Valuation of Public Utility Property

Two basic theories concerning valuation of public utility properties in today's marketplace

■ **JOHN D. RUSSELL**

The valuation of public utility property is a challenge to the appraiser for a number of reasons. The physical plant is special purpose property, sales are generally infrequent and not directly comparable, and the income of the utility is generally regulated by the utility commission. Many utility systems have only a small portion of the total property located within a particular tax district. Some public utilities are appraised for assessment purposes at the state level according to formulas that may have been substantially altered or warped by recent stock and bond prices; others are appraised and assessed at the local level.

This paper will explore basic valuation concepts appropriate for utilities in general and the electric utility industry in particular. Many of the appraisal procedures for electric generating power plants are equally appropriate to other public utility property.

There are two basic theories for the valuation of electric utility property: (1) the value is net original (book) cost (original cost less depreciation reserve); and (2) the value is greater than net book cost, frequently at or near reproduction or replacement cost less depreciation. The utility and its appraisers normally argue for the net book cost, and the taxing authority and its appraisers for the current or replacement approach. The net original cost view of value is frequently linked to the rate base adopted to test earnings by the state utility commission. The taxing agencies advocate a present value approach and claim not to be bound by the actions of another governmental agency. Further, economists point out that the value of the utility facilities are inherent in the property and that the economic value is not passed on to the property owners but to the customers in the form of lower rates. More on these theories later. The positions of the two sides and the application of valuation principles can best be examined with a brief discussion of public utility companies as a regulated enterprise.

John D. Russell is president of John Russell Associates, Milwaukee, Wisconsin.

Public Utilities

A public utility is a regulated business providing an essential public service. In return for a franchise to serve a specific geographic service area, the utility agrees to be regulated by the utility commission as a proxy for the lack of direct competition within the service area. Typical public utilities include electric, natural gas, telephone, water, and, to some extent, cable television. Many public utilities are investor owned and subject to regulation. Others, such as municipal or government owned utilities or cooperatives are usually not subject to regulation by an outside agency.

Regulation by a utility commission takes place in a variety of ways. The service area is specified, standard accounting procedures must be followed, prices for services cannot be revised without approval, and construction of major new facilities and issuance of new securities must be approved. The income of the utility in a rate case is based on estimates of sales, revenues, and expenses. Rate schedules are approved that provide the utility the opportunity, but not a guarantee, to earn an allowed income.

Public utilities are not isolated from competition even with the provisions of the franchise. Certain electric services are subject to competition from competitive fuels or energy sources such as natural gas. The telephone industry is highly competitive because of new technology and the breaking up of a monopoly. Even water utilities have competition from wells or water sources developed by large customers.

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The utility commission determines the amount of earnings required to service the interest on debt and to provide a reasonable return on the common equity of the utility. This earnings total is frequently related to or expressed as a percentage of the rate base. The rate base normally consists of the original cost of the utility plant, less accrued book depreciation, plus allowances for materials and supplies, cash and working capital, and construction work in progress (less certain tax credits). The rate base may be for a past year, the current year, or a "forward" test year.

Many utilities claim the rate commission "values" the property in adopting the rate base. Not true. The utility commission does not value the utility in the normal sense of the word nor does it establish the rate base and then automatically grant a certain rate of return. The total amount of return is determined by the commission. It is then expressed as a return on rate base for comparison with other utilities or compliance with a statutory rate base.

Most utility commissions that formerly considered "fair value" in the rate base have abandoned such procedures in the last few decades. With the change from fair value to a net cost, the amount of earnings has

not changed one dollar. The rate of return on a fair value base has changed from 6% on fair value to 9% on net book cost. (The most striking example occurred in the state of Ohio where the rate base was defined as reproduction cost less depreciation. Reaction to rising utility rates led to a change in the law to a mandated net book cost rate base. The utility rates and earnings did not change a bit, and electric rates continued as they were). It is clear that the utility commission does not make a valuation of the utility in a rate case.

