



The Regulatory Formula

Regulated utilities are allowed to recover their cost to do business and earn a return on invested capital. Expressed as a formula this is the revenue requirement:

$$\text{Rev} = \text{O}_c + (\text{V}-\text{D})r_r$$

Where:

Rev = Revenue justified by cost and return

O_c = Operating cost including depreciation and interest

V = Value, always first costs

D = Depreciation

r_r = Rate of return allowed by regulators

(V-D) = Rate base, this is the current book value of assets and the un-recovered part of amortized expenses.

The formula gives the utility little incentive to reduce operating costs as these are passed through allowing full recovery. As long as the rate of return (r_r) is above the cost of debt the rate base can be inflated by spending more capital than necessary. The r_r is almost always well above the cost of debt.

If the utility has a capital structure of 50% debt, as most regulators encourage, then:

$$r_r = .50 r_d + .50 r_e$$

Where: r_d = return debt

and r_e = return on equity

So if the utility is allowed an 8% overall rate of return and obtains debt for 5% (r_d) its return on equity will be 11% (r_e). If the allowed r_r is raised to 9% then the r_e will be 13%. Once the rate of return is set if the cost of debt decreases, the return on equity will increase.

Operating capital, storm damage, conservation programs and other “regulatory assets” all go into ratebase where the un-amortized portion earns the rate of return. Utilities prefer long amortization and depreciation periods. They borrow money at low rates and invest in guaranteed high return projects.

The regulatory formula provides an understanding of how and why utilities operate and invest the way they do.