Advancing the Clean Energy Future

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Mark D. Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

Re: NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 22-22, *Petition for Approval of a General Increase in Base Distribution Rates for Electric Service and a Performance-Based Ratemaking Plan*

Dear Secretary Marini:

Acadia Center is a non-profit research and advocacy organization committed to advancing the clean energy future. Acadia Center tackles complex problems, identifies clear recommendations for reforms, and advocates for policy changes that support a low-carbon economy across the Northeast. Thank you for the opportunity to submit written comments in response to Eversource's petition for a general base distribution rate increase and for a renewal of the Performance-Based Ratemaking Plan.

Summary

- The Department of Public Utilities ("Department") should implement more meaningful stakeholder engagement processes to help inform more comprehensive distribution planning efforts.
- Eversource's proposed Return on Equity ("ROE") of 10.5% is unreasonably high and is the result of faulty assumptions in the utility's analysis. Massachusetts needs substantial distribution system investments over the coming decades to help pave the way for building and transportation electrification, but customer rates should not rise unnecessarily in order to satisfy Eversource's unreasonably high ROE request.
- The DPU should amend several key components of the Performance-Based Ratemaking Mechanism ("PBRM"), including assumptions about the PBRM adjustment factor ("x-factor") over the coming decade, as well create stronger performance metrics and incentives.
- Revenue decoupling is an essential policy tool and must not be weakened. The Department should hold a separate investigation to explore potential reforms to decoupling, outside of DPU 22-22.

Coordinated distribution planning and stakeholder engagement are essential

Massachusetts will need substantial investments in the distribution system over the coming decades to enable the deployment of greater amounts of clean energy resources and to support building and transportation electrification. Nevertheless, customer rates should not rise unnecessarily to satisfy unreasonably high ROE requests.

Eversource has filed a request for a rate increase in part to meet estimated distribution system investments required to support electricity demand growth and electrification. Eversource is requesting a revenue increase to fill a $89,477,862 revenue gap. After transferring other costs recovered through various reconciling mechanisms, which

totaled $58,184,827 in calendar year 2020, to base distribution rates, the proposed overall increase to distribution revenues is $147,662,689—a 13.2% increase in distribution revenue.

Eversource proposes to invest $955.6 million in major station capacity projects to support its reliability-based electrification plans. Eversource is proposing Major Station Capacity Projects to support electrification, "particularly in environmental justice communities."[1] This primarily consists of substation and transformer upgrades.[2] While system upgrades will be essential for facilitating increased electricity demand, Eversource should do more to identify non-wires alternatives, including doubling down on energy efficiency programs to reduce demand overall, and reduce the need for capital-intensive infrastructure projects, on which the utility seeks to earn a 10.5% return.

In addition to renewing the PBRM program and filling an $89 million revenue deficit, Eversource is seeking a new tariff to support its modernization and Advanced Metering Infrastructure implementation plan.

Estimated customer bill impacts of these proposals are significant. Residential heating customers, including low-income customers, can expect between 9.5%-10.2% increases in monthly bills. In fact, low-income customers can expect to see the highest percentage increases. Residential non-heating customers can expect monthly bill increases of 5.2%-5.9%.[3]

Massachusetts ratepayers would benefit from more meaningful stakeholder engagement in distribution planning

Acadia Center has identified three key problems with utility distribution planning and regulatory oversight that are relevant to Eversource's proposed distribution system investments: (1) utility planning is siloed between electric and gas utilities, which causes overspending, reduced reliability and resilience, and increased climate pollution; (2) current planning processes ignore equity and environmental justice; and (3) distribution utilities like Eversource have a financial interest in the outcomes of their planning decisions, creating significant conflict of interest. Acadia Center's Reforming Energy System Planning for Equity and Climate Transformation (RESPECT) report proposes two reforms to address these barriers:

1) **Massachusetts should conduct independent and comprehensive distribution system planning that incorporates meaningful stakeholder input, including voices that have been ignored to date.** Comprehensive planning should consider supply- and demand-side resources, as well as climate requirements, environmental justice impacts, and need to transition and electrify across the state.

