AMERICAN ECONOMIC LIBERTIES PROJECT

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# RATE OF RETURN EQUALS COST OF CAPITAL:

## A Simple, Fair Formula to Stop Investor-Owned Utilities From Overcharging the Public

Mark Ellis

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# INTRODUCTION

The American utility market is based on a social contract. The government sanctions private, for-profit monopolies to provide approximately 70% of electricity and 95% of natural gas deliveries in the United States.[1] In return, these private monopolies, called investor-owned utilities (IOUs), agree to provide universal service and to be subject to cost-of-service regulation (COSR) of their customer rates, usually by state utility commissions. The other 30% of electricity and 5% of gas are provided by publicly or mutually owned utilities.

IOUs are granted regional franchises not subject to competition under the rationale that they are "natural monopolies": their service can be most efficiently provided by a single entity.[2] In principle, utility rates must be "just and reasonable": sufficient to recover only the actual and prudent costs incurred in providing service to their captive customers.

There is an inherent tension in the cost of service–based utility regulatory model. As investor-owned businesses, IOUs seek to maximize their profits, which often runs headlong into regulators' goal of achieving just and reasonable rates. Moreover, IOUs too often have the upper hand in their interactions with regulators, to the detriment of their customers. Over the last three years, IOU residential electricity rates have increased 49% more than inflation.[3] In contrast, their publicly owned counterparts have increased 44% less than inflation. In some states, the contrast is even more stark. Investor-owned San Diego Gas & Electric's residential rate increased by 78%, to over 45 cents per kilowatt-hour (kWh) between 2020 and 2023. Similarly sized Sacramento Municipal Utility District's average residential rate rose less than inflation and, at less than 17 cents/kWh, is barely one-third of SDG&E's. As a result of IOU price hikes, their residential customers' average monthly electric bills hit $137, 15% higher than public utility residential customers', compared to just 3% higher in 2020. As of September 2024, nearly one-quarter of US households were unable to fully pay their energy utility bills in at least one month in the past year.[4]

This policy brief explains a root cause of this problem: excessive utility rates of return allowed by utility commissions in setting customer prices. Rate of return (ROR) is the time-value-of-money compensation to investors for assuming the risk of providing capital to the utility. After an overview of utility rate-making principles, this brief covers how excessive utility rates of return contribute to the divergence between investor and public interests, and how IOUs have been able

1 "Other providers," retail power marketers and Community Choice Aggregators that sell almost exclusively through investor-owned utilities in states with consumer choice, are included in the IOU total. Author analysis of "State Electricity Profiles, Table 9. Sales to ultimate customers statistics" and "Natural Gas Annual Respondent Query System," U.S. Energy Information Administration, accessed Dec. 10, 2024, https://www.eia.gov/electricity/state/unitedstates/state_tables.php, https://www.eia.gov/naturalgas/ngqs/.

2 Mark LeBel et al., "Improving Utility Performance Incentives in the United States," Regulatory Assistance Project, p. 2, October 2023, https://www.raponline.org/wp-content/uploads/2023/10/rap-improving-utility-performance-incentives-in-the-united-states-2023-october.pdf.

3 Between 2020 and 2023, aggregate IOU rates increased 26.4%, and aggregate public (state and local) rates increased 10.0%. Meanwhile, the consumer price index increased 17.7%. See "Annual Electric Power Industry Report, Form EIA-861 detailed data files," U.S. Energy Information Administration, Oct. 10, 2024, https://www.eia.gov/electricity/data/eia861/; "Consumer Price Index (CPI) Databases," U.S. Bureau of Labor Statistics, accessed Dec. 10, 2024, https://www.bls.gov/cpi/data.htm.

4 See U.S. Census Bureau, "Household Pulse Survey: Unable to Pay Energy Bill," https://www.census.gov/data-tools/demo/hhp/#/?measures=ENERGYBILL&periodSelector=9&periodFilter=9,8,7,6,5,4,3,2,1&s_state=.

to outfox their regulators to convince them to award excess rates of return. It concludes with common-sense recommendations to realign utility investor incentives with the public interest, particularly codifying in legislation the long-standing regulatory standard setting the rate of return equal to the market-based cost of capital, standardizing the financial models used to calculate the cost of capital, improved coordination in the utility consumer advocate community, leveling the regulatory litigation playing field and fostering regulartory responsibility.

## IOUS' COST-OF-SERVICE BUSINESS MODEL

In exchange for their monopoly franchises, IOUs agree to provide universal service within their service territories and to be subject to regulation of the rates they charge customers.[5] This bargain builds on centuries-old American policy recognizing that certain privately owned property has such broad impact on society at large that it becomes "affected by a public interest" — resulting in legal obligations to set fair prices for captive users.[6]

Utilities are typically subject to oversight by federal and state regulators.[7] At the federal level, the Federal Energy Regulatory Commission (FERC) regulates interstate power transmission, wholesale power sales, and hydropower licensing.[8] IOUs are typically regulated by state regulatory commissions.[9] The primary responsibilities of these regulators include determining what kind of infrastructure and investments are necessary to serve customers, and setting the rates utilities can charge for their services.[10] Some state regulators determine the rates IOUs may charge at fixed intervals (e.g., every two years) but many do not, and IOUs generally may request rate changes at any time.[11] Such requests trigger regulatory proceedings, in which the IOUs have the burden of showing that rate increases are needed to earn a fair rate of return.[12]

State regulators are obligated to ensure that rates are "just and reasonable."[13] State regulators often

5 See, e.g., ibid. at 2, pp. 3-6; For a broader overview of other problems in the utility sector — including IOU holding company consolidation -- see also our companion report: Michael J. Bernstein et al., "Reforming the Utility System to Better Serve the American Public," American Economic Liberties Project, September 2024, https://www.economicliberties.us/our-work/reforming-the-utility-system-to-better-serve-the-american-public/#.

6 See, e.g., Munn v. Illinois, 94 U.S. 113, 127 (1877).

7 There are some exceptions; because Texas, Alaska, and Hawaii have few or no interstate connections, federal oversight is limited to hydropower dams. See Jim Lazar, "Electricity Regulation in the US: A Guide," The Regulatory Assistance Project, 2016, https://www.raponline.org/wp-content/uploads/2023/09/rap-lazar-electricity-regulation-US-june-2016.pdf.

8 Ibid.

9 Ibid.

10 See, e.g., Maryam Ghadessi and Marzia Zafar, "Utility General Rate Case -- A Manual for Regulatory Analysts," California Public Utilities Commission Policy & Planning Division, Nov. 12, 2017, p. 4, https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/about_us/organization/divisions/policy_and_planning/ppd_work/ppd_work_products_-2014_forward-/ppd-general-rate-case-manual-1-.pdf.

11 Russell Ernst and Monica Hlinka, "Demystifying utility rate case process pays dividends for industry stakeholders," S&P Global Market Intelligence, June 29, 2022, https://www.spglobal.com/market-intelligence/en/news-insights/research/demystifying-utility-rate-case-process-pays-dividends-for-industry-stakeholders.

12 Ibid.

13 See 16 U.S. Code § 824d(a) ("All rates and charges made, demanded, or received by any public utility for or in connection with the transmission or sale of electric energy subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rates or charges shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.").

interpret that to encompass all "prudent" and actual costs incurred in providing service.[14] They then set rates to cover those costs, plus a reasonable return on invested capital (i.e., profit).

Utility costs can be grouped into two broad categories: ongoing and capital. Ongoing costs are those that are "consumed" as incurred, like power plant fuel, employee salaries, and rent. These costs are essentially passed through in rates, with no markup.[15] Capital costs are those that are "consumed" over time, like power plants, pipelines, and transmission and distribution lines. While the utility pays for these upfront with an initial investment, they are recovered in rates over their useful life, which can be a decade or more. For example, for an investment with a 20-year useful life, 1/20, or 5%, of the initial cost will be recovered in rates each year. The annual charge for this return of capital is called "depreciation and amortization."[16]

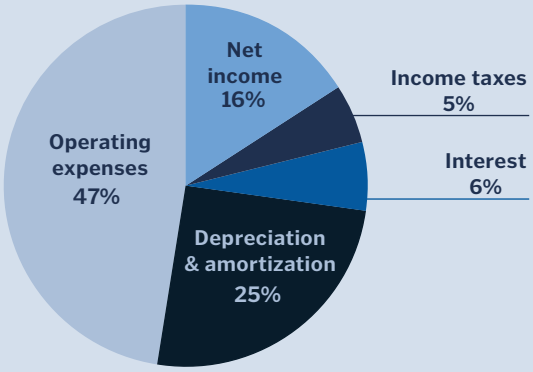
An additional prudent and actual cost utilities must recover is their cost of capital. When utilities make an investment, they are essentially making a "loan" to customers who pay it back, with "interest," over time. Depreciation and amortization only cover the principle, or the return of capital; utilities also must be compensated for the return on capital. As with other costs, the just and reasonable standard requires that this return on capital be equal to the prudent and actual cost of capital, no more, no less.

