Making Utilities Perform: The Role of Ratemaking

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Introduction

How should we use ratemaking to induce particular types of performance, from utilities that are failing to provide that performance? That question has bothered regulators for a century. For at least 20 years, utilities have drawn regulators into a series of experiments with various ratemaking methods, each with its own label: customary cost-of-service ratemaking, "performance-based ratemaking," "performance incentive metrics," "multi-year rate plans," "alternative forms of regulation," and "incentive ratemaking." Missing from these discussions is a grounding in inarguable principles. Applying those principles shows that most of these experiments are illogical at their core. The central error is to view utility performance as voluntary, then "encourage" it with "incentives." In a franchised monopoly setting, the only logical approach is not to encourage and incentivize, but to mandate and compensate.

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Regulating performance: Key principles

The purpose of regulation is performance. Regulation by government is necessary when an industry's performance, regulated only by markets, falls short of our vision for the public interest. In those situations, we pass a statute that (a) defines the public interest and (b) directs regulators to pursue that public interest.

To cause public-interest performance by state-franchised utility monopolies, regulators have two major tools. We set standards, and we set rates. Standards define the level and type of performance required by the public interest. Rates compensate the utility for its performance.

In the franchised monopoly-market context (as distinct from the competitive-market context), we set rates at a level that, given a projected level of sales, will produce revenue sufficient to allow the utility to recover these things: the utility's operating costs, the principal and interest on its debt, the shareholders' investment, and a "fair" profit on that shareholder investment. Properly set, the rates will produce that amount of revenue as long as the utility meets two standards: (a) its operating costs and investments were incurred prudently, and (b) the assets associated with the investment are used and useful in providing obligatory utility service.

The above three statements carry out the commands of the statutory just-and-reasonable standard and the Takings Clause of the Fifth Amendment, applied to the states through the Due Process Clause of the Fourteenth Amendment.

Application of the principles to ratemaking methods

Ratemaking today takes different forms, each with its own label: customary cost-of-service ratemaking, "performance-based ratemaking," "performance incentive metrics," "multi-year rate plans," "alternative forms of regulation," "incentive ratemaking," and whatever will be the next version of franchised-monopoly ratemaking. Each of these forms serves (or its promoters assert that it serves) the above-stated statutory and constitutional requirements.

In comparing and assessing these methods, we should ask a series of questions:

- Overall: How well does the method carry out the purpose of regulation—to produce performance required by the public interest, at a level comparable to what effective competition would produce?

- Then: Has the policymaker (whether commission or legislature) defined the performance it wants?

- Are the standards sufficiently specific to describe the desired performance results?

- Does the ratemaking method, in theory and in practice, produce the legally required level of compensation—no more and no less?

In making the comparisons and doing the assessments, the questions most frequently obscured, missed, or misunderstood, are these:

- When the policymaker sets standards, are the standards mandatory or are they voluntary?

- And then, what is the purpose and effect of the ratemaking method? Consider two very different questions: Is the purpose to compensate the utility fairly for its cost of carrying out the mandate? Or instead is the purpose to "incentivize" the utility to do what is voluntary?

The difference between these two questions is crucial. "Incentivizing" is something we do when the action we want is voluntary. If the action is mandatory, we don't incentivize; we mandate and we compensate.

The main problem in these debates is the repeated presence of the term "incentive" in a context where the desired performance is mandatory. Doing so involves one or both of these errors: We are unclear about whether the desired actions are voluntary or mandating. Or we are making an error of logic by paying for mandatory actions using a pricing method appropriate only for voluntary actions.

What follows this summary is a critique of one type of "incentive"—the type that attempts to link performance metrics with increases in the utility's actual return on equity. This device falls into the category of "performance incentive metrics" (PIMs). I explain that rewarding or penalizing performance using ROE *in any way* is illogical—and duplicative of existing measures.

In ratemaking, the sole purpose of ROE is to compensate for the opportunity cost of capital; specifically, equity capital. For a regulated monopoly utility, the shareholders' opportunity cost of equity has nothing to do with their utility's performance; their opportunity cost of equity is based on their other equity opportunities. So using ROE to induce performance makes no sense.