2) **Massachusetts should separate "planners" and "owners" by creating a separate, neutral planning entity that is designed to look for solutions beyond utility boundaries and across fuels.** A separate planning entity, or an expanded planning division within the DPU, could help to reduce financial conflicts of interest,

[1] Exhibit ES-ENG-1, page 8.

[2] Exhibit ES-ENG-3.

[3] Exhibit ES-RDC-3, Schedule 1.

better align system planning with climate and clean energy goals, and maximize consumer benefits through planning that prioritizes environmental justice.

Acadia Center urges the Department to consider how best to incorporate stakeholder input and perspectives into Eversource's planning efforts. DPU 20-75 is a useful start for considering cost allocation issues associated with DER integration, but Massachusetts ratepayers and communities should have more opportunities to engage directly with the state's utilities as the Commonwealth considers critical long-term planning needs.

Placing planning responsibilities within a neutral entity will lead to a greater emphasis on customer-sited solutions rather than defaulting to utility-owned projects, which is the norm under the current utility-led planning model, given existing financial incentives that utilities face. Outside of establishing an entirely new, independent planning entity, one option would be to build out a separate office within the DPU, specifically funded and staffed to oversee transparent planning processes and to facilitate stakeholder involvement. The Energy Efficiency Advisory Council ("EEAC") model could provide helpful lessons for how to create a space dedicated to reviewing assumptions and proposals with robust stakeholder involvement.

DPU 22-22 Is an Opportunity to Improve the PBRM

Automatic annual rate hikes are not leading to improved customer outcomes

In 2018, the Department approved four major proposals in the Eversource rate case that were opposed by 58 organizations and businesses, as well as the Attorney General.[4] The current proposals in DPU 22-22 are similarly problematic.

Eversource's original proposed solution to its productivity problem was to allow automatic annual revenue increases on the grounds that the utility was becoming *less* productive every year. Many organizations, including Acadia Center, warned that the PBRM plan would result in a financial windfall for Eversource. That is exactly what has happened. Since the start of the PBRM plan and the "negative productivity factor," Eversource has received annual revenue increases of between 2.97% and 3.55%, totaling $135 million.[5] The approval of a negative productivity factor was, and remains, nationally unprecedented, and yet the DPU approved a similar provision in a later National Grid rate case. No other public utility commission in the country has approved such a negative productivity factor since the Department's 2018 decision. In December 2020, the Hawaii PUC rejected a negative productivity x-factor proposal from its utilities that was similar to the one the DPU approved in 2018. In its decision, the Hawaii PUC stated: "The X-Factor component of the ARA formula is intended to reflect a presumed productivity value achieved by the Companies during the MRP. Thus, a 'negative' X-Factor reflects declining performance such that an increase in annual target revenues is required to make up for this decline in productivity. Conceptually, this is at odds with a

[4] The four approved proposals were an unreasonably high return on equity, automatic annual rate hikes at the rate of inflation plus 1.56 percent, mandatory residential demand charges, and the elimination of optional residential on-peak/off-peak rates.
[5] The requested revenue adjustment effective January 1, 2019 was for 3.38% but was offset by the one-time federal tax credit as a result of the 2017 Tax Cuts and Jobs Act, for a net revenue adjustment of 0.51%.

fundamental premise of PBR, which is to incent exemplary performance and drive improvement in utility operations."[6]

The PBRM moves Massachusetts farther away from a future with consumer control and widespread local clean energy. Instead, the PBRM requires ratepayers in Massachusetts to prop up an underperforming utility. The annual revenue adjustments do not provide a sufficient incentive for Eversource to solve its productivity problem.

The problems that Acadia Center and other groups identified during the original PBRM proceeding are still relevant today. The challenges that are causing Eversource to lose money will only get worse in the coming years if the utility does not make significant changes to its investment decisions. But Eversource will have little incentive to do so if regulators continue to insulate it from the true financial consequences of its decisions. The regulatory system, and the resulting utility business model that allows Eversource to earn revenues without improving its performance needs to change. Utility compensation should be explicitly linked to clear, measurable performance outcomes that provide benefits to customers.