The prudent cost of capital that is allowed to be recovered in rates is simply the cost determined by financial markets. Utilities must compete with all other companies in the capital markets to attract investment. A rate of return below the cost of capital is not just and reasonable for the investors who provided capital in the past and will dissuade investors from providing the utility the capital it will need in the future. A

## Case Study: San Diego Gas & Electric revenue breakdown[1]

The earnings summary provided by San Diego Gas & Electric in its 2024 general rate case illustrates the composition of revenue for a typical US utility. The total revenue requirement is the sum of operating and capital costs. Operating costs account for roughly half; capital costs account for the other half. Of the capital cost component, roughly half is the return of capital, i.e., depreciation and amortization. The other half is the time-value-of-money return on capital — interest on debt, profits (net income) accruing to equity investors, plus taxes on net income, which are recoverable from customers and included in the revenue requirement.

Figure 1. **SDG&E revenue breakdown**




1 "Revised Prepared Direct Testimony of Ryan Hom (Summary of Earnings) Before the Public Utilities Commission of the State of California," San Diego Gas & Electric Company, August 2022, https://www.sdge.com/sites/default/files/regulatory/SDGE-44-R%20Revised%20Direct%20Testimony%20R%20Hom-SOE_1414.pdf; "Decision on Test Year 2020 Cost of Capital for the Major Energy Utilities," Public Utilities Commission of the State of California, Dec. 20, 2019, https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M322/K633/322633896.PDF.

14 Ibid. at 10.
15 Ibid., p. 19.
16 Deprecation is for tangible assets like buildings and equipment; amortization is for intangible assets like patents, other intellectual property, and goodwill.

rate of return above the cost of capital is not just and reasonable for customers: they are paying more than necessary for no benefit — an unjust enrichment of utility investors at the expense of customers.

The principle that rate of return should be set equal to the cost of capital (ROR = COC) has a long history, dating back to a concurring opinion penned by Supreme Court Justice Brandeis in 1923[17] and formally adopted by the full Court in its landmark 1944 Hope Natural Gas decision.[18]

Like other investor-owned companies, utilities finance their capital expenditures with a mix of debt and equity. A utility's cost of debt is easy to determine; it's simply the interest rate charged by its lenders. In contrast, its cost of equity (COE) is not directly observable; it must be estimated. The associated revenue requirement to compensate equity investors is calculated as cumulative investment (net of accumulated depreciation) multiplied by the equity ratio (the amount of equity in the overall capital structure) and the return on equity (ROE).[19]

That final calculation — cumulative net investment x equity ratio x ROE — equals the utility's net income, or profit after taxes. As with any other for-profit business, an investor-owned utility's primary objective is to maximize profit. This equation is therefore the key to understanding the unique utility business model and the incentives it creates for utility management and decision-making.

## FINANCIAL ALCHEMY OF ROE

Of the three inputs into the utility profit function, ROE has the biggest potential impact on utility stock market value.[20] Utilities therefore devote significant time, effort, and resources to convincing state utility commissions to award them ROEs as high as possible. (That ROE is then an input for determining rates).

17 Southwestern Bell Tel. Co. v. Public Svc. Comm'n, 262 U.S. 276, 291 (1923) ("The compensation which the Constitution guarantees an opportunity to earn is the reasonable cost of conducting the business. Cost includes, not only operating expenses, but also capital charges. Capital charges cover the allowance, by way of interest, for the use of the capital, whatever the nature of the security issued therefor, the allowance for risk incurred, and enough more to attract capital.").

18 See, e.g., A. Lawrence Kolve, James A. Read Jr., and George R. Hall, The Cost of Capital: Estimating the Rate of Return for Public Utilities, MIT Press, 1984, pp. 21-25; FPC v. Hope Nat. Gas Co., 320 U.S. 591 (1944) ("The ratemaking process under the [Natural Gas] Act, i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. ... From the investor or company point of view, it 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 [citation omitted]. By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks [emphasis added]." "[T]he return ... commensurate with returns on investments in other enterprises having corresponding risks" is simply the opportunity cost of capital. This standard has been repeatedly endorsed by regulators, academics, and experts testifying on behalf of utilities. See also, e.g., Roger A. Morin, New Regulatory Finance, Public Utilities Reports, 2006, p. 23 ("The regulator should set the allowed rate of return equal to the cost of capital so that the utility can achieve the optimal rate of investment at the minimum price to the ratepayers.").)

19 While frequently used interchangeably in regulatory proceedings, COE and ROE are two distinct concepts. COE is the market-based, or opportunity, cost of equity or the (not directly observable) expected return on the market price of a company's publicly traded stock. ROE is an accounting performance metric: net income divided by equity book value. See, e.g., ibid. at 10, p. 15.

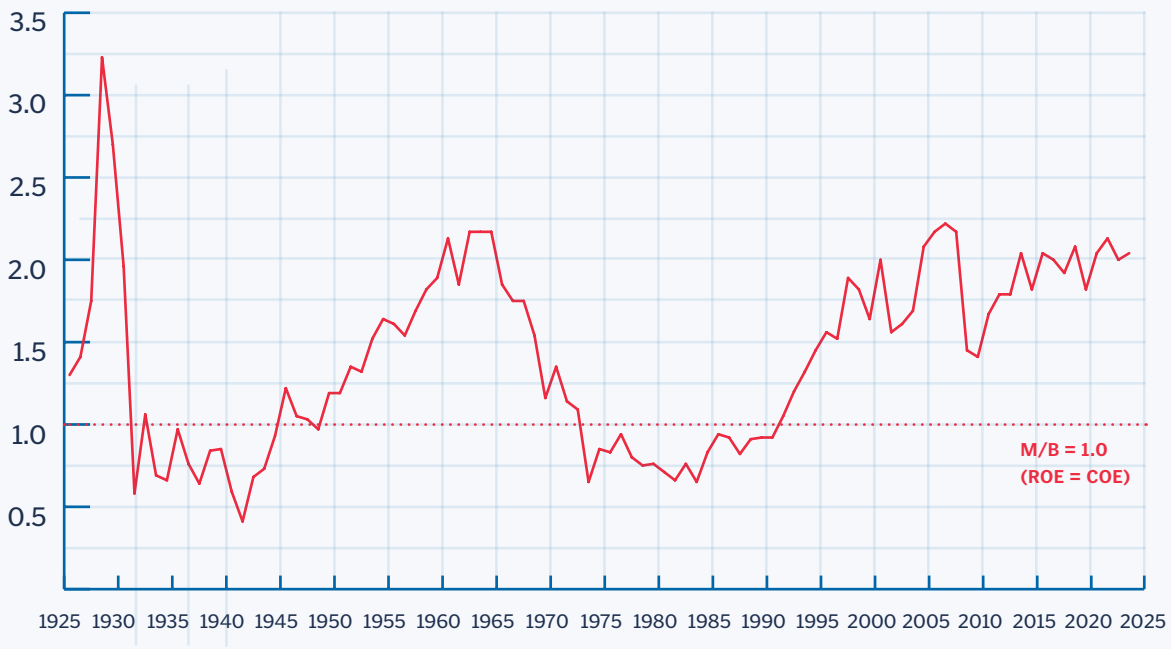
20 This is because, while utilities' stock market value scales with the levels of cumulative investment and equity ratio, it scales with the difference between ROE and COE, not ROE.

And they have been successful in doing so, winning approval for rates far exceeding the ROR = COC standard for decades. The clearest evidence that utilities earn more than their cost of equity is their stock market valuations. A fundamental principle of finance is that the value of an investment to asset with a return equal to its cost of capital is just the initial investment; if it is earning more than its cost of capital, the value will be greater than the initial investment and vice versa.

Utility shareholders' investment is the book value of equity as recorded in the utility's financial statements. By simply comparing utility stocks' market prices to their book values (the market-to-book ratio, or M/B), we can see whether authorized returns are in line with utilities' actual cost of equity.

