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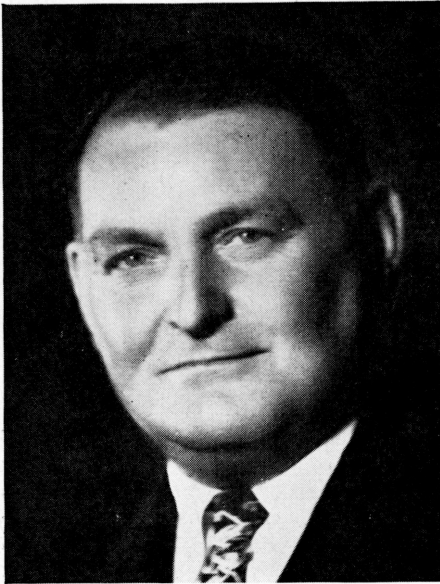


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Bernard S. Rodey, Jr., is now, and has been associated with Consolidated Edison Company of New York, Inc. for 32 years as plant records engineer, auditor, associate controller, assistant secretary and manager of the tax department. In 1913 he enlisted in the U.S. Navy and served in all electrical ratings to Lieutenant Commander, Supply Corps. He was construction foreman in 1910 with the Porto Rican Railroad Light & Transit Company. Mr. Rodey is a past chairman, executive committee, Edison Electric Institute and past president of New York City Control of Controllers Institute of America. At the present time, he is chairman of the accounting section of the American Gas Association.

He is a certified public accountant, a licensed professional engineer, and an attorney and counsellor at law, State of New York. He is co-author of "Public Utility Accounting," 1951, Prentice-Hall, Inc., New York, N. Y.

PUBLIC UTILITY ACCOUNTING

By **BERNARD S. RODEY, JR., CPA**

Accounting not a Science

The role of accounting, generally, as you know is to record the costs that have been incurred and the revenues that have been derived from business enterprises. It provides a financial record of past operations. Accounting is not a science because its so-called principles, customs or conventions do not have a basis that is free of man-made relationships. Rather it is a practice or procedure that, in the hands of competent practitioners, becomes a *disciplined art*. Nowhere is this better exemplified than in the field of public utility accounting.

Accounting is Purposive

The specific methods and procedures of accounting are designed to meet first, the peculiarities or characteristics of each type of enterprise and second, the demands of the "parties in interest" to the business or of the groups concerned by the accounting results. Accounting is essentially *practical* and is *purposive*. It has developed as a means of serving evident needs. Public utility accounting, therefore, must and does reflect the peculiar physical and other characteristics of the utility companies. It also

reflects the demands and requirements of the numerous parties who are interested in the financial results of the utility business.

Definition of Public Utility

An appropriate starting point in a discussion of public utility accounting, perhaps, would be to define what a public utility is. Legally a public utility is any business that has been declared to be such by legislative action and held by the Courts to be affected with a public interest. The type of business that is within this legal definition, and which has come to be accepted generally as a public utility, is a business supplying any one or more of such essential services as electricity, gas, steam, telephone, and transportation. Banking, insurance and other businesses affected with a public interest are not thought of as public utilities, although many of their business activities are also subject to supervision by the state.

Characteristics of a Public Utility

The legal designation of a business as a public utility has a controlling influence on its accounting. But to understand why a business has been defined as a utility and the effect of this on its accounting, some of

the physical characteristics of a public utility should be considered.

In practically no other type of business is the customer so intimately associated with the supplier of the service as he is with the public utility. In the case of transportation, the rider is personally carried to his destination, and for electric, gas, steam and telephone service, he is physically connected by wires, cables and pipes, to the utility. This physical connection with the customer partially explains why Con Edison, for example, is a public utility.

The property of an electric, gas or steam utility is divided generally into two parts; the *production* plant where the electric energy, gas, or steam is made and the *distribution* facilities which carry the service or supply to the customer. The fact that the energy or gas must be conducted from its point of manufacture to the customer through a physical connection makes it essential that the distribution facilities be located *in the public streets*.

Because of crowded sub-surface conditions and avoidance of duplication of facilities, it is not in the public interest to have more than one set of distribution facilities in the streets for any one utility service. Public utilities are, therefore *monopolies* in the sense that they usually have the exclusive right to supply a specific type of service within a defined geographic area. As a result, Con Edison has about 2¾ million electric, 1½ million gas and 4 thousand steam customers connected to its distribution facilities.