Building electrification will be a vital area of business growth for Eversource in the coming years – whether or not decoupling is restructured. Acadia Center urges the Department to reassess the proposed reasoning for why the x-factor adjustment should remain negative for the next PBRM period and therefore result in significant automatic rate increases.

Eversource is proposing an unreasonably high return on equity for utility shareholders

In its January 14, 2022 filing, Eversource claims a revenue deficiency of $89 million. The proposed revenue requirement is based on a total rate base of $4.263 billion and an overall weighted cost of capital of 7.32 percent, reflecting a proposed return on equity of 10.5 percent.[7] Both of these percentages are significantly inflated.

In the 2018, the Department approved a return on equity of 10%, which at the time was already far above the regionwide average. In National Grid's 2018 rate case, the company asked for even more – 10.5%. These returns are significantly higher than the 9.275% approved in National Grid's 2018 rate case in Rhode Island; the 9.25% approved in a 2018 Eversource rate case and reaffirmed in a 2021 settlement in Connecticut; and the 9% approved in National Grid's 2018 New York rate case and reaffirmed in a 2021 settlement.

Now, Eversource is requesting an even higher ROE. **It is not reasonable for Massachusetts ratepayers to pay greater returns to utility shareholders than their neighbors—especially not for the same type of investments in locations subject to the same capital markets.**

Since the approval of the PBRM plan in 2018, Eversource has received $135 million total in PBRM-based revenue adjustments.[8] Eversource is now requesting a ten-year renewal of the PBRM plan. However, Eversource states that renewing the plan for a longer term will lead to higher risks for the company, given uncertainty over costs during that

[6] Hawaii PUC Docket No. 2018-0088, Decision and Order No. 37507, p. 49-50. https://puc.hawaii.gov/wp-content/uploads/2020/12/2018-0088.PBR_.Phase-2-DO.Final_.mk_.12-22-2020.E-FILED.pdf

[7] Exhibit ES-CAH/DPH-1, page 16.

[8] Exhibit ES-CAH/DPH-1, page 18.

decade for grid modernization. As a result, Eversource has requested approval for an increase in its authorized ROE to compensate those apparent higher risks.

First, in light of Eversource's claims about increased risks as a result of a potential 10-year term, the Department should at most approve only a 5-year plan. The combination of guaranteed revenues over the next ten years from the annual PBRM adjustments, as well as higher returns for Eversource on its capital investments, is an unreasonable burden to place on Massachusetts ratepayers.

Second, Eversource has not sufficiently proven that an increase in ROE above its already high allowed ROE compared to similar IOUs is warranted. The cost of debt has been steadily decreasing, and average allowed electric and gas ROEs have been declining nationally for the past several decades.[9] Authorized returns for IOUs in Massachusetts are significantly higher than the actual cost of capital.

Artificially inflated ROEs impose burdens on ratepayers without commensurate benefits. The proposed 0.5% increase from 10% to 10.5% translates to a $16 million increase in rates, a significant sum that would be paid to Eversource shareholders to account for the purportedly higher risks of a ten-year PBRM plan.[10]

The PBRM needs stronger performance incentives tied to financial consequences

Eversource claims to have met or exceeded metrics for the PBRM program related to customer satisfaction and engagement, system peak reduction, and climate adaptation and mitigation.[11] Eversource proposes additional metrics for the renewal of the PBRM related to 1) solar developer satisfaction; 2) percentage of new customer connects meeting performance targets for new service connection timing; 3) clean energy and electrification enablement through capital investment projects; 4) investment in environmental justice communities and bill credits going to environmental justice communities; and 5) community solar access.[12]

The Department must establish performance metrics that meaningfully reduce energy burdens on customers and help to accelerate decarbonization. Metrics that reward the utility for ensuring that consumers below the poverty level are on income-eligible rates or shared savings mechanisms that push the utility to utilize more non-wires and non-pipe alternatives could be useful. Additionally, because the proposed metrics do not include financial consequences for underperformance, they may be less likely to motivate improved performance.