Figure 2 shows the average utility sector M/B over the last nearly 100 years. It has exceeded 1.0 for the last 30 years and has hovered around 2.0 for the last 15 years.[21] A rough rule of thumb equates M/B to the ratio of the ROE to COE.[22] Utilities have been awarded ROEs approximately twice their actual, market-based cost of equity — in other words, twice what is "just and reasonable" — for over a decade.

Figure 2. **Utility sector average market-to-book ratio** | year-end




21 Kenneth R. French "Current Research Returns," Data Library, accessed Dec. 10, 2024, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

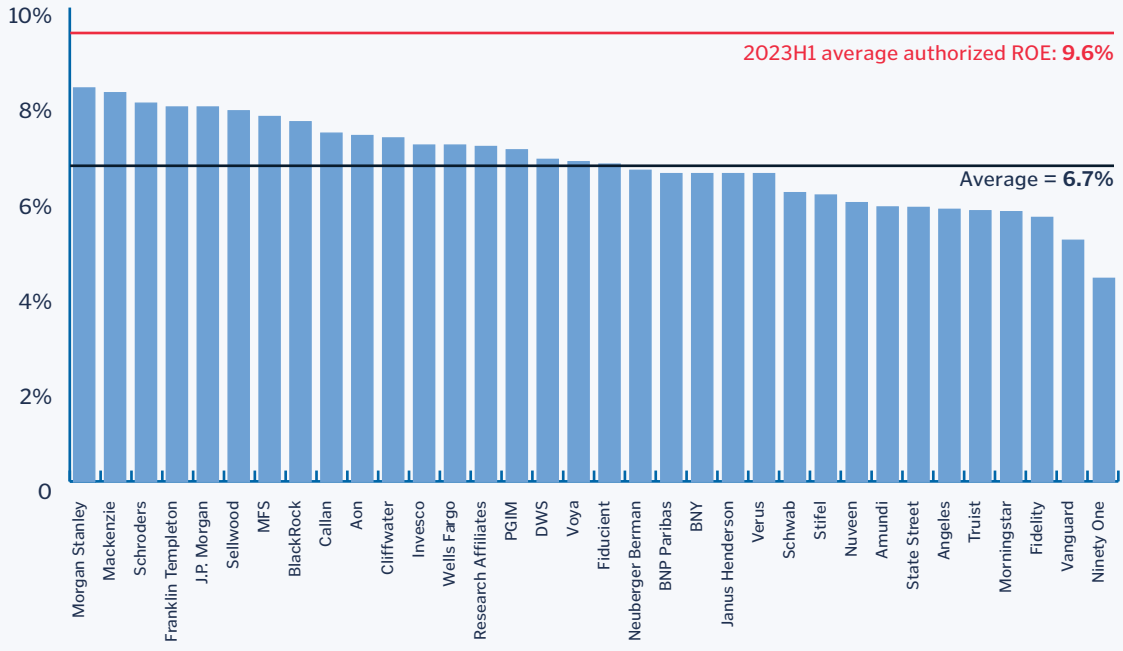
22 More precisely, M/B = (ROE – g) / (COE – g), where g is forecast long-term growth, so this rule would tend to overestimate the actual ratio of ROE/COE. For utilities, g tends to be low (2-3%), so the overestimation is modest, and the fundamental conclusion — that ROEs far exceed COEs — is robust under a range of possible long-term growth assumptions. See "Determinants of Price to Book Ratios," NYU Stern School of Business, accessed Dec. 10, 2024, https://pages.stern.nyu.edu/~adamodar/New_Home_Page/invfables/pbvdeterminants.htm.

A similar conclusion of authorized ROEs well in excess of utilities' COE can be drawn from Wall Street financial forecasts. The following chart compares dozens of Wall Street asset managers' return forecasts, i.e., cost of equity estimates,[23] for the broad US stock market to authorized ROEs, during the first half of 2023.[24] The average expected long-term aggregate market return, 6.7%, is 30% lower than the average ROE authorized for regulated utilities throughout the United States in the first half of 2023, 9.6%. The highest of 34 expected return forecasts, 8.3%, is a full 1.3% lower than the average authorized ROE. US utilities are lower risk than the market as a whole due to their cost-of-service regulatory model and relatively stable long-term growth, so their expected returns should be less than the 6.7% market average.[25]

Figure 3. **Investment firm market return forecasts**

**2023H1 long-term (10+ years) US equity return forecast**

Nominal, geometric




Source: Investment firm forecast reports; author analysis

23 See, e.g., Tim Koller, Marc Goedhart, and David Wessels, Valuation (5th ed.), Wiley, 2010, p. 35 ("The cost of capital is the price charged by investors for bearing the risk that the company's future cash flows may differ from what they anticipate when they make the investment. The cost of capital to a company equals the minimum return that investors expect to earn from investing in the company. That is why the terms expected return to investors and cost of capital are essentially the same. The cost of capital is also called the discount rate, because you discount future cash flows at this rate when calculating the present value of an investment, to reflect what you will have to pay investors.").

24 "Capital market assumptions," BlackRock Investment Institute, November 2024, https://www.blackrock.com/ca/institutional/en/insights/charts/capital-market-assumptions.

25 Matthew DiLallo, "Investing in Top Utility Stocks," The Motley Fool, Sept. 23, 2024, https://www.fool.com/investing/stock-market/market-sectors/utilities/ ("Utility stocks typically make stable investments. Demand for utility services, such as electricity, natural gas, and water distribution, tends to remain steady, even during a recession. The rates utilities charge for delivering these services are either regulated (approved by a government entity) or contractually guaranteed (nonregulated). So, utilities generate reliable earnings, allowing them to pay dividends with above-average yields. The combination of predictable profitability and income generation makes utility stocks lower-risk options for investors because they're less volatile.").

From a utility executive's perspective, excess ROEs provided by regulators are a form of financial alchemy. Every dollar of shareholder capital they invest turns into roughly two dollars in their stock market value — a powerful incentive to invest as much as possible. The aggregate stock market value of all US investor-owned utilities is approximately $1.3 trillion. At the current M/B of 2.3, investors value the ongoing excess wealth extraction from utility customers at over a trillion dollars.[26]

As ROE increases relative to COE, M/B — the financial alchemy ratio — increases as well, setting up a vicious cycle in which inflated ROEs create an increasingly powerful incentive to invest, driving ever-upward spiraling profits — up 28% after inflation over the last five years, far outpacing GDP and electricity and gas demand (up 11%, 3%, and 6%, respectively) — and corresponding rate impacts.[27]

## THE NEAR- AND LONG-TERM URGENCY TO ADDRESS EXCESS RORS

Another consequence of excessive RORs is that they limit regulators' ability to pursue other public interest priorities. Regulators often offer utilities performance-based incentives, essentially profit "adders" for performing non-investment activities that serve the public interest, like conservation and efficiency. Given how much shareholder value utilities' bread-and-butter investment in rate base creates, it is difficult to offer a performance incentive that can compete. As a result, the track record of such performance incentives is mixed, if not poor.[28]

IOU investment, adjusted for inflation, has risen approximately 3.8% per year faster than demand over the last three decades, such that the amount of capital investment per kWh delivered was more than 2.5 times higher over the five years through 2023 than 25 years earlier[29] — a clear reflection of utilities' "capital bias," the incentive created by excessive rates of return and their financial alchemy multiplier effect, to preferentially pursue the most capital-intensive means of

26 As of Nov. 22, 2024, the S&P 1500 Utilities Index market capitalization and M/B were $1.3 trillion and 2.3, respectively, implying an excess market capitalization of (2.3 – 1.0)/2.3 x $1.3 trillion = $0.73 trillion. Utilities collect from customers the state and federal taxes owed on these profits, at a combined rate of approximately 26% (see Cristina Enache, "Corporate Tax Rates around the World, 2024," Tax Foundation, Dec. 17, 2024, https://taxfoundation.org/data/all/global/corporate-tax-rates-by-country-2024/). The present value of the excess wealth the market expects utilities to extract from customers is therefore $073 trillion / (1 – 26%) = $1.0 trillion. The S&P 1500 Utilities Index's market capitalization also reflects the index members' non-utility businesses, which account for account for approximately 10% of their total assets and revenue, but excludes non-publicly traded utilities like those owned by Berkshire Hathaway (see "2023 Financial Review," Edison Electric Institute, June 10, 2024, pp. 25, 29, https://www.eei.org/-/media/Project/EEI/Documents/Issues-and-Policy/Finance-And-Tax/Financial_Review/FinancialReview_2023.pdf). Applying the same M/B and combined tax rate to US investor-owned utilities' 2023 FERC-reported (via S&P Global Market Intelligence) book equity value of $0.66 trillion yields a wealth transfer of $1.1 trillion.

