500 companies on average, but have higher financial risk. This demonstrates the importance of the regulatory compact; without stable, timely, reasonable returns, for which the authorized ROE is an important component, utilities would have significantly higher overall risk.

Figure 32. Utility vs. S&P 500 Company Risk Profiles[133]

Company Group	Business Risk Avg.	Business Profile	Financial Risk Avg.	Financial Profile
S&P 500	2.47	Strong	2.75	Intermediate
Utility OpCos	1.26	Excellent	3.86	Significant

[132] Source: Fitch Ratings, Global Corporates Cash Flow Monitor: June 2026. U.S. issuers; highest-level consolidated financials; excludes issuers flagged by Fitch for exclusion. Free cash flow as defined by Fitch (cash flow from operations, plus or minus non-operational cash flow, less capital expenditures and common dividends).

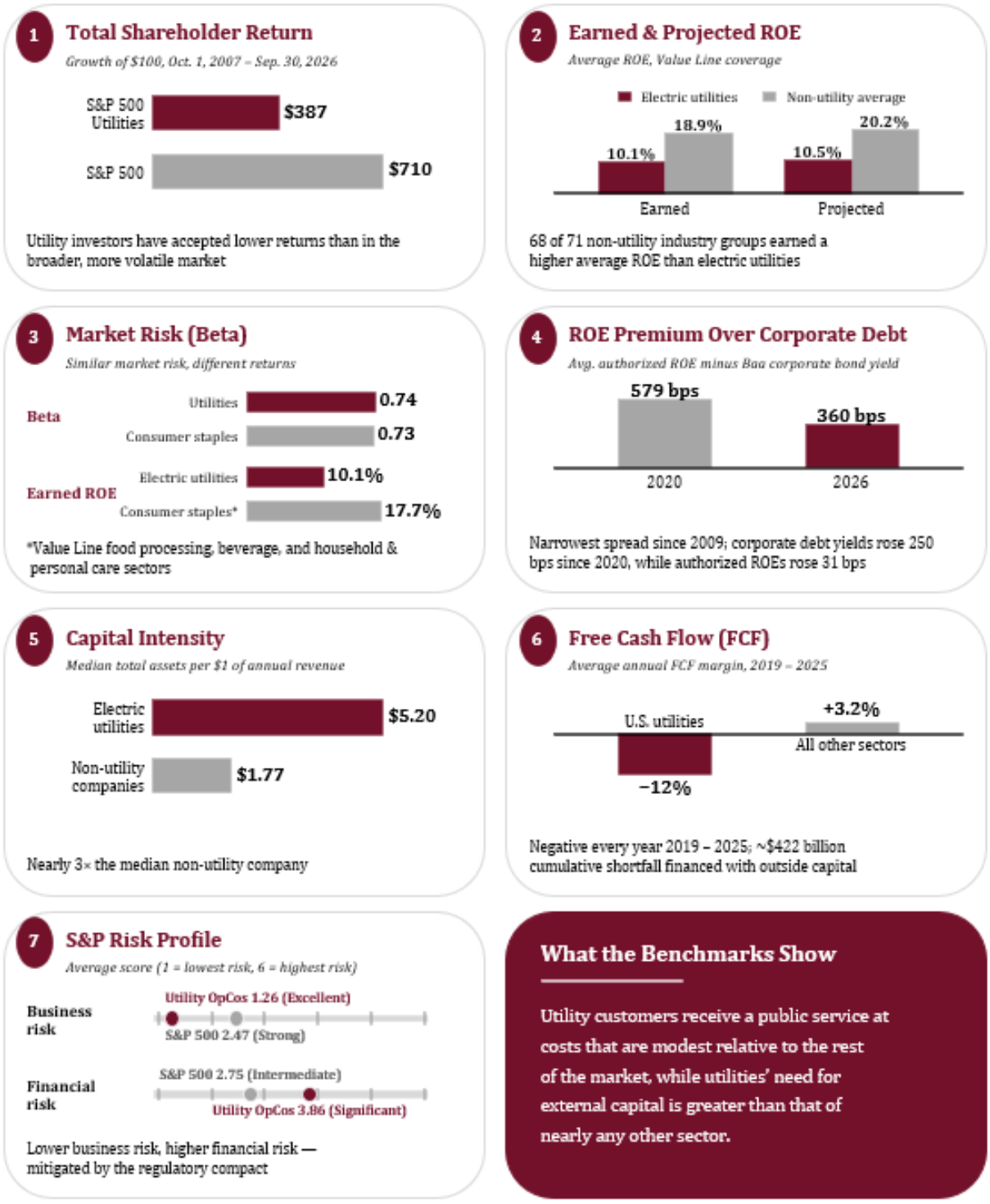
[133] Source: S&P Global Ratings, data as of October 27, 2026. Includes companies with data in S&P Capital IQ Pro. S&P scores a company's business risk according to the following scale: 1 = excellent; 2 = strong; 3 =

