OPINION

A basic primer on capital investment financing for regulated investor owned utilities

James Tong and Jon Wellinghoff explain how utilities make capital investments and earn revenue.

By James Tong and Jon Wellinghoff | March 25, 2015
Investor-owned utilities (IOUs)[1] must make long-term capital investments to build and maintain the grid infrastructure. As in any industry, all capital investments are financed through a combination of debt and equity.

An easy way to understand debt and equity is to look at how we purchase homes. Suppose you buy a house (a long-term asset) for $100K. You pay 20% down ($20K) with your own cash and cover the rest ($80K) with a mortgage. The $20K is equity; it entitles you to ownership. The $80K loan is debt, a financial obligation paid over time. (For simplicity’s sake, we are ignoring all other expenses, including origination fees, transaction costs, etc.)

Equity is subject to more variability and thus is riskier than debt. For instance, if your house appreciates, you (the equity owner) benefit, not the bank (the creditor or debt-issuer). The bank is only entitled to your mortgage payment; as long as you make the agreed-upon payments, the bank cannot claim any benefit from your home’s appreciation. On the flip side, if your house depreciates, you will assume the loss. As before, the bank is no better or worse off, as long as you are current with your payments. In summary, you bear the market risk associated with the ups and downs of real estate. The bank bears the risk of collecting monthly payments from you. And because of its greater risk, equity is usually more expensive than debt.

Businesses finance their long-term capital investments through a combination of corporate debt (borrowing loans or issuing bonds) and equity (selling ownership stakes or issuing shares). Debt carries an obligation of payment to creditors while equity provides an opportunity for profits for shareholders.

Revenues from a business’s operation must go to pay creditors first; shareholders retain whatever remains after accounting for all expenses, including the cost of operations, taxes, etc. Since shareholders face more risk
than creditors, shareholders generally expect a return on their capital (or ROE) that is higher than the returns (or interest) that creditors expect on their capital. A business’s cost of capital is thus a mixture of returns to creditors and returns to equity providers.

For all businesses, the cost of debt is largely influenced by their credit ratings, which are determined by independent agencies, such as Standard & Poor’s, Moody’s, and Fitch Group. These ratings are analogous to an individual’s FICO score. The cost of equity, on the other hand, is determined by market forces in competitive industries — by the interactions between those with varying levels of risk appetite who seek profit opportunities and those who provide opportunities for investment at varying levels of risks.

Regulated utilities are unique in that they do not operate in a typical competitive environment. Regulators must instead “replicate the forces of competition.” They set or “authorize” an ROE for shareholders that is, in theory, comparable to returns of competitive players facing similar risks. This authorized ROE is treated as a cost. It may sound odd to include profits to shareholders as costs. However, regulators must assure a fair opportunity to earn investment returns in order for an IOU to raise sufficient equity capital for necessary grid investments. The authorized ROE, along with the cost or interest on the utility’s corporate debt, make up a utility’s cost of capital.

An authorized ROE does not mean a guaranteed ROE. The actual ROE — the returns utility shareholders ultimately realize — is contingent on the IOU’s achieving the performance standards set by regulators; it is subject to normal business risks, which can include bad luck. The value of the authorized ROE is supposed to reflect these risks. A higher ROE reflects higher risk. Since 1990, the average ROE awarded to IOUs has been falling, from nearly 13% to about 10%. [2]

IOUs recover their costs largely through volumetric pricing, or the sale of units of energy (kWh) to customers. Electric rates (the price per kWh) charged to different customer classes are set by regulators to provide a reasonable opportunity for utilities to earn sufficient revenues to cover the total cost
(including the authorized investment returns) for building and operating the grid infrastructure.

But this is not the only regulatory goal in designing rates. Other important ones (as described by James Bonbright’s *Principles of Public Utility Rates*) include: protecting customers from highly unpredictable rates and energy bills; minimizing cross-subsidizations among the different customer classes; and optimizing efficiency, including sending appropriate pricing signals for efficient consumption and investments.

[1] This discussion focuses on investor-owned utilities, which supply about 70% of the electricity in the U.S. It does not apply to electric cooperatives and publicly owned utilities, such as “munis,” which do not have shareholders.

[2] The decline in ROE partly reflects changing market conditions in the cost of capital, as well as the increasing use of regulatory tools (e.g., riders, cost trackers, surcharges, pre-approvals, decoupling, and formula rates) to reduce risks in recovering costs.