In fact the error is not merely in using ROE; the error is in using the revenue requirement to begin with. As explained below, the proper way to address performance is to mandate it, compensate for its reasonable costs, then address shortfalls with penalties. Regulators already do this—such as with Maryland's penalties for outages. And because regulators already do this, ROE-based PBR is duplicative.

This paper has four parts:

- **Part I** explains that using ROE to induce performance lacks logic and causes confusion.

- **Part II** explains that the problem is not just using ROE; the problem is using the revenue requirement to being with.

- **Part III**, recalling my Denver thoughts, says that the cost-effective way to induce performance is to induce the performers—the employees.

- **Part IV**, anticipating utility arguments, explains that eliminating ROE incentives doesn't create asymmetry of risk and reward.

I. Using ROE to induce performance lacks logic and causes confusion

To explain the illogic and confusion associated with using ROE to induce performance, this subpart makes these three points:

- The authorized ROE has a single purpose: to compensate for the opportunity cost of capital.
- The relationship between ROE and rate is unrelated to the value of performance.
- In setting the authorized ROE, the risk of performance failure is irrelevant.

A. The authorized ROE has a single purpose: to compensate for the opportunity cost of capital

The authorized return on equity performs a single function: to compensate the utility for the opportunity cost of capital. In so doing, ROE satisfies a statutory need, a constitutional need, and a practical need.

- The statutory need is to make rates just and reasonable. To be just and reasonable, the rates have to be high enough, but no more than high enough, to cover the utility's prudently incurred operating costs, its prudently incurred and use-and-useful capital expenditures, its cost of debt, and the shareholders' opportunity cost of equity.
- The constitutional need is to satisfy the Just Compensation clause of the Fifth Amendment (for federal actions) and the Due Process Clause of the Fourteenth Amendment (for state actions). Investment made by the utility to satisfy its obligation to serve—investment treated by courts as a "taking"—must receive an authorized return equal to that received by comparable companies taking comparable risks.
- The practical need is to attract capital from equity investors. They are volunteers with multiple investment opportunities. So to attract their voluntary investment, the authorized return has to be at least as attractive as those other opportunities.

The statutory, constitutional, and practical purposes of the ROE coincide. Satisfying any one of the three purposes necessarily satisfies the other two. Compensating equity investors for their opportunity cost is the function—the only function—of the authorized return on equity.

B. The ROE-times-rate base relationship is unrelated to the value of performance

Using ROE to induce performance is illogical for another reason: We apply ROE to a rate base that has nothing to do with the specific performance that we seek to induce. When we raise ROE to produce a reward, that ROE increment gets applied to the entire rate base. But a utility's rate base has hundreds of elements, from trucks to transmission lines to the headquarters building. Some performance goals have no connection to any of those elements because they depend on solely on activities whose cost appears in operating expenditures, such as employee and management salaries. Decreasing response times for distribution upgrades, interconnections, or call-center questions requires software purchases and employee training, but not much of what lies in rate base. Even when a performance item has a connection to some rate base elements, it won't ever have a connection to all one hundred of those elements. Moreover, a utility's rate base changes each year, because of book depreciation and infrastructure additions. Those changes have nothing to do with performance goals. So using ROE adjustments to address performance means multiplying the ROE increment by a large rate base number that has nothing to do with the performance. This is not merely imprecise—it's senseless.

C. In setting the authorized ROE, the risk of performance failure is irrelevant

Proponents of using ROE to induce performance might argue that (a) ROE compensates for investor risk, (b) commission-imposed performance metrics cause risk, therefore (c) it is appropriate to use ROE to induce performance. This argument fails because it doesn't distinguish between compensable risk and noncompensable risk.

A performance-minded commission needs to take these steps:

- Specify the type (e.g., distribution upgrade response time) and level (e.g., average, above average, excellent) of performance desired.
- Make that desired performance a part of the obligation to serve.
- Include in the revenue requirement all reasonable operating expense and capital expenditures necessary to achieve the desired performance.
- Specify the penalties for various levels of underperformance.

