

The Mechanics of Rate of Return Regulation

The determination of utility rates (the prices that are paid for electricity by you and me, or by other types of electricity customers such as businesses) occurs through an administrative process known as a "rate case." Rate cases are typically held on a periodic basis (say, every few years) or when special circumstances dictate. Examples of such special circumstances might include the utility wanting to introduce a new type of electric rate, or the utility wanting to raise rates due to an increase in fuel prices.

Please have a look at [Rate of Return Regulation](#) [1] by Mark Jamison (A PDF file is available to registered students in the Lesson 05 module in Canvas.) that describes the process of utility ratemaking in some detail.

I won't repeat all of the details from the Jamison reading here, but there are a few important points and implications of utility ratemaking to hit on.

First, the ratemaking process involves determining which utility costs can be passed through to customers directly and which activities would qualify for inclusion in the "rate base," which determines how profitable the utility is. The sum of these two types of costs is called the "revenue requirement," which is how much money the utility would need to bring in during a given time period in order to cover its costs and retain its profit. Jamison's way of writing the revenue requirement is common; here is another version of that same equation:

$$RR = O + (V - D) \times r$$

Where RR is the revenue requirement, O indicates total operating costs (fuel, labor, maintenance, taxes - these are pass-through costs on which the utility is not allowed to earn any profit); V is the accounting value of the utility's assets; D is the accounting depreciation on those assets; and r is the rate of return that the utility is allowed to earn. The term V-D is often referred to as the "rate base." We will discuss some of these accounting issues later in the course but there are two important aspects to the ratemaking equation. Operating expenses are generally passed through to customers with few challenges, and utilities are not allowed to profit on operational decision-making. On the other hand, the larger the rate base, the more profit that the utility earns. So the structure of utility ratemaking encourages capital investment.

Second, the ratemaking process involves decisions regarding how to allocate costs to different types of customers (e.g., residential, commercial, industrial). It can be hard to identify exactly how much of a utility's costs are attributable to serving specific customers or even types of customers. This is because the power grid is effectively a common resource used by all customers to facilitate reliable delivery of electric power. The process of allocating utility costs among the various customer types is thus done by negotiation (as part of the rate case) rather than by some magical calculation. Historically, large commercial and industrial customers have had rates that are lower than average while small commercial and residential customers have had higher rates. This has led to some accusations of "cross-subsidization" and the politicization of electric rate setting.

Third, the ratemaking process must also determine the rate of return for the utility. Generally, utilities are entitled to earn a "fair" rate of return. While the term "fair" is not all that meaningful in most economics discussions, it has a very specific definition in the public utility world. A "fair" rate of return is one that allows the utility to raise whatever capital it needs to make needed investments in infrastructure. Basically, the utility has to be profitable enough (and sufficiently low risk) that investors will be willing to lend it money. We will explore this concept in a future lesson, but the requirement for a "fair" rate of return implies that there is some connection between the cost of capital for the utility (here, "cost of capital" refers to the interest rate rather than the actual cost of any capital investment) and the rate of return that its regulator needs to allow. The rates of return allowed by public utility commissions varies, but a return on the rate base of 8% to 10% per year is a

good representative figure.

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