27 S&P 1500 Utilities Index trailing-12-month operating earnings increased 51% in the five years through the third quarter of 2024; inflation over the same period was 22%. https://www.spglobal.com/spdji/en/documents/additional-material/sp-500-eps-est.xlsx.

28 Ibid. at 2.

29 "National Data: Fixed Assets Accounts Tables," Bureau of Economic Analysis, accessed Dec. 10, 2024, https://apps.bea.gov/iTable/?reqid=10&step=2&isuri=1; ibid. at 3.

serving customers.[30] In contrast, state and local public utility investment rose only 0.6% faster than demand over the same period, and the amount of capital invested per kWh delivered increased only 20%.[31]

The result is a vicious cycle of ever-increasing rates. In just the last few years, average IOU residential rates have increased 49% more than inflation. This increase is not due to any fundamental change in IOUs' true cost of service. The average rates of publicly owned utilities, which do not have the same incentives to over-invest, have increased at barely half the rate of inflation.[32] As a result, the gap between IOU and public rates has more than doubled from 12% in 2020 (13.7 cents/kWh for IOUs vs. 12.2 for public utilities) to 29% in 2023 (17.3 and 13.4 cents/kWh, respectively).

Excess IOU RORs are a pressing pocketbook issue for American consumers. Economywide, excess IOU RORs cost utility customers approximately $50 billion per year, or about 13.6% of total IOU gas and electric revenue.[33] The cost to individual households averages over $300 per year.[34] This is excess utility profits — cost over and above a fair and reasonable rate of return — for which customers receive no benefit whatsoever.

The need to reduce RORs is particularly urgent as trillions of dollars are expected to be funneled through utilities for the energy transition, to mitigate rising wildfire and climate change risks, and to meet new sources of demand like electric vehicles and artificial intelligence.[35] Bringing RORs into compliance with the regulatory standard would enable every dollar of utility revenue collected from customers for capital investment to go approximately 25% further — 25% more bang for every customer buck put toward utility investment.[36]

30 "Policy Explainer: How Utility Reform Can Align Profits with Climate Goals," Climate XChange, Nov. 10, 2022, https://climate-xchange.org/2022/11/how-utility-reform-can-align-profits-with-climate-goals/.

31 Ibid. at 30.

32 Ibid. at 3.

33 As of Nov. 22, 2024, the S&P 1500 Utilities Index forward (next 12 months) price-to-earnings ratio was 18.9. At the then-current market capitalization of $1.35 trillion, expected after-tax profits are $71 billion. The value of a utility stock is simply the discounted present value of its future profits, so excess profits are (1 – B/M) x profits = $40 billion. Grossing-up for state and local taxes (combined rate of 26%), which are collected from customers, results in total excess customer costs of $55 billion. Total annual IOU revenue in 2023 was approximately $400 billion; $55 billion / $400 billion = 13.6%. See ibid. at 27.

34 Average annual IOU revenue per residential customer (gas and electric) in 2023 was approximately $2,500; 13.6% x $2,500 = $340. See ibid. at 3.

35 See, e.g., "New Energy Outlook: US," BloombergNEF, Aug. 2, 2023, p. 3, https://assets.bbhub.io/professional/sites/24/2275621_NEO_US_Exec_Sum.pdf ("The NZS [Net Zero Scenario] requires a cumulative $29.6 trillion of investment into the US energy system over 2022-50. … 40% goes to the power system through renewables development, grid upgrades, and CCS installation.").

36 Calculation: Return on/of capital accounts for ~50% of total rate. ROE + taxes = ~20% rate, or ~40% of the non-operating (capital) share of total rate. ROE + taxes can be reduced by nearly half, or 20% of capital share of rate. 1/(1-20%) = 1.25 (in other words, 25% more investment).

# WHY REGULATORS AWARD EXCESS ROE TO UTILITIES

The relationship between M/B, ROE, and COE is not a new or arcane financial concept. Economist Alfred Kahn, President Carter's "inflation czar" and the unofficial father of deregulation, noted this relationship over 50 years ago in his 1970 classic The Economics of Regulation: Principles and Institutions:

> [T]he sharp appreciation in the prices of public utility stocks, to one and half and then two times their book value during this period, reflected … a growing recognition that the companies in question were in fact being permitted to earn considerably more than their cost of capital.
>
> …
>
> The source of the discrepancy between market and book value has been that commissions have been allowing r's [returns on equity] in excess of k [market cost of equity]; if instead they had set r equal to k, or proceeded at some point to do so … the discrepancy between market and book value … would have disappeared, or would never have arisen.[37]

More recent academic studies have also investigated the persistent gap between the cost of equity and utilities' authorized ROEs. Analyzing decades of data, researchers at Carnegie Mellon University concluded in 2019 that "[w]hat regulators should do, what regulators say they're doing, and what regulators actually do may be three very different things."[38] Researchers at the University California, Berkeley, reached similar conclusions in 2022.[39]

How have IOUs been able to get away with this for so long, when the evidence of excess ROEs is so clear? A number of factors are at work.

## CIRCULAR RATE CALCULATION MODELS THAT DEVIATE FROM TEXTBOOK FINANCIAL PRINCIPLES

Utility regulatory proceedings are public, including the various filings submitted by utilities and other parties on the rate of return. One of the striking things about these filings — whether submitted by the experts testifying on behalf of utilities, government consumer protection

37 Alfred E. Kahn, The Economics of Regulation: Principles and Institutions, MIT Press, 1970, pp. 48, 50.
38 Ellis Robinson, "Regulators have been giving utilities higher returns. Why?," Carnegie Mellon University College of Engineering, Oct. 17, 2019, https://engineering.cmu.edu/news-events/news/2019/10/17-fischbeck-energy-regulation.html.
39 Severin Borenstein, "What Does Capital Really Cost a Utility?" Energy Institute at Haas, Oct. 3, 2022, https://energyathaas.wordpress.com/2022/10/03/what-does-capital-really-cost-a-utility/.

agencies, or other intervenors — is how divorced their analysis is from conventional finance practice, i.e., what's taught in business schools, the methods used in academic research, or how practitioners in corporate finance and investing roles perform similar analyses.

For example, utility rate of return experts frequently employ four different models to estimate the cost of equity. Two of them — the risk premium model and expected earnings analysis — are used only in utility regulatory proceedings and nowhere else in finance. This is because they do not even purport to estimate the cost of equity but merely calculate return on equity based on either historical regulatory-awarded ROEs (the risk premium model) or forecasts of future ROEs which, in turn, are based on recently awarded ROEs (the expected earnings analysis). Promisingly, in 2022, the FERC recognized these models' circularity and prohibited their use, observing that they "def[y] general financial logic."[40] Nonetheless, both utility and non-utility experts continue to use them in state proceedings, mostly unchallenged.

The other two models commonly used in utility regulatory proceedings, the capital asset pricing model (CAPM) and discounted cash flow model (DCF), are all used by other finance practitioners and academics. Nonetheless, utility ROR experts routinely implement the DCF and CAPM with unrealistic assumptions to arrive at results comparable to those produced by the conceptually flawed ROE-based models. Examples of faulty implementation include growth projections for corporate profits, which currently account for less than 10% of US GDP, overtaking GDP in its entirety within a decade or two; and relying on input assumptions from providers with multi-decade track records of systematic upward bias.[41]

## PUBLIC ADVOCATES AS UNWITTING ACCOMPLICES

A second factor enabling utilities' success in winning approval for unreasonable rates of return is their relative unity of purpose compared to advocates and intervenors.[42] Utilities all recognize (1) the importance of high RORs and (2) that consistency helps them. Relying on the FERC-disapproved ROE-based models at the state level is a direct way utilities maintain consistency; each utility is simply referring to the ROEs awarded to its peers. They also maintain consistency indirectly, by engaging the same handful of firms to provide their ROR analysis and testimony. Of more than 60 ongoing proceedings as of November 2023, just four firms provided more than 90% of utilities' ROR testimony.[43] Two experts, one each from The Brattle Group and ScottMadden, accounted for more than half.