Another physical characteristic of an electric and gas utility should be mentioned. Electricity cannot be stored prior to its use, and gas can be stored only to a limited extent. The production and distribution facilities of the utility, therefore, must be large enough to supply the *maximum demand* at the time the customer requires the service.

Fortunately, the maximum demands of some customers are at different times from others, and consequently this diversity of use reduces their combined maximum demands. Large numbers of different classes of customers connected to a utility system usually improve the utilization of the utility's plant. This, in turn, has resulted in very large plant investments in single utilities in order to produce lower unit costs of operation.

Effect of Characteristics on Accounting

As a result of its physical characteristics,

a utility is a non-competitive business, with a large number of customers, and a heavy plant investment. Each of these three factors has played an important part in shaping public utility accounting.

First—The non-competitive feature has led to the regulation of utilities by governmental bodies and the adoption of uniform systems of accounts.

Second—The numerous customers have created the need for mass customer accounting, with a heavy emphasis on machine accounting.

Third—The large plant investment is reflected in specialized plant accounting, continuing property records, and the related problem of depreciation accounting.

Each of these three phases of utility accounting will be considered, but to place them in their proper background it is necessary to explain something about the interests back of the utilities, the industries' general accounting conventions, and utility regulation and the rate-making process, all of which have an important bearing on what is done.

Utility accounting must serve at least seven groups of interests or masters generally summarized as follows:

1. *Management*, construed to include Trustees, Officers and all levels of responsible supervision.
2. *Stockholders*, common and preferred.
3. *Creditors*, long term and short term.
4. *Governmental Agencies*, as State Regulatory Commission, Federal Regulatory Commission, Securities and Exchange Commission, Federal, State and City Tax Authorities.
5. *Customers*, Industrial, Commercial, and Residential.
6. *Employees*, and their union representatives.
7. *Trade Associations* and other private and civic organizations.

A public utility is said to live in a glass bowl. The word "confidential" is rarely used in the public utility business in relation to accounting data and accounting information.

Accounting Conventions, Rules and Ethics

Accounting conventions are usages or practices adhered to by common consent. Applied to public utilities, certain of these conventions have taken on additional meaning to those used in other industrial accounting fields and may be highlighted as follows:

Entity Convention—Where a utility supplies 2 or more types of service, such as gas and electricity, each department is treated as a separate entity for accounting purposes.

Cost Convention—Accounting generally adheres to the cost convention which requires that assets be recorded at the dollars of initial cost to the business entity. A modification of the cost convention in public utility accounting provides that the required "original cost" of the property is deemed to be the cost of such property to the person first devoting it to public service.

Going-Concern Convention—Public utility enterprises, under the assumption that they will continue in business for an indeterminate time, retain as assets the costs of intangible property, such as franchises, consents and organization expenses, without provision for amortization.

Period Convention—It is assumed that the business can determine its financial status and its income for a given period of time. Such results are established for a period of a month, quarter-year and year. Comparative and analytical statements are based on these indicated accounting periods.

Consistency Convention—The methods of accounting for income and expense, and the reporting of results of operations should be consistent from period to period. Attention should be drawn to any change in method. The rule, therefore, is consistency or complete disclosure.

Finality of Past Accounting—This accounting convention contemplates a statute of limitations on the impeachment of past accounting results. It has been used by regulatory agencies to deny the revision of plant accounts in favor of the utilities where the initial costs were charged to expense at the option of the company, although properly includible in the plant accounts.

Conservation in Accounting—"When in doubt charge expense" is the familiar application of the accounting convention of conservatism. It has been considered good accounting practice to charge current operations, rather than capitalize any expenditure, the future benefits of which are questionable. While there may be no particular objection to this convention in non-utility accounting fields, its use in public utilities should be considered in connection with the fact that capitalized costs have a determining effect on future earnings. The charging of indirect and overhead construction costs and other items to

expense rather than capital may seem to be the conservative thing to do in the period when the expenditure is made, but its influence on future depreciation charges and earnings may have the opposite effect.

Regulation and Rate-Making.