What the Benchmarks Show

Figure 33 presents an infographic that summarizes the benchmarks presented in this section. In summary, utilities have traditionally provided investors with comparatively modest, but stable returns. Across each benchmark, the evidence points in the same direction. Over nearly two decades, utility shareholders have earned roughly half the total return of the broader market. Electric utilities earn, and are projected to earn, ROEs below nearly every other industry, including industries with comparable market risk. The premium of authorized ROEs over corporate borrowing costs has narrowed to its lowest level since 2009. At the same time, electric utilities are nearly three times as capital intensive as the typical company, and utilities, together with real estate, are the only sectors that have not generated positive free cash flow in any year since (at least) 2019. These are not the characteristics of an industry earning excessive returns, but of one whose ability to serve customers depends on continuous access to capital at a reasonable cost. Setting authorized ROEs below investor requirements, whether as an affordability measure or as a policy instrument, would raise the cost of that capital and, over time, the cost of service for customers.

satisfactory; 4 = fair; 5 = weak; and 6 = vulnerable. S&P scores a company's financial risk according to the following scale: 1 = minimal; 2 = modest; 3 = intermediate; 4 = significant; 5 = aggressive; and 6 = highly leveraged.

Figure 33. Utility Benchmarks Summary[134]



[134] Sources: S&P Global Market Intelligence (total return; Beta; RRA authorized ROEs); Value Line (ROEs; capital intensity); FRED (corporate Baa and 30-year Treasury yields); Fitch Ratings, Global Corporates Cash Flow Monitor, June 2026 (free cash flow); S&P Global Ratings (risk profiles).

CONCLUSION:

UTILITY REGULATION REQUIRES BALANCE

The debate over utility return on equity should be grounded in the purpose of the Regulatory Compact, which is to ensure that customers receive safe, reliable, and affordable utility service while allowing the utility a reasonable opportunity to recover prudent costs and earn a fair return in exchange for accepting an obligation to serve and regulatory oversight. Through the Regulatory Compact, utilities have a reasonable opportunity to recover prudently incurred costs and earn a fair return on invested capital. That arrangement does not guarantee earnings or insulate investors from risk. It creates the financial foundation and stability needed to support long-term planning and investment in the infrastructure necessary to provide reliable service to customers.

Authorized ROE is an essential component of that foundation, but its role is frequently misunderstood. It is neither a utility's profit margin nor a return applied to the entire customer bill; it represents the allowed return on the equity-financed portion of utility assets. Actual earned returns may differ from authorized returns due to operating conditions, regulatory lag, disallowances, and the timing of cost recovery.

A regulator's ROE determination is intended to reflect the returns investors require to commit capital to investments of comparable risk. Because the cost of equity is not directly observable, regulators must evaluate market evidence through established financial models, using forward-looking inputs and informed judgment rather than mechanically adopting a single approach. Authorized ROE also must be considered alongside capital structure and cost-recovery provisions, which jointly affect financial risk and the utility's ability to finance its obligations.