40 Zack Hale, "DC Circuit ruling gives FERC new chance to establish durable transmission ROEs," S&P Global Market Intelligence, Aug. 12, 2022, https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/dc-circuit-ruling-gives-ferc-new-chance-to-establish-durable-transmission-roes-71694369.

41 "Phase 2 Opening Testimony of Mark E. Ellis on Behalf of the Protect Our Communities Foundation," Public Utilities Commission of the State of California, Jan. 29, 2024, pp. 59-62 and 67-69, https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2204008;A2204009;A2204011;A2204012/7022/524233936.pdf.

42 Intervenors are individuals or groups that advocate for views and issues that otherwise might not be introduced into utility regulatory proceedings by the utility, state utility consumer advocates, or attorneys general offices. In some states, they are eligible for compensation through state utility commission-administered programs. See, e.g., "State Approaches to Intervenor Compensation," National Association of Regulatory Utility Commissioners, December 2021, p. 4, https://pubs.naruc.org/pub/B0D6B1D8-1866-DAAC-99FB-0923FA35ED1E.

43 Ibid. at 42, p. 100.

While experts testifying on behalf of utilities frequently have PhDs from prestigious institutions, many experts testifying on behalf of other parties have limited finance backgrounds. To train them, utilities decades ago established a low-cost certification organization, the Society of Utility Regulatory Financial Analysts (SURFA). SURFA's curriculum includes the two conceptually flawed ROE-based models, as well as the CAPM and DCF. Indeed, the SURFA manual calls the comparable earnings method, its umbrella term for ROE-based models, the "'grandaddy' of cost of equity methods" even while acknowledging it "does not square well with economic theory."[44] Through SURFA and the promulgation of flawed financial models, the utilities have effectively co-opted their potential opponents. Moreover, few advocates and intervenors appear to recognize the importance of ROR, in terms of its impact on rates and utility incentives. After all, their mostly SURFA-trained experts essentially retread the utilities' playbook, using the same flawed methodologies as the utilities and consequently producing similarly flawed results, so the value at stake is not apparent to them. For example, two firms widely engaged by third-party intervenors and state consumer advocates (such as the Arizona Residential Utility Consumer Office and the South Carolina Utility Energy Users Committee) — such as Brubaker & Associates[45] and J. Pollack[46] — both use the circular, FERC-prohibited risk premium model in state proceedings. So, too, did an expert who testified numerous times on behalf of FERC itself, as a consumer member of the Federal Executive Agencies, collectively the largest US electricity end-user, which regularly participates in utility regulatory proceedings.[47] Dependent as they are on their own experts' flawed analysis, advocate attorneys typically lack sufficient financial knowledge to effectively cross-examine utility witnesses.[48]

In addition, advocates often have competing interests and priorities, both among themselves and internally; even consumer protection organizations often have objectives beyond lower bills.[49] Lack of awareness of the value at stake combined with competing priorities is a recipe for neglect.

Even when advocates do engage on ROR, they often inadvertently undermine their own efforts. Done correctly, ROR is grounded in well-established financial principles. Well-known, empirically validated models for estimating the cost of capital are taught in introductory finance courses, and the ranges of reasonable input assumptions are relatively narrow, either because they are directly observable in the market (e.g., dividend yields and interest rates) or bounded by macroeconomic

44 David C. Parcell, "The Cost of Capital – A Practitioner's Guide," Society of Utility and Regulatory Financial Analysts, 2020, pp. 117-125.

45 Engaged by Arizona's Residential Utility Consumer Office. See Notice of Filing, In the Matter of Southwest Gas Corporation, Docket No. G-01551A-23-0341, pp. 407-410 and 441-43, https://docket.images.azcc.gov/E000038526.pdf?i=1731981640996.

46 Engaged by the South Carolina Utility Energy Users Committee. See "Direct Testimony and Exhibits of Billie S. Laconte On Behalf of the South Carolina Utility Energy Users Committee," Public Service Commission of South Carolina, June 5, 2024, pp. 9-10 and 20-26, https://dms.psc.sc.gov/Attachments/Matter/022eff26-cb35-402f-8311-91863ce97e99.

47 Ex. FEA-1, Direct Testimony and Exhibits of Kevin W. O'Donnell, CFA On Behalf of the Federal Executive Agencies, A. 22-04-008 et al., Aug. 8, 2022, pp. 36-40, https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=714273. FERC's current ROR expert does not use these models.

48 A common argument made by utilities in objecting to lower ROEs is that any potential savings are illusory: a lower ROE would impair the utility's credit, resulting in a higher cost of debt that would exceed any potential savings from lower ROEs. The appendix explains the flaws in this argument and demonstrates that utility profits can be significantly reduced while maintaining the utility's desired credit rating.

49 For example, the mission of the California Public Advocates Office is "to advocate for the lowest possible bills for customers of California's regulated utilities consistent with safety, reliability, and the state's climate goals." But its focus areas include distributed energy resources, natural gas decarbonization, and zero-emission vehicles. See "About," The Public Advocates Office, accessed Dec. 10, 2024, https://www.publicadvocates.cpuc.ca.gov/; "Energy," The Public Advocates Office, accessed Dec. 10, 2024, https://www.publicadvocates.cpuc.ca.gov/cleanenergy.

considerations (like GDP growth).[50] Despite experts' frequent claims to the contrary, estimating utilities' cost of capital is more science than art. Nonetheless, it is not uncommon for multiple advocates each to hire several different ROR witnesses, who inevitably differ in one or more of their methodologies or assumptions, if not in their recommendations.[51] Differing testimony among advocates, who all want a lower rate, makes ROR seem much more subjective than it is. Why should a commission accept the advocates' testimony over the utility's if the advocates cannot even agree among themselves on basic financial principles?

In the rare instances where accurate ROR testimony is submitted, it is often disregarded — not on its merits, but simply because it differs so dramatically from what regulators are used to seeing and what other advocates submit.[52]

## UNEVEN PLAYING FIELD

Regulatory proceedings are plagued by asymmetries of information, expertise, and resources. Utilities can spend as much as they want on their ROR and other proposals and their defense and pass on the cost to customers. Their gatekeepers and opponents, in contrast, are subject to significant constraints — limited budgets, broad missions, lowest-bid government procurement rules that result in lower-quality, often perfunctory testimony, procedural hurdles such as judicial deference, and politics (regulators are often appointed by governors who, in turn, often receive significant political donations from utilities and their unions)[53] — all of which combine to create a grossly uneven playing field. Given the sharp differences in their budgets and resources, utilities can easily overwhelm the regulatory process, diverting attention and resources away from the most consequential regulatory issues, such as ROR.

Although this would seem to provide opportunities for advocates to find common cause with large commercial players, deep-pocketed entities tend to focus on improving their own individual lot rather than seeking systemic change. Like other parties, they also have competing interests. For example, large commercial users might focus on cost allocation across customer classes or the rate impact of incentive programs for which they are ineligible. Large industrial users like data

50 For example, both the CAPM and DCF are covered in widely used introductory finance textbooks. See Richard A. Breadley, Stewart C. Myers, Franklin Allen, and Alex Edmans, Principles of Corporate Finance (14th Edition), McGraw-Hill Education, 2022.

51 For example, 10 different non-utility parties participated in a recent rate of return proceeding in California. Unlike most other states, California conducts a single regulatory proceeding just for rate of return for all four of its major IOUs, separate from their individual general rate cases. See "Decision Addressing Test Year 2023 Cost of Capital for Pacific Gas and Electric Company, Southern California Edison, Southern California Gas Company, and San Diego Gas & Electric Company," Public Utilities Commission of the State of California, Dec. 15, 2022, p. 3, https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M500/K015/500015851.PDF.

52 For example, in a 2022 proceeding, the Wisconsin Public Service Commission dismissed intervenors' testimony after one commissioner explained that she found the utility's witness's "analysis more persuasive here than the others just because … she also used, you know, widely used cost of equity models that we've seen the discounted cash flow capital asset pricing, empirical capital asset pricing, and the bond yield risk premium models so those are the usual ones that you see and are used by others around the country." See Public Service Commission of Wisconsin, "PSC Commission Meeting 12/01/2022," YouTube, Dec. 1, 2022, https://www.youtube.com/watch?v=ffc8sc9HqP4.