The rate-making process is the focal point of utility accounting. It is important to emphasize its influence because the price that a utility enterprise is allowed to charge for its service in this state is to a large extent dependent on the accounting methods and standards established by the regulatory agency.

State Commission Regulation

Public utilities are subject to detailed and comprehensive government regulation covering practically all phases of their activities. This is accomplished generally by State Regulatory Commissions. Con Edison, for example, is regulated by the Public Service Commission, State of New York. The Commissions generally, in respect to accounting matters, have been given authority and power to:

1. Determine reasonable rates
2. Require uniform accounting
3. Prescribe forms of periodic and special reports
4. Examine books and records
5. Control issuance of securities

An unusual feature about regulation in the State of New York is that, while the normal staff of the Commission is supported by State appropriations, special investigations are assessed against the companies themselves. In the last 18 years over 14 million dollars have been assessed against utilities in the course of handling 4400 investigations into their affairs and practices.

The Rate-Making Process

The prime purpose of regulation is to establish such rates as will limit the return of the utility to a reasonable amount. The meaning of the special terms frequently used in the rate-making process should be understood.

The *Return*—is the operating income of the utility and is the remainder of the total revenues derived from the sale of service after deducting all applicable operating expenses, including provisions for depreciation and taxes, but not interest or other charges for the use of capital. The *Rate*

of Return is the return expressed as a percentage of an established rate base.

The *Rate Base*—is the established fair value of the plant and other assets employed by the utility in providing adequate and proper service on which it is entitled to a return. The determination of the rate base is the crux of the rate-making process. The measures for determining fair value are usually found in one or more of the following tests relating to the costs of property, both tangible and intangible, devoted to the public service:

1. original cost
2. prudent investment
3. historical cost
4. reproduction cost

Above and Below the Line

Under regulation, a public utility is generally entitled to revenues sufficient to provide a fair return after deducting all reasonable expenses of operation including taxes and depreciation. The accounting concept of "above and below the line," employed mainly in utility accounting provides that all of the items of operating revenues and expenditures which are included in determining the utility's operating income shall be considered above the line, while those items of revenue and expense which are not applicable to operations, such as interest charges, are considered below the line. For rate-making purposes items "below the line" are not usually considered in arriving at a fair-return.

Recorded Cost as Evidence

In some regulatory jurisdictions and in earlier views concerning the fair value doctrine, the recorded cost of assets on the books of the utilities had only a limited evidential significance. Costs reflecting imprudent expenditures, or property not necessary and needful for the purposes intended did not have to be included in the computation of fair value. Conversely, if fair value was greater than cost then the utility was entitled to a return on the excess value.

Regulatory commissions now, however, generally follow either the original cost or prudent investment theory as the rate base. The advantages of such procedure may be found generally in the availability of all pertinent data directly from the accounting records. The reliance on past costs, however, during an era of economic changes,

may distort the end result sought if other factors and adjustments are not given consideration.

Uniform Systems of Accounts

The rate-making process requires information concerning operating revenues, expenses, plant investments, working capital, etc. A functionally designed accounting system facilitates the assembly of the required data, and a uniform system of accounts is, therefore, a necessary tool of regulation. Uniform systems of accounts are prescribed by regulatory commissions under legislative grant of power giving them authority over the accounting of public utilities.

Contents and Scope

A uniform system of accounts generally consists of

1. List of Accounts, Titles
2. Definition of each account and instructions
3. Statement of the bases to be used in arriving at amounts to be recorded
4. General instruction and definitions
5. General form of the balance sheet and income statement

(A typical grouping of the uniform accounts appears on page 15.)

Development of Uniformity

The need for uniform and consistent accounts and accounting became evident at an early stage in the history of local public utilities and the development of Commission regulation. The accounts and language of accounting had to be defined before reported results could be readily understood by regulatory authorities and others who had to use the reports. Uniformity and consistency were necessary before comparisons could be made with assurance among utilities and from one year to another.

Under existing uniform systems of accounts, a utility is subject to accounting requirements on the basis of the service supplied, size of the company and, in certain cases, location and project. Thus, the systems of accounts for electric, gas, telephone, and other types of service, differ from each other due to technical and operation characteristics of the business.