While affordability concerns are real and warrant careful and thoughtful attention from regulators and policymakers, effective responses require an accurate understanding of what is driving customer costs. Fuel prices, wholesale energy and capacity costs, inflation, and other pressures contribute to customer bills independently of authorized equity returns. Because ROE applies to only one component of the revenue requirement, reducing it cannot inherently resolve pressures arising elsewhere in the utility's cost of service. Policies directed toward the largest cost drivers and the customers experiencing the greatest hardship offer a more direct approach to affordability than broadly reducing equity returns as a short-term remedy.

The consequences of inadequate returns extend beyond the immediate rate calculation and perceived short-term benefits. Utilities compete for finite capital both within their corporate families and in external financial markets, where investment decisions reflect expected returns, risk, and confidence in the regulatory framework. When regulatory outcomes weaken cash flow or increase uncertainty, investors may demand higher financing costs, impose more restrictive terms, or favor alternative investments. Greater reliance on debt is not a costless substitute for equity: increased leverage can weaken credit metrics, reduce financial flexibility, and raise the compensation required by both lenders and shareholders.

The examples presented herein illustrate how those financial effects can reach customers. Adverse regulatory outcomes can contribute to credit deterioration, more expensive borrowing, and reductions or reallocations of discretionary capital investment. Higher-cost debt can remain embedded in customer rates for decades, even if subsequent regulatory decisions improve a utility's financial outlook. The broader financial distress case studies also show that policy mandates, delayed recovery, capital market disruptions, and extreme weather can strain utility finances, reinforcing the

importance of financial resilience and constructive regulatory environments rather than establishing inadequate ROE as a source of distress.

The comparative benchmarks provide additional context for evaluating claims that utility returns are excessive. The evidence shows relatively modest utility returns, a narrowing premium of authorized ROEs over borrowing costs, and substantial capital requirements. Persistent negative free cash flow further demonstrates that utilities depend on continuing access to external financing to support investment. These comparisons underscore the importance of evaluating returns in relation to both investment risk and the sector's financing needs.

The Regulatory Compact is not a promise of utility earnings, nor a license to suppress returns below investor-required levels in pursuit of short-term bill relief. It is a balancing framework designed to protect customers while ensuring utilities can attract the capital needed to provide safe, reliable, and increasingly complex service. Undermining that financial foundation may create the appearance of a solution, but over time it raises risk and financing costs and makes essential infrastructure more expensive and harder to build, which is particularly important now when load growth makes it most necessary. A better path is to preserve evidence-based ROE determinations, strengthen transparency around bill drivers, and pursue more meaningful and practical affordability solutions that do not impair a utility's ability to undertake investments needed to maintain reliability, resilience, and system modernization.

APPENDIX:

CASE STUDIES IN FINANCIAL DISTRESS – IN DETAIL

Niagara Mohawk

The New York Six-Cent Law, codified as Public Service Law (PSL) Section 66-c, was enacted in 1980 and amended in 1981. The law required New York electric utilities to enter into long-term contracts to purchase or wheel electricity from certain qualifying facilities (QFs), including alternate energy production, co-generation, and small hydro facilities. Most notably, the law established a minimum purchase price (or "floor price") of six cents per kilowatt-hour for such purchases.[135]

Niagara Mohawk Power Corporation provides a particularly notable example. Beginning in the mid-1990s, investors increasingly recognized the severe financial consequences of the company's Six-Cent Law obligations. Under the law, Niagara Mohawk was required to purchase electricity from independent power producers at prices that often exceeded both its own generation costs and prevailing wholesale market prices, even when the purchased power exceeded customer demand. These above-market purchase obligations weakened the company's competitive position, eroded financial performance, and contributed to electricity prices for its customers rising well above the national average.[136]

On October 6, 1995, S&P downgraded Niagara Mohawk's senior secured debt rating from BBB- to BB, its senior unsecured debt rating from BB+ to B+, its preferred stock rating from BB+ to B, and its commercial paper rating from A3 to B.[137] S&P also placed the company on CreditWatch with negative implications. The downgrade occurred due to the increased uncertainty in connection with Niagara Mohawk's PowerChoice proposal, which sought to address the financial burden created by the utility's mandated above-market power purchase contracts. The proposal included: (1) creation of a competitive wholesale electricity market and direct access by retail customers; (2) separation of the company's power generation business through a spin-off; (3) implementation of a Master Restructuring Agreement (MRA) that would provide relief from publicly mandated above-market independent power contracts and facilitate equitable write-downs of stranded assets; and (4) a price freeze or cut for all customer classes.