53 See, e.g., "The utilities and their allies spend more than $1 billion influencing politicians, nonprofits, academia, and more," Solar Rights Alliance, Nov. 13, 2024, https://solarrights.org/blog/2024/11/13/utilitypayments/; Mark Van Orden, "Power Play: Political Contributions and Regulatory Capture in the Electric Utility Industry," The Center for Growth and Opportunity at Utah State University, Oct. 31, 2023, https://www.thecgo.org/research/power-play/.

centers often negotiate confidential custom rates.[54] They are effectively not subject to excessive RORs, so there is no upside in antagonizing a supplier of such a critical input.

## CORRUPTION

Bribery, patronage, and fraud have plagued utility regulation from its inception[55] and remain problems even today.[56] While instances of prosecutable criminal behavior are relatively rare, regulators are prone to a more subtle, yet ultimately more corrosive and consequential, form of corruption: regulatory capture, "the result or process by which regulation, in law or application, is consistently or repeatedly directed away from the public interest and toward the interests of the regulated industry."[57]

Regulatory law scholar and former FERC Administrative Law Judge Scott Hempling posits that capture is a product of regulators' attitudes as much as utilities' actions, specifically "a surplus of passivity and reactivity, along with a deficit of curiosity and creativity" that result in "a body of commission decisions, or non-decisions, about resources, procedures, priorities and policies, where what the utility wants has more influence than what the public interest requires."[58] Such attitudes are revealed in the Florida Public Service Commission's squelching of the mere questioning of utility claims about the need for high ROEs[59] and the Wisconsin Public Service Commission's dismissal of advocate concerns about excessive ROEs as distracting "eye candy" and a "headline grabber"[60] and the Minnesota Public Utilities Commission's insistence that utilities somehow are not part of the broader economy.[61]

54 See, e.g., Mississippi Senate Bill 2001-20242E, https://open.pluralpolicy.com/ms/bills/20242E/SB2001/ ("Section 22.3: A public utility may enter into a large customer supply and service agreement with a customer, which may include terms and pricing for electric service without reference to the rates or other conditions that may be established or fixed under Title 77, Chapter 3, Article 1, Mississippi Code of 1972. No approval by the commission of such agreement shall be required.").

55 Werner Troesken, "Regime Change And Corruption: A History of Public Utility Regulation," National Bureau of Economic Research, July 8, 2024, https://conference.nber.org/confer/2004/CR04/troesken.pdf.

56 Mario Alejandro Ariza and Kristi E. Swartz, "Fraud and corruption on rise at US utilities, threatening energy transition," Floodlight, March 1, 2024, https://floodlightnews.org/fraud-and-corruption-on-rise-at-us-utilities-threatening-energy-transition/.

57 Capture is generally defined as a form of corruption. Daniel Carpenter and David Moss identify two types of capture. Originally, capture described a process, applicable to the utility industry, producing more rent-seeking regulation. This phenomenon was invoked to undermine the rationale for regulation, resulting in "corrosive capture," in which the regulated industry seeks to weaken or fully remove public interesting-serving regulation. Steven Vogel uses the terms "deregulatory" and "anti-regulatory capture." See eds. Daniel Carpenter and David Moss, Preventing Regulatory Capture, Cambridge University Press, 2013, pp. 13, 16; Steven K. Vogel, "Rethinking Stigler's Theory of Regulation: Regulatory Capture or Deregulatory Capture," ProMarket, May 15, 2018, https://www.promarket.org/2018/05/15/rethinking-stiglers-theory-regulation-regulatory-capture-deregulatory-capture/.

58 Scott Hempling, "Effective Regulatory Procedures: Purposes, Practices and Paths," Australian Competition & Commerce Commission/Australian Energy Regulator Conference, August 2016, p. 16, https://www.accc.gov.au/system/files/Presentation%20by%20Scott%20Hempling%2C%20Attorney%20at%20Law%2C%20Maryland%20%2C%20USA%2C%20commentator%20on%20the%20Effective%20Regulation%20of%20Public%20Utilities.pdf.

59 Emily L. Mahoney, "Tampa Electric defends plan to charge residents millions more so big companies save," Tampa Bay Times, Sept. 3, 2024, https://www.tampabay.com/news/business/2024/09/03/teco-tampa-electric-utility-hearing-bills-increase-rate-hike/ ("[W]hen lawyer Robert Scheffel Wright, representing retail companies, tried to ask Tampa Electric's vice president of finance whether there was any evidence that the company would not be able to make needed investments with its current profit rate, the utility's lawyer objected. Commissioner Art Graham sustained it. When Wright looked stunned, saying those types of questions are usually 'fair game,' Graham said he agreed, 'but let's move on to something else.' Tampa Electric did not have to answer.").

60 Public Service Commission of Wisconsin, "PSC Commission Meeting 12/01/2022," YouTube, Dec. 1, 2022, https://www.youtube.com/watch?v=ffc8sc9HgP4 ("[T]here's always a lot of attention to the ROE and capital structure … like for some reason that is the eye candy or whatever, is what people pay attention to because maybe it relates to profits. … [I]t's a nice headline grabber to talk about ROE.").

61 Minnesota Public Utilities Commission, "Findings of Fact, Conclusions of Law, and Recommendations," Mar. 31, 2023, Docket No. GR-21-630, https://www.edockets.state.mn.us/documents/%7B90963887-0000-CE14-8C57-D0012B300AD0%7D/

To be clear, corruption and capture are not inevitable. They are simply more likely—and more likely to cause harm—in systems that are poorly designed and constructed, which is why we present a concrete set of reforms in this brief. As noted below, regulators can also take more responsibility to ensure they serve the public well.

## RECOMMENDATIONS FOR BREAKING THE CYCLE

Aligning authorized returns with the cost of capital would eliminate the powerful financial incentive driving capital bias, transforming utility behavior and facilitating greater responsiveness to regulatory and public interests. The tens of billions of dollars of annual revenue freed up from lower utility profits could be returned to customers in the form of lower rates; redeployed to finance additional, needed investment for the energy transition; or a mix of both.

As ROE is brought closer to COE, M/B — the shareholder value multiplier — declines. The flip side of ROE financial alchemy is that reducing ROE is the key first step in both ending the upward rate spiral and getting utilities to pay due attention to other regulatory and public priorities. If investment becomes less attractive, then whatever rewards or penalties regulators impose for other activities become relatively more attractive. As others have observed, "All regulation is incentive regulation."[62]

Lower ROEs can therefore achieve several important objectives:

- Reducing rates immediately by 10% or more
- Reducing incentives to over-invest (because the attractiveness of investment, as reflected in a lower M/B financial alchemy multiplier, is relatively lower) thereby slowing rate increases
- Repurposing the freed-up investment "headroom" to accelerate needed investment (reliability, safety, environmental, demand, etc.)
- Increasing the relative importance of other regulatory priorities (e.g., customer service, community engagement, labor relations, environmental investment, etc.)

Restoring the ROR = COC standard can be thought of as regulatory alchemy, transforming a broken regulatory system into one that serves its intended purpose: just and reasonable rates to support prudent investment in the public interest.

download?contentSequence=0&rowIndex=272, p. 141 (In estimating utilities' perpetuity profit growth rate, which, mathematically, cannot exceed GDP growth: "[T]here was 'no basis to believe that the growth in GDP would be comparable' to the growth of regulated utilities").

62 Inara Scott, "Incentive Regulation, New Business Models, and the Transformation of the Electric Power Industry," Michigan Journal of Environmental & Administrative Law, 2016, https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1049&context=mjeal.

But the self-reinforcing factors sustaining excessive utility RORs have been at play for decades. Breaking this dynamic will therefore require new approaches. Following are several recommendations that, pursued individually or jointly, can help break the vicious cycle.

## CODIFY ROR = COC

The problem of excess RORs would disappear if regulators simply complied with the nearly century-old case law standard and set the rate of return equal to the cost of capital.[63] That they have failed to do so for decades, though, suggests they must be legally compelled. The most straightforward and comprehensive remedy is therefore to codify the ROR = COC standard through federal legislation.

In addition to clarifying regulators' objective in determining the rate of return, legislation should direct the appropriate regulatory bodies to develop rules that constrain acceptable models, analyses, assumptions, data, and testimony.[64] As explained above, specific models and assumptions that are known to be flawed should simply be barred.

## STANDARDIZE ROR CALCULATION MODELS

If ROR = COC is not codified in legislation, advocates and intervenors should use standardized COC calculation models grounded in conventional financial principles. The finance theory and models used to estimate COC do not vary from state to state, so the methodologies and data sources used in determining ROR should be the same across all utilities.