Decoupling remains an essential policy tool

In its January 31, 2022 Order for DPU 21-120 through DPU 21-129, the Department directed "each electric distribution company, in its next base rate proceeding, to include a rate proposal that provides for the discontinuance of full revenue decoupling."[13] More recently, the Department determined in an April 26, 2022 ruling that it would not make

[9] https://www.capitaliq.spglobal.com/web/client#news/article?id=68846541&KeyProductLinkType=2

[10] Exhibit ES-CAH/DPH-1, page 18.

[11] Exhibit ES-METRICS-1, page 10.

[12] Exhibit ES-METRICS-1, page 41.

[13] DPU Order, D.P.U. 21-120 through D.P.U. 21-129, January 31, 2022, page 234.

changes to Eversource's decoupling mechanism in this proceeding. Acadia Center supports this decision to not revisit decoupling in this docket.

Acadia Center strongly agrees with the Attorney General's office's assertion in multiple motions that the appropriate venue for consideration of revenue decoupling is a separate proceeding generally applicable to all utilities, and open to all stakeholders interested in decoupling. While reforms to decoupling may help to motivate more electrification, any modifications to revenue decoupling must avoid unintended negative consequences for energy efficiency. Indeed, in its own filings, Eversource stressed the importance of revenue decoupling and stated that "it is not yet appropriate for the Department to eliminate the use of the Revenue Decoupling Mechanism."[14]

Additional information on ROE, as prepared by Pearl Street Station Finance Lab

Acadia Center also worked with a consultant to Pearl Street Station Finance Lab to develop additional comments on ROE. Those comments are represented below.

Summary

- The primary rate of return issue in this proceeding should not be whether NSTAR's return on equity should be raised from 10.0% to 10.5%, but rather what base of return is supported by market data.
- Utility cost of equity estimates based on information from long-standing investment advisory firms (Morningstar and Kroll) suggest investor required equity returns today approximate 7.5%. This cost of equity estimate is consistent with utility stock prices trading well above book value in recent years. Costs of equity estimates near 10.0% as offered by the company are consistent with utility stock prices half their current value. Such cost of equity estimates appear too high to match market data.
- The return on equity is distinct from the cost of equity. The return on equity should be set based on policy analysis considering the utility's public interest performance. The cost of equity is the economic return actually expected in the marketplace.
- The only risks that affect the cost of equity are macroeconomic factors. Firm-specific risks are diversified away in investment portfolios. Firm-specific risks should not be considered when estimating the cost of equity or when setting the return on equity.
- Investors do not prefer firms with high returns on equity because the financial markets eliminate return on equity differences across companies. Investors generally seek to earn the cost of equity, not the return on equity, and that expected return is the same for all stocks of similar risk, regardless of the companies' returns on equity.

Analysis

When a return on equity rate is set above the cost of equity, the incentive to embrace anything else dissipates. If utilities are routinely provided with 2% to 3% return rewards just for being utilities, we will find ourselves rarely adopting new technologies, practices, or other relevant activities simply because it is more financially attractive to build assets entitled to the high return rates.

[14] Exhibit ES-CAH/DPH-1, page 58.

The Return on Equity and the Cost of Equity

In most regulatory settings the return on equity is treated as a synonym for the cost of equity. This is a fundamental misstep.

> *Understanding that book rate measures* [returns on equity] *and DCF rate measures* [costs of equity] *are not different estimates of the same thing but rather estimates of different things should eliminate at least part of the confusion surrounding rates of return on investment.* (Solomon, 1970)

Regulators typically violate this important principle. For example, we often see reference to a Capital Asset Pricing (CAPM) ROE equation. No such model exists in finance. There is a CAPM cost of equity equation, but the cost of equity is a distinct variable both conceptually and numerically. This common confusion manifest in regulation leads researchers to conclude that the way we approach finance is internally inconsistent.