When announcing PowerChoice, Niagara Mohawk warned that failure to secure regulatory approval would result either in continued customer rate increases under traditional regulation or further deterioration in the company's financial condition, potentially leading to a restructuring under Chapter 11 of the U.S. Bankruptcy Code.

Existing equity investors were also impacted. The Board of Directors omitted the common stock dividend beginning in the first quarter of 1996 in an effort to stabilize the company's financial condition as the company addressed growing pressure from the mandated power purchases and weaker sales. In the longer-term, the company would also dedicate a substantial portion of its future expected positive cash flow to reduce the leverage associated with the MRA (i.e., for the termination of contracts with developers).

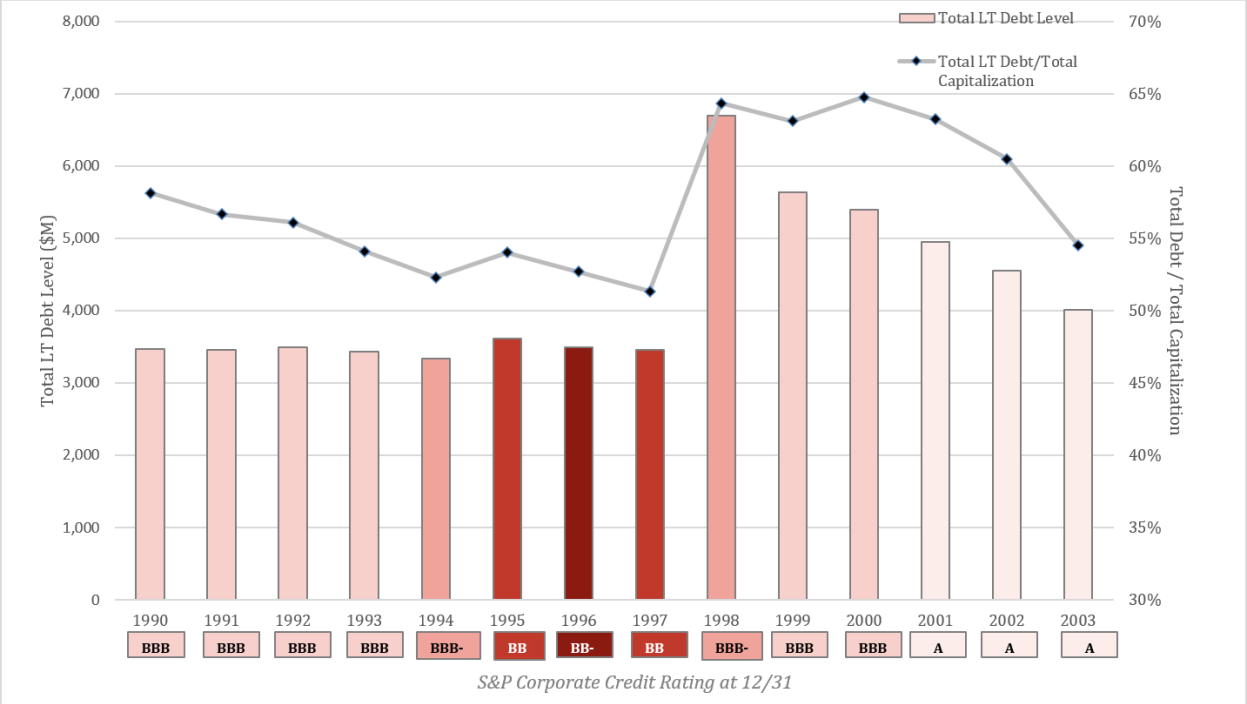
Niagara Mohawk's credit rating was upgraded on February 25, 1998, approximately three years after the initial downgrade in 1995. S&P raised Niagara Mohawk's corporate credit rating to BB+ (from BB), senior secured rating to BBB- (from BB+), senior unsecured rating to BB- (from B+), and its