## SHARE INFORMATION AND RESOURCES AMONG PUBLIC ADVOCATES

Rate of return therefore does not pose the same coordination challenges as other concerns about utility regulation, such as environmental issues, which can be more variable across state lines due to different laws.

Lowering rates is also a universal concern, in contrast to other public interest concerns, which may be in tension with each other and involve tradeoffs that split coalitions. Furthermore, the success of other important initiatives hinges on restoring utilities' incentives to pay attention to anything other than growing rate base.

63 Regulators in other countries already tether ROR to COC, with better outcomes for consumers. See, e.g., "UKRN guidance for regulators on the methodology for setting the cost of capital," UK Regulators Network, March 2023, https://ukrn.org.uk/app/uploads/2023/03/CoC-guidance_22.03.23.pdf; "Rate of Return: What does it mean for consumers?," Australian Energy Council, March 9, 2023, https://www.energycouncil.com.au/analysis/rate-of-return-what-does-it-mean-for-consumers/; "Economic Trends Shift Canadian Utility ROEs," Concentric Energy Advisors, Feb. 6, 2024, https://ceadvisors.com/economic-trends-shift-canadian-utility-roes/.

64 See, e.g., New York Senate Bill S6557A, https://www.nysenate.gov/legislation/bills/2023/S6557.

Advocates and intervenors should therefore coordinate across regions and states to share information and resources and develop common long-term media relations and advocacy strategies.[65] There are few if any organizations that both span multiple regions and focus on ROR. In the context of regulatory proceedings, advocates and intervenors should pivot to retaining experts who are not indoctrinated by SURFA but rather come from a normative finance background. They should also share best practices and templates for testimony, cross-examination scripts, and briefs to build common strategies for rebutting invalid, but nonetheless still widely used, models and assumptions.

## REBALANCE LITIGATION

A fourth avenue for addressing ROR abuse is through litigation. Utility regulatory proceedings typically take place in administrative courts with their own appeals processes. Decisions can be appealed to non-administrative courts, but the hurdles can be significant.

Procedurally, most states have adopted doctrines similar to the recently overruled Chevron deference,[66] imposing a high legal burden to challenge a regulatory decision.[67] Essentially, appellants must demonstrate that the regulatory decision reflects a misinterpretation of the law. Unless ROR = COC is codified in law, states should limit the deference accorded to utility regulators with respect to rate determinations.

Legislators should also take measures to facilitate public advocacy. FERC, at the direction of Congress, has taken steps including establishment of an Office of Public Participation to educate the public about how to participate in FERC proceedings.[68] But FERC should adopt an intervenor funding or compensation program as well.[69] Laudably, some states have authorized programs to compensate advocates for the costs of their participation in utility regulatory proceedings, regardless of the outcome, but fewer than half are active.[70] Among those outside California, the only state that provides an overall budget sufficient to finance substantive participation and offers uncapped reimbursement of reasonable actual costs, these programs effectively serve as mere fig leaves to give the appearance of encouragement of stakeholder participation and of a level playing field for intervenors.

65 Former FERC ALJ Scott Hempling has observed that "intervenors … treat proceedings like win-loss contests rather than building blocks in a policy edifice." See Scott Hempling, "Effective Regulatory Procedures: Purposes, Practices and Paths," Australian Competition & Commerce Commission/Australian Energy Regulator Conference, August 2016, p. 16, https://www.accc.gov.au/system/files/Presentation%20by%20Scott%20Hempling%2C%20Attorney%20at%20Law%2C%20Maryland%20%2C%20USA%2C%20commentator%20on%20the%20Effective%20Regulation%20of%20Public%20Utilities.pdf.

66 See Loper Bright Enterprises v. Raimondo, 603 U.S. __ (2024).

67 Pamela King, "Supreme Court may end Chevron doctrine. These states have already done it," E&E News By Politico, Nov. 8, 2023, https://www.eenews.net/articles/supreme-court-may-end-chevron-doctrine-these-states-have-already-done-it/.

68 "Office of Public Participation (OPP)," Federal Energy Regulatory Commission, accessed Dec. 10, 2024, https://www.ferc.gov/OPP.

69 "Panel 5: Intervenor Funding," Federal Energy Regulatory Commission, April 16, 2021, https://www.ferc.gov/sites/default/files/2021-04/Panel%205%20Bios%20and%20Testimony_4-14-21.pdf.

70 Of the 16 states that have authorized intervenor compensation, only six have active programs. Michigan offers reimbursement of actual costs, but aggregate available compensation is only about $2 million per year for all proceedings statewide. In addition, compensation is grant-based, not reimbursement of actual costs, burdening intervenors with the risk of proceedings that are inherently uncertain. Even in California, reimbursement can be delayed over two years and is subject to substantial retrospective regulatory discretion. See ibid. at 43.

## FOSTER REGULATORY RESPONSIBILITY

Hempling's explanation of capture also points to regulators' personal roles in addressing it. Just as "[o]ne can enter that state [of capture] through one's own actions or inactions. One can allow oneself to be captured. One can assist, and sustain, one's own captivity,"[71] one can resist, end, and prevent their captivity. Hempling offers constructive insight into the purpose of regulation (to "align," not "balance," interests in accordance with the law), as well as recommendations for prioritizing issues and framing proceedings as educational seminars, not adversarial contests.[72]

Legislators can assist by fostering a more neutral political environment for regulatory deliberation. While prohibited in most states, some still allow utilities to recover lobbying expenses in customer rates.[73] The practice should be universally banned.

Some regulators have started to adopt a less passive, more inquisitive attitude toward excessive rates of return. As described above, FERC has acknowledged the circularity inherent in two of the utilities' favored methodologies and banned their use. Similarly, and in sharp contrast to her counterparts in Wisconsin and Florida, California Public Utilities Commissioner Darcie Houck has publicly endorsed many of the arguments put forth by advocates and intervenors, including: the legal requirement, established across three SCOTUS precedents, to set the rate of return equal to the cost of capital; the compelling evidence offered by utility market-to-book ratios that authorized ROEs exceed this legal standard; and excess rates of return encourage excessive utility capital spending.[74]

Even where regulators have focused on ROR, though, there is ample room for improvement. The remaining two models FERC approved produce results comparable to the systematically biased rejected models – a clear indication of errors in their implementations.[75] This obvious logical inconsistency eluded FERC's notice. And, despite her acknowledgement in a public voting meeting of California's excessive ROEs and their implications for the state's electricity affordability crisis, Commissioner Houck nonetheless voted in favor of the decision authorizing their continuation.

71 Ibid. at 4.
72 Ibid., pp. 11-15.
73 Shelby Green, "Tracking State Legislation to Get Politics Out of Utility Bills," Energy and Policy Institute, updated April 15, 2024, https://energyandpolicy.org/tracking-states-getting-politics-out-of-utility-bills/.
74 "Voting Meeting At 11:00 AM," California Public Utilities Commission, Oct. 17, 2024, https://www.adminmonitor.com/ca/cpuc/voting_meeting/20241017/.
75 FERC's recommended implementations of the two remaining models rely on economically impossible long-term stock market growth rates.

# CONCLUSION

Excessive utility rates of return are the root of everything that's wrong with the US utility sector — capital bias, spiraling rates, unresponsiveness to consumer interests, and grudging compliance with public policy goals. Despite the clear nature of the problem, its persistence over decades suggests new approaches are needed.

The costs of maintaining the status quo are self-evident: tens of billions of dollars in customer overcharges, every year, forever; continued upward-spiraling rates; no change in utility incentives or behavior; continued disregard of the public interest; and perhaps trillions of dollars of foregone investment in energy innovation, grid resilience, and safety measures. With a wide variety of public interest goals on the line — including, most directly, affordability for consumers — the time to act is now.

# APPENDIX

## DO HIGHER INTEREST COSTS OFFSET ROE SAVINGS?

One of the most common arguments made by utilities in objecting to lower ROEs is that any potential savings are illusory: a lower ROE would impair the utility's credit rating – potentially triggering a downgrade – resulting in higher costs of debt (COD) that would exceed any potential savings from lower ROEs. Yet when pressed to provide any analysis or examples demonstrating the increase in COD would exceed the ROE customer savings, utilities cannot do so.[1]

A lower ROE can impact a utility's cost of debt by reducing the amount of cash flow available to cover interest payments: lower profits and cash flow increase the risk of non-payment, and therefore the cost of debt. But any incremental increase in the cost of debt is overwhelmed by the customer savings on utility profits. A basic understanding of utility rate making and credit markets explains why.