> *In the end, we may observe simply that what regulators should do, what regulators say they're doing, and what regulators actually do may be three very different things.* (Rode, & Fischbeck, 2019)

We would ask the commission to examine the work of utility witness Vincent Rea more closely. Researchers such as Rode and Fischbeck (as well as others) have identified some issues in applying financial analysis even in ways customarily popular. The witness's references to common practice—e.g., this is what the Massachusetts DPU and the FERC suggest should be used—is offered as evidence in support of the analysis. We believe incorrect use of financial principles just because it has been historically done is not justified.

When adhering to finance principles, the well-established analysis where if there are utility market values at twice book value, costs of equity must be hundreds of basis points below recently authorized returns on equity. Yet, Mr. Rea applies the sort of models that lead to cost of equity estimates in the 10% to 11% range. This outcome is simply illogical when utility market-to-book ratios are around two. The table below shows price-to-book ratios for sector-based exchange traded funds (ETF) portfolios.

Valuation multiples (based on 2022 estimates)

	P/E	PEG	P/CF	P/Sales	P/BV
Comm. Services	16.5	1.6	10.3	2.4	2.4
Discretionary	25.1	1.5	17.3	2.0	6.5
Staples	22.3	3.6	17.8	1.8	5.8
Energy	9.6	0.6	5.8	1.0	2.1
Financials	13.1	1.9	11.4	2.5	1.3
Real Estate	21.4	3.0	20.2	7.2	3.7
Health Care	16.1	2.4	14.4	1.9	3.9
Industrials	19.1	1.6	14.1	1.9	4.2
Materials	14.6	1.2	11.1	2.0	2.7
Technology	22.6	1.7	18.7	5.7	6.4
Utilities	20.8	3.4	9.7	2.9	2.2
S&P 500	**18.2**	**1.7**	**14.1**	**2.5**	**3.5**

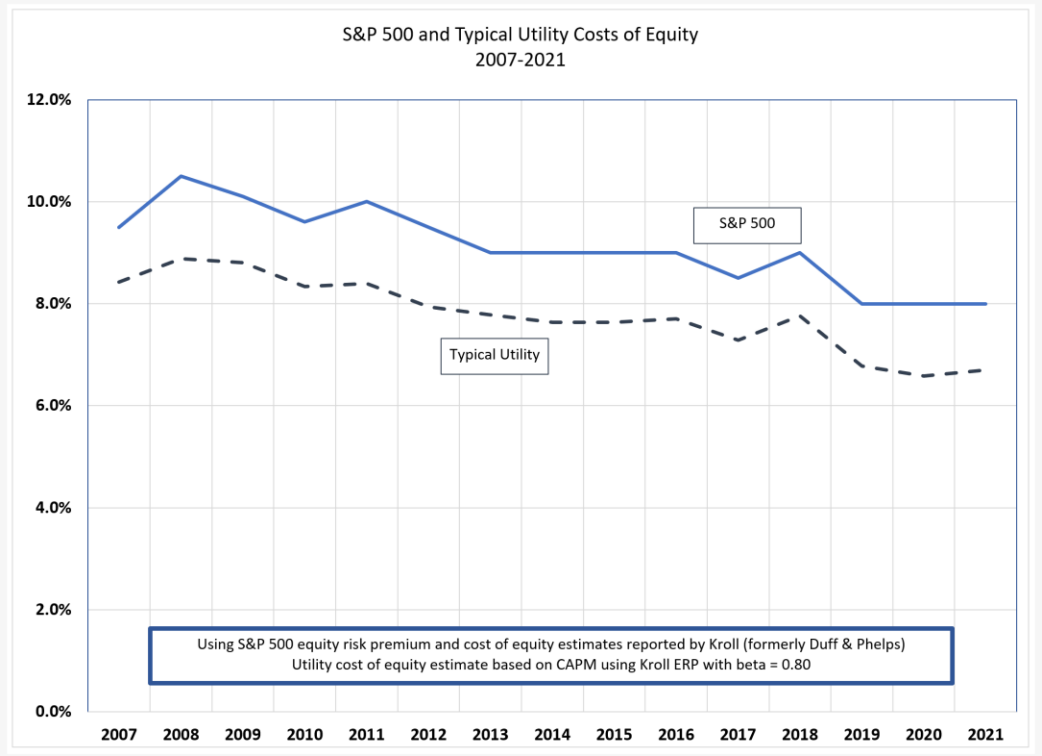
Source: Alta Vista Research, May 2022, *Index Analyzer: Select Sector Indices*.