A utility facing this version of performance-based regulation does bear a risk—the risk of paying a penalty for underperforming. In utility regulation we do not, ever,

compensate utilities for the risk of underperforming—of failing to satisfy the obligation to serve. Doing so would turn the utility-customer relationship on its head, because it would force the customers to insure the utility against its failure to serve the customers. Underperformance is a risk, but it is a risk absorbed by shareholders—shareholders of regulated utilities and competitive companies. Shareholders manage that risk in two ways: by electing and compensating board members and executives based on their merits; and by deciding what price they are willing to pay for the utility's stock. The higher the risk that the utility will fail to perform, the less shareholders will pay for its stock. That's the result in competitive markets and in utility-monopoly markets.

For utilities and for competitive companies, the shareholder risk is the risk of earning less than the opportunity cost of capital. I have explained that for utilities, the risk of underearning because of underperformance is not compensable. But other risks are compensable. Underearning because sales fell below, or costs exceeded, reasonable projections, is compensable. And we compensate for those risks, through the ROE. The risk of underearning because underperforming is not compensable. Therefore, in setting ROEs in the PBR context, risk is irrelevant.

Crucial to the foregoing reasoning is the regulator's obligation to cover, in the revenue requirement, the reasonable cost—opex and capex—of complying with the specific performance obligation. If we want the utility to "stretch" to meet a difficult goal, the revenue requirement has to provide the necessary funds. We cannot ask the utility to be extraordinary, but not pay for the employees and equipment necessary to achieve the extraordinary. There must be a matching of compensation with obligation.

But once we set rates that achieve that matching of cost to quality, the utility must comply with its obligations, or suffer a penalty. Commissions must define that penalty in advance. Otherwise, the shareholders bear the risk of a penalty that they cannot quantify. That uncertainty is a compensable risk, because it is a risk not of suboptimal performance but of regulatory arbitrariness.

How to calculate the penalty? This question gets insufficient attention; in fact most PBR discussions ignore it completely. The penalty could consist of two components:

- The first component is the value in service quality that customers lose because of the utility's failure to meet the regulatory requirement. If customers are paying for a particular quality of service but don't get that quality of service, they must be made whole. They must be compensated for the value forgone.

- The second component is the revenue requirement elements that the commission inserted to produce the performance.

On considering these two elements, I am now thinking that they duplicate each other. If I pay for a restaurant meal that is inedible, I either get my money back or I get a certificate for a replacement meal. I don't get both. Moreover, I see no reason for some extra penalty on top of one of these elements—that extra penalty acting as a deterrent. We are trying to make the utility-customer relationship reflect a competitive market relationship. In the latter relationship there are no deterrent penalties.

Yes, some states—like my state of Maryland—has a penalty provision in the statutes. After the 2010-era Pepco outages, the PSC imposed a penalty, I think of $1 million. But that penalty's only rationale was its roundness. My guess is that the $1 million was a lot less than the value of service lost by customers—a figure not calculated by the PSC.

It's not easy for a commission to determine the value to customers of a utility's failure to satisfy the commission's standards. But the need to calculate that value exists for any PBR scheme. Without knowing the value, the commission would have no way to calculate the actual reward associated with meeting a particular standard. That inability is, of course, one of the flaws with ROE-based PBR. As I stated in Denver, ROE-based rewards reflect no careful benefit-cost analysis—which is why ROE-based PBR violates the just-and-reasonable standard.

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Using authorized ROE to induce behavior, rather than restricting ROE to its opportunity-cost-of-capital purpose, has been the main flaw from PBR's very origins. This misuse originated, and continues, because people under-appreciate the technical purpose of authorized return on equity. Here's how, it happened: Advocates for particular types of performance (a) wanted to induce that performance, (b) absorbed from utilities the erroneous view that performance requires "incentives." (c) made "incentives" synonymous with "extra profit," then (c) went to the place in the revenue requirement equation that deals with profit. They did so without understanding that ROE has a single technical purpose—to compensate for the opportunity cost of capital.