Utility Accounting Innovations

The present uniform systems of accounts were largely introduced in 1936 and are the

successors of earlier systems which had been in the process of development since as early as 1876. The present systems have been designed as instruments of regulation and contain certain features not found in previous classifications of accounts. Among the more important changes are:

1. requirements for recording utility plant on the basis of original cost to the person first devoting it to public service
2. depreciation accounting as distinguished from retirement accounting
3. segregation of transactions between affiliated interests
4. segregation of capital stock and discount expenses

The systems of accounts are sets of rules imposed by regulatory authorities and do not necessarily conform to non-utility accounting practices. Attempts to apply industrial accounting standards and methods to utility accounting commonly overlook the unique characteristics of public utilities and the use of the accounting system for regulatory purposes.

Customer Accounting

Aside from the use of accounting as a regulatory aid, the next important peculiarity in the utility field lies in Customer Accounting. In noting that Con Edison has about 2¾ million electric, 1½ million gas and 4 thousand steam customers, it should be realized that these are customers whose meters must be read, to whom bills must be sent and from whom amounts must be collected. Most of Con Edison's customers are billed bi-monthly, that is, every second month. However, many thousands of large and special customers are billed every month. In the course of a year, Con Edison sends almost 20 million bills to its customers. These are preceded by approximately the same number of meter readings, and followed by an almost equal number of bill collections. The net result of this tremendous billing operation is to produce more than \$430 million of operating revenue.

The Rate Schedule

Electricity and gas, like many services and commodities, are not sold at a single price per unit. For example, a typical rate schedule applicable to electric residential service, on a bi-monthly basis, is as follows:

20 kilowatt hours or less	\$1.60				
Next 100 kilowatt hours	.04½ each KWH				
“ 100 “ “	.03½ “ “				
“ 100 “ “	.03 “ “				
and the excess over					
320 kilowatt hours	.02 “ “				

In addition, electric service rates are subject to adjustment according to changes in cost of fuel. The rate schedules for other types of service are similar, and in addition include demand and other special charges. It is quite apparent that the billing operations must take these variations into account and that they add considerable complication to the billing operations.

The utility, because of size and volume, must use mechanical equipment to a great degree. At the present time, the alphabetic and numeric tabulating card system is in wide use by Con Edison. It is of interest to note that the alphabetic tabulator, which produces the customers' bills, prints the bills at the rate of 1,200 to 1,500 completed bills per hour.

Electronic Equipment

It is becoming increasingly apparent that the existing machine accounting systems are not the final word for customer accounting. Much attention and effort is being given to the development of electronic accounting equipment that might be especially adapted to the problems of utility accounting.

Plant Accounting

Plant Accounting is another outstanding feature of utility accounting. Utility plant cost is the most important asset of a utility. At the end of 1952, Con Edison had a total plant cost of \$1,625,858,000. The highlights of how such an investment (or, original cost) is accounted for should be of interest. In addition to the importance of utility plant accounting, costs related to plant, such as property taxes, depreciation, maintenance and a return on capital are the largest expenses in the production and distribution of electricity and gas.

Under the present Uniform Systems of Accounts, utility plant must be stated at the original cost to the person first devoting it to public service. If a utility builds a certain plant for \$100 and subsequently sells it to another utility in an arm's length transaction for \$150, the second utility can place only \$100 in its plant account. The remaining \$50 must be placed in a plant acquisition account and usually may be disposed of only

as directed by the regulatory authority.

In New York State, the rate base is the original cost less depreciation, plus working capital. Consequently, utility plant as recorded in the books of account is the principal element of the rate base.

Refinement in Plant Accounting

Under these circumstances, it is not surprising that plant accounting has been given an emphasis in utilities that is not duplicated in any other business. Possibly the most striking refinements are the use of *Retirement Units of Property*, the *Work Order System*, and *Continuing Property Records*.

A retirement unit is an item of plant, the retirement of which, with or without replacement, is accounted for by crediting its book cost to the utility plant account in which the cost is recorded, and charging the depreciation reserve with the same cost less the net salvage value (removal cost less salvage). But, replacement of any plant item smaller than a retirement unit is accounted for by charging the cost of the new item to maintenance. Thus, the retirement unit, in substantial part, provides the dividing line between plant investment or capital, and maintenance.