We cannot claim to be setting returns on equity at the cost of equity if utility stock prices trade noticeably in excess of their underlying book values, which has been the case since the 1980s. Finance experts have voiced this concern for decades, which is similar to the concern raised by Rode and Fischbeck above.

> *There is no way to square these numbers with the standard view of the objectives of rate of return regulation…this does not allow an expectation of long-run profitability exceeding the cost of equity or market-to-book ratios substantially above one for virtually all utilities*. Emphasis added. (Myers & Borucki, 1994)

Looking outside the industry for rational, internally consistent cost of equity estimates

Morningstar suggests that the cost of equity for Eversource, NSTAR's parent, today is 7.5% (Miller, 2022), 250 basis points below NSTAR's most recently approved return on equity of 10.0%. The Morningstar cost of equity figure is close to that which we estimate using data from Kroll (formerly Duff & Phelps). It reports cost of equity estimates for the S&P 500 going back to 2007. The cost of equity for the S&P 500, which is higher than that of utilities, has hovered near 8% in recent years. Kroll has just updated its S&P 500 cost of equity estimate to 8.5% (Grabowski, Nunes, and Harrington, 2022), which puts the utility cost of equity estimate closer to the Morningstar figure than witness Rea's. Morningstar and Kroll are highly regarded financial advisory firms; their estimates deserve to be given considerable weight.



Using this data, we see that utility costs of equity have not been anywhere near 10.0% over this entire period and currently hover near 7.5%. All of this data is consistent with utility market values well above book value.

We can use a valuation model to demonstrate this. The residual income model is the discounted cash flow model re-expressed algebraically (Penman, 2011). It allows for direct observation of the value creation process—note that it is the gap between the return on equity and the cost of equity that creates value for investors, so if those returns were the same no incremental market value above book value would be created by investing capital (Koller, Goedhart, & Wessels, 2020).

$$\frac{P}{B} = 1 + \frac{(r - k)}{(k - br)}$$

Where P/B = price to book ratio; r = return on equity; k = cost of equity; and b = earnings retention rate. *Value Line* reports a median return on equity for electric utilities of 10.5% and an earnings retention rate of 35%. Using our 7.5% utility cost of equity estimate based on the data shown above we find:

$$\frac{P}{B} = 1 + \frac{(0.105 - 0.075)}{(0.075 - 0.35(0.105))} = 1.8$$

As shown above utility stocks trade at 2.2 times book value. This suggests our cost of equity estimate may be on the high side. The key point here is that our estimate is in the neighborhood of observed relative utility stock prices. On the other hand, if the cost of equity is equal to the return on equity, then the stock price collapses to book value:

$$\frac{P}{B} = 1 + \frac{(0.105 - 0.105)}{(0.105 - 0.35(0.105))} = 1.0$$

This is more than 50% below the observed market-to-book ratio. The failure to address the market-to-book issue creates the sort of inconsistencies mentioned above—regulators say they set returns on equity at the cost of equity, but the market-to-book ratios tell us that cannot be true.

In some cases the inconsistency is explicit. For example, even though the FERC suggests that it sets returns on equity at the cost of equity, its own orders contradict that notion, stating that if the market value and book value are not equal, which for most companies, including utilities, they are not, then the returns on equity those firms earn are not their costs of equity. This is the type of internal inconsistencies we see in regulation today. FERC is correct in noting that if the market value of a company does not equal its book value, then we cannot consider returns on equity, i.e., the corporate return on that book value, to be costs of equity because investors cannot buy the typical stock at book value. The cost of equity is an expected *market* return, not an expected *book* return.