[135] https://www.nysenate.gov/legislation/laws/PBS/66-C.
[136] Niagara Mohawk, December 31, 1998 10-K Annual Report, at 27.
[137] S&P RatingsDirect, "S&P Lwrs Niagara Mohawk Rtgs, Sr Secd to BB; On Watch" (October 6, 1995).

preferred stock rating to B+ (from B).[138] S&P commented that the upgrade followed the adoption of the company's PowerChoice restructuring proposal by the New York PSC:

> *This anticipated action was a critical step in the company's **long and tortuous road back from potential financial ruin** about two years ago. Despite the adverse financial impact of servicing requirements for $3.2 billion of incremental unsecured debt that Niagara Mohawk will be incurring as part of its restructuring plan, the substantial decrease in costly purchased power expense and the benefit of sizable tax-loss carryforwards are expected to result in significantly enhanced financial stability. Niagara Mohawk is expected to apply **virtually all free cash flow to the rapid amortization of the new debt obligations**, which could take up to **seven or eight years**.*[139]

Figure 34: Niagara Mohawk's Long-Term Debt Level and Credit Ratings (1990 – 2003)[140]



As shown in Figure 34, the financial consequences of the mandated contracts extended well beyond Niagara Mohawk's immediate financial distress. The company's deteriorating financial condition contributed to multiple credit rating downgrades while the company needed to raise debt on its balance sheet. As a result, Niagara Mohawk had to access debt markets from a weaker credit position, exposing the Company and its customers to higher borrowing costs. Because lower credit ratings generally translate into higher borrowing costs, debt issued under these conditions can embed

[138] S&P RatingsDirect, "S&P Raises Niagara Mohawk's Rtgs; Off Watch, Outlook Pos" (February 25, 1998).
[139] S&P RatingsDirect, "S&P Raises Niagara Mohawk's Rtgs; Off Watch, Outlook Pos." (February 25, 1998). [Emphasis added.]
[140] Sources: S&P Capital IQ, S&P RatingDirect.

elevated financing costs in the company's capital structure for the life of the debt. These higher costs do not disappear when financial conditions subsequently improve or when credit ratings are restored; rather, they persist for years and ultimately are reflected in the costs borne by customers. Investors also saw immediate impacts when the company suspended common stock dividends in 1996.

Public Service Company of New Hampshire

On January 28, 1988, Public Service Company of New Hampshire (PSNH) filed a voluntary petition for relief under Chapter 11 of the Bankruptcy Code.[141] PSNH's bankruptcy resulted from a combination of legislative and regulatory developments along with management decisions and macroeconomic factors that ultimately impaired the company's ability to generate sufficient cash flow and raise external capital to service its debt. As the Bankruptcy Court explained, "the debtor's [PSNH] cash flow reached a point at which the debtor could no longer service all of its secured indebtedness and still maintain normal operations on the rest of its system."[142]

A particularly significant regulatory development was New Hampshire's anti-CWIP law, RSA 378:30-a, "Public Utility Rate Base; Exclusions," which became effective on May 7, 1979, and prohibited the inclusion of construction work in progress (CWIP) and associated construction, ownership, maintenance, and financing costs from being reflected in rates before the project was actually providing service to customers. The law was especially consequential for PSNH because the company was in the process of developing the Seabrook nuclear generating station, a massive capital project that would require substantial financing before entering commercial operations. By preventing recovery of construction-related investment through rates before the plant became operational, the anti-CWIP law increased the amount of construction expenditures that had to be financed in the interim and shifted greater financing and completion risk to investors. As recognized by the New Hampshire Supreme Court, "In enacting the anti-CWIP law, the legislature recognized that the rule may cause utilities to experience cash flow or other financial difficulties. It was fully cognizant that the CWIP prohibition would have the effect of allocating the direct consequences of the risk of non-operation to investors, rather than ratepayers. The legislature was aware that this risk allocation is ultimately more expensive for consumers if the project succeeds."[143]

The PSNH case demonstrates the importance of regulatory predictability, support, and "real world"[144] impacts of regulatory decisions to the utility's ability to raise sufficient capital and remain financially viable. It also demonstrates why individual regulatory mechanisms should not be evaluated in isolation. A change to one element of the regulatory framework can materially affect the financing requirements and risks for the company, investors, and customers, particularly for capital-intensive enterprises like utilities.