Economists Levin and Smith (n.d.) have pointed out that the utility commissions maintain utility rates at less than current economic costs and pass on the benefits to consumers in the form of low utility rates. Thus, electric rates are based on costs related to the historical cost of an electric power plant averaging $200 per kilowatt of capacity, rather than the current replacement cost of $800 per kilowatt of capacity. The beneficiaries of the economic value are the customers of the utility from rates established using the $200 historical cost. The fact that customers receive the economic benefit is confirmed in utility commission decisions allowing the premium price paid by a regulated utility to be included in rates to customers (through an amortization process) where the price and transaction is shown to benefit the customers. A property tax based on true economic value (at $800 in the example in Table 1) would obviously result in higher electric rates for the consumers of the utility. Incremental property tax based on current value is more than offset by the low electric rates enjoyed by the same consumers because of the historical pricing of electricity.

In general, where a utility shows the transaction and price to be beneficial to customers, commissions provide for partial or full amortization of cost above the line.

It does not follow that two power plants in a utility have precisely the same value just because they have the same net book cost. Consider two plants, one an older, somewhat inefficient coal-fired electric generating plant and the other a hydroelectric plant, relatively modern and automated. Each plant has a net book cost of $50 million. Any rational appraisal would result in a much higher value for the hydroelectric plant than for the coal-fired plant. The hydroelectric plant would command a higher sale price.

A few words about public utility accounting and rate making procedures: Property taxes, along with labor, fuel, postage and other expenses, are a "pass through" by the utility to the consumer. The utility neither profits nor loses from such expenses but is reimbursed. There could be a short-term reduction of earnings if some item of expense increases, such as property taxes, and utility rates are not adjusted until 6 or 12 months later. This situation, generally short-term, has been somewhat severe during recent inflationary times but has recently abated.

Public utilities are required to follow standard accounting procedures. Among other things, these procedures require that the original cost of any utility property purchased be transferred to its accounting books and records at the same original cost (no write-up of value is recorded in the plant account of the utility). Where a premium is paid above net book cost for an operating utility system (such as a purchase of an electric distribution system from a municipality by an investor owned utility) any premium paid is recorded as an acquisition adjustment.

Some appraisers have claimed that the commission would "not let them" pay more than net book cost for operating property. Again, not true (Iowa State Commerce Commission 1983; FERC 1985; Wisconsin Public Service Commission 1979). The utility commission instructs the utility on how to account for the acquisition investment. The premium may be charged off or amortized over a period of time "above the line" to utility rate payers, "below the line" to shareholders, or a combination of the two. In general, where a utility can show that the transaction and price paid will be beneficial to its customers (both within the area served by the acquired property and throughout the utility), most commissions provide for a partial or full amortization of the cost above the line. Thus the cost is eventually paid for by the customers who benefit from the transaction.

Valuation Concepts

Three standard valuation concepts in determining fair market value are considered in a public utility valuation. Sales of electric power plants, particularly hydroelectric plants, are uncommon but do take place occasionally. Sales of electric transmission and distribution property also take place from time to time, and some insight into the value indicators (relation of sale price

Table 1. Example of an Unsound Approach to "Economic" Depreciation on Appraisal Results ($1,000)

Description	(1) Actual Replacement Cost in Dollars		(2) Replacement Cost × 10 in Dollars		(3) Replacement Cost ÷ 10 in Dollars	
1 Replacement cost new	3,000		30,000		300	
2 Less depreciation	(900)		(9,000)		(90)	
3 Net RCNLD (1) − (2)		2,100		21,000		210
4 Return at 10% on RCLND (3) × 10%	210		2,100		21	
5 Allowable return on original cost less depreciation (9) × 10%	(80)		(80)		(80)	
6 Return difference, RCLND vs. actual (4) − (5)	130		2,020		(59)	
7 Economic obsolescence–return diff. @ 10% (6) ÷ 10%		(1,300)		(20,200)		590
8 Net value after depreciation and economic obsolescence (3) − (7)		800		800		800
9 Original cost	1,000		1,000		1,000	
10 Book depreciation	200		200		200	
11 Original cost less depreciation (9) − (10)		800		800		800