> *The Commission continued to find a lack of evidence supporting investors' use of earnings per book value data to directly value equities, determine the cost of equity, or make investment decisions without consideration of the market price of the relevant equities…investors cannot purchase a company's stock at its book value (except in the very rare instance where a utility's market*

> *capitalization happens to exactly equal its book value).* (Federal Energy Regulatory Commission, Pacific Gas and Electric Company, Docket No. ER16-2320-002, March 17, 2022, p. 104)

This applies to all companies, utilities included. Since nearly all utilities today have market-to-book ratios well above 1.00, regulators' authorized returns on equity that support those market-to-book ratios are not reasonable or rational estimates of the cost of equity, even though regulators generally say they are. See Rode and Fischbeck above.

When considering whether to provide capital investors expect to earn costs of equity not returns on equity—high returns on equity are not more attractive to new investors who provide capital

The company notes that investors require compensation for the risk of investing in utility stocks.

> *Investors cannot reasonably be expected to invest in common stocks if they are unable to earn a minimally sufficient equity risk premium as compensation for the additional risks they bear, vis-à-vis fixed income securities.* Rea, p. 7, lines 3-6.

But the return on equity is not that measure of investor return expectation—it is the cost of equity that matters. Under market pricing, the return on equity (which the regulator sets) is rarely equal to the cost of equity (which the investors require). They are distinct returns. See Solomon above.

Utilities have equal access to capital at the same cost rate over a wide range of returns on equity. The expected return on a stock is a function of the systematic risk a company faces, not the return on equity it is expected to earn on its books. As we show below, for utilities of similar risk, the expected investor return (cost of equity) is the same whether the utility's expected corporate return (return on equity) is 8.0% or 13.0%.

The purpose of the financial markets is not to decide who gets capital; it is to price the capital based on the companies' systematic risk profiles to ensure that any company that wants capital has ready access to it. Investment banks make money by raising capital, not by denying companies access to it. If a utility wants capital, investment banks will find it. In the late 1970s when utility stocks traded at about 75% of book value, investment banks raised billions of dollars of capital for utilities that were in the midst of major coal-fired and nuclear power plant construction projects.

It typically does not cost companies with low returns on equity more to raise capital than it does companies with high returns on equity. The differences in returns on equity across companies disappear under market pricing.

> *It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others, because once they are known, the possibility of high returns to investors will melt away in higher stock prices.* (Higgins, Koski, & Mitton, 2019, p. 56)

This is easy to demonstrate with observed data. *The Value Line Investment Survey* expects Consolidated Edison to earn returns on equity of 7.5% to 8.0% over the next several years. In stark contrast, it expects NextEra to earn returns on equity of 12.5% to 13.5% over the same period. Which stock is more attractive to investors? The evidence reveals

that, due to the market pricing discussed above, both stocks offer investors essentially the same expected return. *Value Line* projects total returns of 4% to 9% per year over the next three to five years for Consolidated Edison investors and almost identical total returns of 3% to 9% per year for NextEra investors over the same period.

This result obtains because investors pay only 1.5 times book value for Consolidated Edison stock but must pay 4.1 times book value for NextEra stock. In a relative sense Consolidated Edison stock is available at a price that is 62% below that of NextEra's stock. That is market pricing melting away the supposed advantage of the higher return on equity. Consolidated Edison will have the same access to capital at a return on equity of 8.0% as NextEra will have at a return on equity of 13.0% because investors will expect to earn the same return by purchasing either stock.

Whether the return on equity is 10.5%, 10.0%, 9.5%, 9.0%, 8.5%, or 8.0%, once the particular return on equity is reflected in the stock price *investors will expect to earn the same total return by holding Eversource stock.* Eversource will sell at a much higher price-to-book ratio at a return on equity of 10.5% than it will at a return on equity of 8.0%, but once the return on equity is set those who wish to provide new capital to Eversource will expect to earn the same return on the stock. Thus, capital access does not depend on the return on equity level because market pricing prevents investors from expecting to earn that return (unless the market value equals the book value).

The cost of equity for NSTAR cannot be anywhere near the 10% to 11% range suggested by the company. The market data provided by external sources suggests that it must be close to 7.5%, based on our analysis of the data provided by Kroll and as suggested by Morningstar. Those estimates are consistent with observed utility market-to-book ratios. Mr. Rea's cost of equity estimates are not.