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[141] United States Bankruptcy Court, District of New Hampshire, *In re: Public Service Company of New Hampshire, Debtor*, BK88-00043 (June 22, 1988).
[142] United States Bankruptcy Court, District of New Hampshire, *In re: Public Service Company of New Hampshire, Debtor*, BK88-00043 (June 22, 1988). [Clarification added.]
[143] New Hampshire Supreme Court, Petition of Public Service Company of New Hampshire, 130 N.H. 265, 278–79, Docket No. 87-311 (January 26, 1988), citing to N.H.S. JOUR. 604-15 (1979); Report of the Science and Technology Committee, N.H.H.R. JOUR. 626-27 (1977); and Appeal of Public Serv. Co. of N.H., 125 N.H. at 50, 480 A.2d at 22. [Citations omitted.]
[144] United States Bankruptcy Court, District of New Hampshire, *In re: Public Service Company of New Hampshire, Debtor*, BK88-00043 (May 17, 1990).

The significance of the anti-CWIP law is best understood in the context of PSNH's investment in Seabrook and the regulatory developments that followed. PSNH began construction of the Seabrook nuclear plant after receiving a siting certificate in 1974. PSNH initially held a 50 percent ownership interest in the proposed plant but subsequently reduced its interest to 35.6 percent through various agreements and sales involving the other joint owners in the early 1980s.[145] Seabrook was originally planned as a two-unit nuclear facility with a projected total cost of approximately $1.3 billion, with Unit 1 expected to be completed in November 1979. Despite the enactment of the anti-CWIP law in May 1979, after the start of the construction, PSNH and the other joint owners proceeded with the project.

Ultimately, only one of the two units was completed, and the physical completion extended approximately seven years beyond the originally anticipated schedule. The original two-unit project was projected to cost approximately $1.3 billion. According to the Bankruptcy Court, total Seabrook costs, including carrying costs and interest through January 1, 1990, had reached approximately $6.5 billion, of which PSNH had invested approximately $2.9 billion.[146] Moreover, the unit did not immediately enter commercial operation because licensing and emergency-planning matters remained unresolved. These substantial cost increases, combined with the restriction on recovering CWIP through rates, placed increasing pressure on PSNH's financing requirements. With Seabrook excluded from retail rate base until it became operational, PSNH was required to finance a substantial portion of its construction and carrying costs during the extended development and licensing period, increasing its reliance on external capital. As the Bankruptcy Court explained, the anti-CWIP law "substantially increased the cost of the completion of the Seabrook plant (due to the need to borrow money at interest to cover the cost of completion until the plant could go on line)."[147] The Court directly connected these mounting financing requirements with PSNH's eventual bankruptcy:

> *[I]t is this greatly escalated cost of the Seabrook plant, and the ultimate inability of PSNH to borrow sufficient monies to cover its public debenture debt incurred in financing the construction of the plant until it could go online, that led to the chapter 11 petition filed by PSNH on January 28, 1988.*[148]

The New Hampshire PUC similarly noted that it was unlikely that PSNH "would be in a position to meet its cash obligations as they became due: namely, interest and principal payments on debts, expansion of service to customers, and fuel expenses, payroll, and other related expenses."[149] Most importantly, the PUC found that "financial markets are unwilling to provide additional new funds for PSNH due to investor perceptions of high risk… [e]xternal financing, therefore, is not a dependable alternative for restoring PSNH's financial integrity."[150]