As demonstrated by my questioning of the EDF person in Denver, once we sever ROE from its opportunity-cost, *Hope-Bluefield* foundation, we lose any objective justification for the amount that we cause customers to pay the utility. When we talk about "performance-based ratemaking" and "performance improvement metrics," we need to match the desired performance not with some ROE increment that gets multiplied by an unrelated rate base, but with the appropriate opex and capex increment.

II. The problem is not just using ROE; the problem is using revenue requirement to begin with

The error on ROE-based PBR is actually larger than using ROE to induce performance. The error is using the revenue requirement to begin with. Doing so conflates two very different things: compensation and inducement.

The revenue requirement's sole purpose is to provide the utility with the annual dollars necessary to run its franchise business (including covering the cost of debt capital and equity capital). The utility's revenue requirement is no different from a competitive business's revenue requirement. For both, it's the dollars needed to build and run the business. As with ROE, the revenue requirement as a whole satisfies the statutory just-and-reasonable requirement, the constitutional just-compensation requirement, and the practical requirement of keeping a successful business running.

To set the revenue requirement correctly, as explained in Part I, the commission need only specify the performance outcomes, insert into the revenue requirement the opex and capex necessary to achieve those outcomes, and make clear the penalties for failing to achieve them. This process is what should be happening, but is not happening, when commissions use ROE to induce performance. In that context, the commission should be determining the dollar amount of the reward or penalty; then calculate the ROE increment that, when applied to the rate base, will produce that dollar amount. Commissions don't take those steps; instead they just choose some ROE increment because if feels right—thus severing the policy from any particular benefit-cost ratio.

The more logical course is to establish the obligation, include in the revenue requirement the reasonable costs of meeting the obligation, then apply a penalty for failing to meet the obligation. The penalty would lie outside the revenue requirement, because the purpose of a revenue requirement to cover the cost of prudently performing, not to penalize for failing to perform.

III. The cost-effective way to induce performance is to induce the performers

When commissions use ROEs to induce performance, the rewards go to shareholders. But performance comes from performers. For utilities, the performers are not the shareholders; the performers are the employees and the executives. All business performance depends on human performance. A call center's performance depends on now management trains employees and how competently they respond to questions. Even a generating unit's performance depends on how well workers maintain it.

This is where employee incentives come in. Employees do respond to targeted financial incentives. It would be nice to assume that paying the correct salary will always get the desired human performance. But rewards do matter—if offered to the performers. That approach not only aligns with human psychology; it lacks all of the logical flaws embedded in the ROE-times-rate-base tool. Yes, it takes some work to determine the right ratio of pay to performance—but the result at least will be based on thought. It can be tested and refined over time. Compared to shareholder "incentives," it will be more targeted and less expensive.

IV. Eliminating ROE incentives doesn't create asymmetry of risk and reward

A utility might argue that my recommendation creates asymmetry of risk and reward, as in "If we mess up we get a penalty, but if we meet the standards all we get is a normal rate of return." That quote is 100% accurate. And my recommendation is 100% symmetrical. For obligatory performance, customers will pay the full cost of that performance plus a normal return—just as they would in a competitive market. In a competitive market and in utility regulation, no one receives a supracompetitive ROE for obligatory performance. If we want supracompetitive quality, customers have to bear the costs of that quality. If we want all utility line workers to have PhDs in physics, we have to pay PhD-level salaries, then include those costs in the revenue requirement. The opportunity cost of capital remains unchanged.

Conclusion

To induce utility performance, there is no need to talk of "rewards." The need is solely to define obligations, then compensate for them. To get a particular performance outcome, the commission has to specify the outcome. Then it has to compensate for the costs prudently incurred to produce the outcome. If those costs are operating costs (e.g., more employees, or better-paid employees, or employees with extra training or PhDs, or more consultants), the commission must raise the operating expense portion of the revenue requirement to cover those costs. If those costs are capital expenditures (e.g., new computers, new gadgets) the commission needs to add those amounts to rate base, where they earn the normal ROE. There is no risk issue and no opportunity cost of capital issue. So there is no reason to shift the ROE away from its proper level—the level of opportunity cost.