Depreciation Accounting

Retirement units also affect depreciation accounting. These units on their retirement are charged to the depreciation reserve. If the retirement units are relatively large, the maintenance is also large but the charges to the reserve are small. Therefore, maintenance expenditures vary directly, and depreciation requirements inversely, with the size of the retirement units. Consequently, a substantial change in the practice of a utility with respect to this recognition of retirement units may affect the reasonableness of its existing depreciation reserve or annual provisions for depreciation.

Retirement units because of their importance to plant accounting, and to maintenance and depreciation, are closely supervised by the regulatory commission.

Work Orders

The systems of accounts require that additions to or retirements of plant be recorded by means of work or retirement orders in such a manner as to show the nature of each addition or retirement, the

sources of the costs incurred, and the account or accounts to which charged. It should not be understood, however, that a work order system is a mere regulatory requirement, or that it has no usefulness to management. The work order system is a means by which management authorizes construction projects and maintains control over construction expenditures. The work orders provide a summary of the accounting transactions related to specific units of construction work and sustain the integrity of the property account balances reflected in the general books. In all, 18 kinds of direct and indirect construction costs may properly be charged to the work orders and included in utility plant accounts.

Continuing Property Records

The volume of utility plant accounting makes it desirable also that a detailed inventory record of the cost of plant be continuously maintained. The constant in-flow of plant additions and out-flow of retirements add to the complexity of such a record. Recognizing the importance of the correct recording of property dollars, many uniform systems of accounts prescribe that a *Continuing Property Record* be maintained.

The Continuing Property Record is simply a running inventory record of physical units and their costs. It has many advantages, but none more important than the complete substantiation of the book cost of investment or original cost of plant. The Continuing Property Record should tie in and balance with the controlling utility plant accounts, thus providing evidence that the costs recorded in the plant accounts are related to the plant actually in service.

One very important feature of utility accounting has been overlooked, up to this point, and that is taxation accounting. However, what is really important about utility taxes is not found in accounting peculiarities, as such, but in the amount actually paid out. Taxes now absorb over 25 cents out of every dollar taken in. The split-up to the three governments runs about:

\$12.7 million	State
44.3	City
47.5	Federal

In the last analysis, of course, these taxes are paid by customers and as such form a substantial part of the huge hidden imposts that presently bear so heavily on all consumers of goods or services.

ning." In cooperation with the Seattle Chamber of Commerce, a tax calendar has been prepared. Cheers to Marguerite Reimers, Lili Fowler, Rachel Faucher, Isabel Mason and Marguerite Gibb for a job well done! New Member: Mabel Oertel CPA, and Margaret L. Howell. Genevieve Michel is now a CPA. **Spokane:** Carl Clepper, Spokane City Auditor spoke on "Financing a City." "Investments" was Mr. Hammitt E. Porter's topic at a recent meeting. Aurelia Oglesbee was pictured in a recent issue of the Spokesman-Review as one of the speakers at the North Spokane Business and Professional Women's Club where she spoke on ASWA. New members: Margaret Moberly and Margaret Rudisile. **Syracuse:** Ruth Nussbaum conducted a study class on "Department Costs and Profits" while Florence Bonacci spoke on "Fund Accounting." Hazel Templar conducted the study class on "Analysis of Financial Statements" while Edith Oldfield, Treasurer of Amos-Rice Coal Co., spoke on "Credit Practices in Business." New member: Vera Hansen. Hazel Templar and her Tax Calendar Committee have issued a tax calendar in booklet form. **Terre Haute:** W. L. Ketner, Personnel Director of the Visking Corporation spoke on "The Company and Its Employees." Miss Ruthetta Krause of Indiana State Teachers College spoke to the study group on Office Management. Edna Rohrig, former charter member of Terre Haute chapter, has returned to chapter membership. **Toledo:** Frank Prather, state tax examiner, spoke on "Personal Property Taxes." Randolph R. Berry, National Director of Industrial Relations for the Toledo Scale Company spoke on "Human and Industrial Relations in Accounting." The study group has been discussing Income Taxes. New members: Rosemary Savey, Therese Vollmayer and Nancy Jeanne Fortney.

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PUBLIC UTILITY ACCOUNTING (See p. 7)

THE GROUPS OF ACCOUNTS