The timing of PSNH's bankruptcy further illustrates the connection between regulatory policy and access to capital. PSNH filed its Chapter 11 petition two days after the New Hampshire Supreme Court held that the anti-CWIP statute remained applicable in the company's emergency rate proceeding and restricted the PUC's authority to grant relief based on Seabrook's non-operating investment. The

[145] United States Bankruptcy Court, District of New Hampshire, *In re: Public Service Company of New Hampshire, Debtor*, BK88-00043 (May 17, 1990).
[146] *Id.*
[147] *Id.*
[148] *Id.*
[149] New Hampshire Supreme Court, *Petition of Public Service Company of New Hampshire*, 130 N.H. 265 Docket No. 87-311 (January 26, 1988).
[150] *Id.*



Court recognized that the significance of regulatory actions extends beyond the immediate accounting or ratemaking result because investors and financial markets evaluate the regulatory environment when deciding whether, and on what terms, to provide capital. As the Court observed, regardless of the outcome of a particular regulatory proceeding, there remains:

> *[T]he 'real world' effect of such practices in terms of reaction by the financial markets and utility analysts who would be essential to the issuance of future securities and public debt necessary, not only for the initial cash requirements of a reorganization plan, but also necessary to finance the reorganized company's ongoing operations.*[151]

Utility financial integrity depends not only on the outcome of an individual rate proceeding, but also on investors' broader assessment of the regulatory framework within which the utility operates. Legislative and regulatory policies that reduce internally generated cash flow, increase financing requirements, or introduce greater uncertainty regarding cost recovery can adversely affect investors' assessment of risk and, consequently, the utility's ability to access capital on reasonable terms.

PSNH's bankruptcy provides a particularly stark example of why adequate investor compensation, regulatory predictability, and financial strength are important for capital-intensive utilities. Regulatory policies that increase investor risk or constrain internally generated cash flow can increase reliance on external financing at precisely the time that a utility's financial position is weakening. As financial risk increases, access to capital can become more difficult and costly, while weak earnings and increasing leverage can further impair the utility's ability to raise the funds necessary to finance construction and maintain operations. In PSNH's case, escalating Seabrook costs, substantial borrowing requirements, and the company's ultimate inability to obtain sufficient financing to meet the debt obligations associated with construction culminated in its Chapter 11 filing.

Although the PSNH Bankruptcy Court concluded that the objectors had not demonstrated such a change in New Hampshire's ratemaking methodology, the principle articulated in *Duquesne* (discussed in Section 2.4) underscores the importance of a stable and predictable regulatory framework when utilities commit substantial amounts of investor capital to long-lived infrastructure.

Winter Storm Uri

An example of external events that caused financial distress to the utility industry is that of Winter Storm Uri. It also demonstrates that a supportive regulatory and legislative environment, as well as maintaining a utility's financial integrity, saves customers money in the long term.

In February 2021, Winter Storm Uri, a winter and ice storm, caused widespread blackouts and disrupted power supply across much of the U.S., particularly in Texas. Consequently, natural gas prices spiked due to substantially reduced production in the Permian Basin (up to 5 Bcf/d) that caused supply shortages.

Later that month, many gas distribution companies across the U.S. began reporting that the cost of purchased gas for the month of February had risen to unprecedented levels. For example, One Gas reported approximately $2.2 billion in extraordinary costs for natural gas purchases, financing and

[151] United States Bankruptcy Court, District of New Hampshire, In re: Public Service Company of New Hampshire, Debtor, BK88-00043 (May 17, 1990).

carrying costs, and other operational costs across its three gas distribution subsidiaries in Oklahoma, Kansas, and Texas. One Gas delayed its quarterly earnings announcement as it scrambled to obtain short-term financing to cover these unforeseen costs.