The return on equity need not be set at the cost of equity, and in many cases it should not be, but we should estimate the cost of equity properly. As both Kahn (1988) and Phillips (1988) suggest, a properly estimated cost of equity is the beginning of the return on equity determination, not the end. But it is the end of the finance model analysis aspect, including consideration of relevant risk and investor required returns. Utilities that perform well in a public interest sense should be authorized returns on equity in excess of the properly estimated cost of equity; those that do not should receive returns on equity close to the cost of equity. These returns on equity determinations are judgment calls, not model-based analyses.

This is how regulation was designed and we have drifted away from it. Instead we have developed ad hoc models that have no meaning in finance (CAPM ROE and DCF ROE) leading to all utilities receiving return on equity bonuses regardless of performance.

> *Merely permitting all regulated companies as a matter of course to earn returns in excess of the cost of capital* [which is de facto regulatory practice] *does not supply the answer; there must be some means of seeing to it that those supernatural returns are earned, some means, for example of identifying the companies that have been unusually enterprising or efficient and offering the higher profits to them while denying them to others.* (Kahn, 1988, p. 54.)

The pressing question in this proceeding should not be whether NSTAR's return on equity should be raised from 10.0% to 10.5%, but rather why it is 10.0%, 250 basis points above a rational cost of equity estimate, to begin with. NSTAR needs to identify some sort of exemplary public interest-based performance to justify the currently authorized return. Has NSTAR's performance been exemplary?

The key takeaway here is that while the cost of equity is determined using finance models, the return on equity should not be. It should be based on policy analysis. There is no need to consider risk at this point as the cost of equity provides complete compensation for relevant risk (see next section). It is the performance of the utility in providing a public service that matters—this ultimately is not a finance question. Utility regulators may not be steeped in financial analysis, and they need not be. They should, however, be able to assess the degree to which the utility is meeting public interest standards—that is the regulators' domain.

Risk

Another area of financial confusion in regulation is the frequently heard notion that increased risk increases investor required returns. As Cornell (1999) states, this is at best misleading and generally incorrect. Valuation experts at McKinsey & Co. note the only risks that affect investor required returns are macroeconomic threats—the possibility of recession or changes in interest rates and inflation (Koller, Goedhart, & Wessels, 2020). Firm-specific risks, the impacts of which vary randomly from company to company, are diversified away in institutional investors' portfolios. It is the large-volume, frequent trades of that group of investors that sets utility stock prices and determines the cost of equity (Damodaran, 2011).

Since most risks any company faces are not of the macro type, most of those risks, no matter how severe of a potential threat they pose to a company's stock price, do not affect its cost of capital. Brealey, Myers, and Allen (2006) show that an increased risk at a pharmaceutical company that a blockbuster drug will not be approved by the FDA, would not affect the company's cost of equity because it is not a macro risk. Ponder that for a moment—any potential value losses related to approval of its products, which could be huge because that is at the heart of its investor value creation process, do not affect its cost of equity. The threat of a recession, on the other hand, which would likely have a minor effect on a pharmaceutical company, would nevertheless affect that required return because that risk factor affects all companies, and its impacts therefore cannot be diversified away.

In contrast, regulators tend to see all risks as affecting investors' required returns. This is incorrect and may explain in part why returns on equity are so much higher than properly estimated costs of equity. Regulators are compensating investors for risks they don't care about. In a world in which issues such as energy justice loom large, the last thing we should be doing is giving away extra returns that investors don't need.

Timing of Regulatory Reform

It is clear that common practice in determining returns on equity, which relies too heavily on models, is fundamentally flawed. Researchers have consistently criticized regulators for failing to apply finance principles. This should change. But it does not have to occur in one fell swoop. Regulatory reform can proceed in a deliberate fashion, but it should proceed nevertheless to ensure that utilities that perform well are rewarded with returns on equity above

the properly estimated cost of equity and those utilities that do not are not so compensated. That is the essence of incentive regulation.

Conclusion

Thank you for the opportunity to submit written comments. References for the Pearl Street Station Finance Lab section are located below.

Sincerely,

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