The effect of changes in ROE on the total combined cost of debt and equity, which is what matters to customers, is the result of three inter-relationships: (1) ROE's contribution to the cash flow-to-debt ratio (CF/D), which is the key metric used by credit rating agencies to assess utility credit quality;[2] (2) the relationship between credit rating and COD (i.e., interest rate); and (3) the relative contributions of ROE, grossed-up for federal and state income taxes, and COD to total customer costs.

Figure 4 shows the CF/D and corresponding interest rate premium relative to the 30-year Treasury (T30) at different credit ratings.[3] Notably, the change in interest rate premium is relatively modest even for significant changes in credit quality: an increase of approximately 0.6% for a halving of cash flow coverage and 6-notch downgrade (from Aa2 to Baa2).[4]

**Figure 4**

| Moody's credit rating | Aa | A | Baa |
|---|---|---|---|
| CF/D | 26% - 35% | 18% - 26% | 11%-18% |
| COD – T30 | 1.1% - 1.3% | 1.3% - 1.5% | 1.5% - 2.0% |

1 See, e.g., Letter and testimony from Mark E. Ellis, Genelle Wilson, and David Hill and Jake Duncan on behalf of the North Carolina Justice Center, North Carolina Housing Coalition, Southern Alliance for Clean Energy, Natural Resources Defense Council, and Vote Solar to Chief Clerk of The North Carolina Utilities Commission Shonta Dunston, July 19, 2023, https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=17003ff8-9238-42c5-8b40-9ca9669e2fac, pp. 152-153.

2 Credit rating agencies use several different measures of cash flow. See, e.g., NextEra Energy, "Financial Strength: Credit Ratings Summary," https://www.investor.nexteraenergy.com/fixed-income-investors/financial-strength. For definitions of these different measures, see, e.g., Andrew Holmes, "Cash Flow and Liquidity," Moody's Analytics, January 2014, https://rmgfinancial.com/core/files/rmgfinancial/uploads/files/Cash%20Flow%20and%20Liquidity%20(Holmes).pdf.

3 Moody's Analytics, "Ratings: Regulated Electric and Gas Networks," April 13, 2022, https://ratings.moodys.com/api/rmc-documents/386754, pp. 4-6 (CF/D metrics); S&P Global Market Intelligence (historical Utility and Treasury bond interest rates; May 1992 - August 2023 average).

4 Each grade is comprised of 3 notches, e.g., A1, A2, A3. Cash flow and interest rate changes are interpolated from rating band endpoints.

At current authorized ROEs of approximately 10%, net income – ROE x equity – accounts for roughly half of cash flow;[5] other components include depreciation and amortization, deferred taxes, and various rating agency adjustments that are not sensitive to changes in net income.[6] Consequently, even a 50% reduction in ROE would reduce the key CF/D metric by only 25%.

An illustrative example demonstrates the positive trade-off, for consumers, between a lower ROE and a higher COD. Assume a utility with a 50/50 debt/equity ratio and a 10% authorized ROE, or 13.5% after grossing-up for state and federal income taxes, which are passed through to customers.[7] At the typical 50% net income-to-cash flow ratio, its CF/D would be 20%, putting it at the low end of the A rating band (A3), a common rating for utility operating companies.[8] Assuming a 5% cost of debt, the total customer rate of return on both debt and equity combined, including taxes, is 9.3%.[9]

A 40% reduction in ROE, to 6% (8.1% including taxes), would reduce CF/D by 20%, to 16%, at the high end of the Baa rating band (Baa1). The corresponding interest rate would be 5.2%.[10] The new total customer ROR is 6.7%, 28% lower than with a 10% ROE, even after accounting for the increase in the cost of debt.

All else equal, reducing ROE inevitably reduces a utility's credit quality. Although the higher interest costs entailed are outweighed by the customer savings on utility profits, utilities and regulators may nonetheless wish to maintain a minimum credit quality standard. This can be achieved by increasing the amount of equity in the capital structure. Doing so raises CF/D by both increasing net income (the numerator) and decreasing debt (the denominator).[11] Reducing the amount of debt in the capital structure also has a salutary effect on other key metrics monitored by rating agencies, including the debt-to-capitalization and cash flow-to-interest ratios.[12]

5 For a more detailed explanation of the inter-relationships between ROE, CF/D, and debt interest rate, see "Phase 2 Opening Testimony of Mark E. Ellis on Behalf of the Protect Our Communities Foundation," Public Utilities Commission of the State of California, Jan. 29, 2024, pp. 36-52, https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2204008;A2204009;A2204011;A2204012/7022/524233936.pdf.

6 See, e.g., Andrew Holmes, "Cash Flow and Liquidity," Moody's Analytics, January 2014, https://rmgfinancial.com/core/files/rmgfinancial/uploads/files/Cash%20Flow%20and%20Liquidity%20(Holmes).pdf and Andrew Holmes, "Moody's Adjustments and Financial Ratios," Moody's Analytics, May 2014, https://rmgfinancial.com/core/files/rmgfinancial/uploads/files/NAPCO4%20Holmes.pdf

7 National average combined state and federal income tax rate is 26%. See, e.g., Cristina Enache, "Corporate Tax Rates Around the World, 2024," Tax Foundation, December 17, 2024, https://taxfoundation.org/data/all/global/corporate-tax-rates-by-country-2024/.

8 See, e.g., Gabe Grosberg and Paul Montiel, "Confronting Credit Headwinds, Energy & Climate Resilience," S&P Global Ratings, February 14, 2024, https://www.spglobal.com/ratings/en/research/articles/240214-rising-risks-outlook-for-north-american-investor-owned-regulated-utilities-weakens-12994034. S&P's A- rating is equivalent to Moody's A3.

9 The total cost of capital charged to customers is the weighted average cost of equity, grossed-up for taxes, and debt: [E x ROE / (1 – tax rate) + D x COD] / (E + D), where E and D are the dollar amounts of equity and debt, respectively.

10 Estimates interpolated from CF/D and COD rating band endpoints.

11 Utilities sometimes claim, erroneously, that increasing the equity ratio would require recalling outstanding debt, potentially incurring make-whole payments and penalties (see, e.g., Ex. JIOU-01, Pacific Gas and Elec. Co. et al., Reply Testimony on Affordability, Timing, and Capital Structure, Pacific Gas and Electric Company, Application No. 22-04-008, Feb. 26, 2024, p. 21, https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=784959). In any given year, an amount equivalent to approximately 10% of the outstanding debt balance is issued, both to replace retiring debt and to invest in rate base growth (e.g., average debt tenor of 20 years and 5% growth). Consequently, simply by not issuing any new debt, utilities could reduce their debt ratio by 10 percentage points (say, from 50% to 40%) in 2 to 3 years.

12 See, e.g., Moody's Analytics, "Ratings: Regulated Electric and Gas Networks," April 13, 2022, https://ratings.moodys.com/api/rmc-documents/386754.

In our example, maintaining a 20% CF/D would require increasing the equity ratio to 58% from 50%. With more equity in the capital structure, the total customer rate of return increases slightly, to 6.8%, but is still 27% lower than the 10% ROE base case.

**Figure 5**

| Equity \| debt | ROE | COD | Customer ROR<br>26% tax rate | CF/D | Credit rating |
|---|---|---|---|---|---|
| 50 \| 50 | 10.0% | 5.0% | 9.3% | 20% | A3 |
| 50 \| 50 | 6.0% | 5.2% | 6.7% | 16% | Baa1 |
| 58 \| 42 | 6.0% | 5.0% | 6.8% | 20% | A3 |

For simplicity, this illustrative example assumes ROE does not change with credit quality. In practice, the cost of equity (COE) varies with credit rating: the improved credit quality that accompanies a higher equity ratio reduces COE. If ROE is adjusted accordingly, as required under the ROR=COC standard, the changes in ROE and COD roughly offset each other, such that customer savings would be the same under either credit rating.[13]

This illustrative example demonstrates that (1) contrary to utility assertions, the potential increase in COD from a lower ROE is overwhelmed by the customer savings on utility profits; and (2) any potential reduction in credit quality (and resultant increase in COD) can be completely offset with an increase in equity ratio.

13 For a more detailed explanation, see "Phase 2 Opening Testimony of Mark E. Ellis on Behalf of the Protect Our Communities Foundation," Public Utilities Commission of the State of California, Jan. 29, 2024, pp. 38-50, https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2204008;A2204009;A2204011;A2204012/7022/524233936.pdf.

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