One Gas initially obtained short-term loans to finance the extraordinary cost of gas purchases during Winter Storm Uri. Specifically, One Gas, Inc. financed the impact of the storm by issuing $1.0 billion of 0.85 percent senior notes, $700 million of 1.10 percent senior notes, and $800 million of floating-rate senior notes at an interest rate equal to three-month LIBOR plus 61 basis points.[152]

Credit rating agencies responded quickly by downgrading the credit rating of One Gas. For example, S&P Global Ratings downgraded One Gas by two notches to 'BBB+' from 'A'. S&P provided the following explanation for the downgrade:

> *Subsequent to this development, the company announced on Feb. 22, 2021, that it expects to incur incremental gas costs of approximately $2.2 billion for the month of February stemming from unprecedented weather events in its service territories and executed a $2.5 billion two-year, unsecured term loan facility to fund its natural gas purchases due to the 2021 winter weather events. Therefore, we forecast that ONE Gas' financial measures will materially weaken, including funds from operations (FFO) to debt averaging about 13%, which is down from our previous expectation of about 20%.*[153]

S&P also placed a negative outlook on One Gas's long-term issuer rating for possible further downgrade. S&P explained:

> *The negative outlook on ONE Gas Inc. reflects the risks concerning the recovery of the incremental natural gas costs stemming from the unprecedented winter weather and natural gas market disruptions across its service territories of Oklahoma, Kansas, and Texas. Our current base-case scenario assumes FFO to debt averaging about 13% over our forecast period, which leaves the company with minimal cushion at the current rating.*[154]

The fact that One Gas had an 'A' rating when Winter Storm Uri hit was crucial to its ability to respond quickly to the near-term financial pressure and to mitigate the adverse consequences of the unexpected event for both customers and the utility.

Although One Gas had purchased gas adjustment mechanisms in effect in each of its three jurisdictions, those mechanisms were not designed to recover such substantial and unforeseen costs. One Gas began to work with regulators in Oklahoma, Kansas, and Texas to develop plans for how to recover these extraordinary costs. Initially, gas costs were deferred for future recovery and placed in a regulatory asset account. Ultimately, each of the three states passed legislation that allowed the

[152] See, One Gas 2021 Annual Report, at 27.
[153] S&P Global Ratings, Research Update, "One Gas Inc. Downgraded To 'BBB+' From 'A' On Unprecedented Weather Conditions; Outlook Negative," February 23, 2021, at 1.
[154] *Id*.

company to issue securitization bonds,[155] and the respective Commissions in Oklahoma, Kansas, and Texas approved the settlement agreements related to the issuance of the bonds.

Once the securitization bonds were issued in Oklahoma, S&P Global upgraded the credit rating for One Gas to 'A-' from 'BBB+' in August 2022. S&P noted that it also expected that similar securitization efforts in Kansas and Texas would achieve similar constructive outcomes later in 2022. S&P explained the upgrade as follows:

> *We expect the securitization will materially improve ONE Gas' consolidated financial measures such that the company's funds from operations (FFO) to debt will reflect about 19%-21% through 2024, consistent with the upper end of the range for its financial risk profile category.*[156]

S&P also commented on the general benefits of securitization financing:

> *In general, we view securitization financing as favorable for credit quality because we assess such financing as off-balance sheet, improving the company's financial measures.*[157]

This example demonstrates the importance of not only regulated utilities having the financial strength to withstand external shocks, as One Gas did, but also support from state legislatures and regulators. Pre-Winter Storm Uri, if One Gas had started from a lower credit rating (e.g., BBB), a two-notch downgrade could have placed it in the speculative ratings range. However, this example highlights the types of risks that utilities face in navigating through unexpected events that inhibit their ability to serve customers and also imperil their financial strength and flexibility. The storm placed substantial stress on the utility's balance sheet, limited its borrowing capacity for its planned capital expenditure program, and caused sharp decline in its cash flow related credit metrics and a sudden downgrade in its credit rating. Even after the utility was able to obtain securitization financing, One Gas's credit rating remains one notch lower than it was prior to Winter Storm Uri. In this case, a supportive regulatory environment and legislation allowing for securitization prevented more costly consequences for customers.

[155] 2022 SEC Form 10-K, One Gas, Inc., at 18-21.
[156] S&P Global Ratings, "One Gas Inc. Upgraded to 'A-' on Securitization Financing in Oklahoma; Outlook Stable," August 25, 2022, at 1.
[157] *Id*, at 2.