In conclusion, I feel that it is only just to express my personal opinion that it is amazing and highly commendable that utility management should in the absence of competition and in the face of limitation of earnings continue its efforts to increase efficiency and reduce costs. While other costs of living went up the price of electricity to the public came down.

Public demand for lower rates and better service has in a degree furnished the lower-cost incentive that competition furnishes in private industry. Engineering advancement has contributed, largely due to professional pride and desire of achievement. To some extent it has been forced by larger and more exacting service requirements, such as supplying power to large users who might operate their own plants. But the principal incentive, that of financial reward for greater efficiency enjoyed by non-regulated industry, is absent.

The Applicability of Industrial Cost-Accounting Practices to the Electrical Utility Field

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I HAVE been asked to discuss the subject of the applicability of cost accounting to the electric utility industry from the viewpoint of a management engineer experienced in the field of accounting. Before doing so I want to tell you I am not an electrical engineer, and therefore shall, of necessity, confine my remarks to the purely accounting and public aspects of the situation.

As the three previous speakers have so ably and adequately discussed the evolution of cost accounting and its application and implications for industry at large, I shall not review any of this material. On the other hand, I shall tell you briefly, in advance of my talk, of certain opinions I hold with regard to cost accounting and the conclusions I shall reach.

First let me say that I do not regard a routine overall cost-accounting procedure as necessarily desirable in all industrial undertakings. It is not, within itself, an effective means for economy. It is desirable only where there is a question as to the relative cost of different articles and the price at which they can or should be sold; in determining the relative desirability of different methods of production or distribution; or in determining which group of products is the most profitable, and which to expand or contract.

As to my conclusions: First, I do not see that cost accounting had anything to offer the electric utility industry during its pioneer days nor indeed until very recently.

Second, with the advent of governmental regulation and the exclusive franchise, a potential need for cost accounting arose. This has become actual only within the last very few years.

Third, cost accounting has a real contribution to make to government-regulated industries and, if wisely developed and applied, it can be installed without destroying any of the advantages of existing methods.

The electric utility industry had its beginning in 1882 in New York City. At that time electricity was used exclusively for lighting, yet the service was sold on the basis of its being available throughout the twenty-four hours of each day. The maximum demand was during the afternoon of the short days of the winter months, when light was used both in the office and in the home at the same time. This demand lessened as the offices closed and further decreased as people retired for the night, yet there was always a potential or actual demand which had to be provided for. The electric companies could not store electricity during off-peak hours, as the gas companies could, and deliver it when required. They had to operate all of the hours in which service might be required and the ratio of the average load to that of the maximum was therefore absurdly low. Under these conditions there was no problem of cost accounting. The need was for diversity in the hours during which service was required.

With the development of the use of electricity for power and its gradual adoption both in manufacturing and in transportation the opportunity for diversity was greatly improved, but even after rates became more reasonable and electricity came into general use both in industry and transportation as well as in the home, there still was no need for costs in the sense of the relative cost of the different classes of service. The industry was highly competitive and the rule was to charge "what the traffic would bear."

The first need for cost accounting in the electric utility field came with the effective control of rates by the public service commissions. The public service commissions had long since come into existence, but their work had largely been with the railroads and in connection with franchises. Effective rate regulation did not come until well into the present century. The regulation of rates for electricity was a highly technical matter. The commissioners were, as a rule, not technical men and in the light of conditions in the industry, it is not surprising that rates should have been based largely upon technical factors and developed through special engineering studies.

The electric companies, while still privately owned, are in every other way public institutions. They are protected against competition and are guaranteed a fair return on a fair value of the property used. The operating companies cover large areas and many of them are owned by the same interests and are connected by super-power lines. Apart from a very few large consumers, for which rates will always have to be based on the cost to them of production, the consumption of no one customer is any longer a sufficiently large part of the whole business of one company for its load factor, etc., to be a matter of importance. There is, therefore, no longer a need for the present highly technical rate structure. On the other hand there is every need for a simpler and more equitable rate structure—one that the average consumer can understand—and for routine overall cost accounting through which the commissioners and the companies may know the relation between the revenue derived from each class of service and the cost of producing it.

It has long been recognized that a shipper who happens to have a load for a railroad car that would otherwise return empty is not thereby entitled to a special rate. Why does not this same principle apply to rates for electricity? Toll gates have been done away with on our highways and bridges, and letters are carried across the continent for the same postage as is required for sending them next door. Why then should the regulation of rates for electricity continue to be on the basis of the circumstance of when and how the electricity is used?

This brings me to the last of my conclusions, viz., that "cost accounting has a real contribution to make to government-regulated industries and, if wisely developed and applied, it can be installed without destroying any of the advantages of existing methods." Before going into this, however, I want first to call your attention to certain aspects of cost accounting and state my position concerning them, so that there can be no misunderstanding of what I say.

First, you hear people use the word cost as applied to the overall cost of a manufactured article as though it were definitely ascertainable. Costs are computed on the basis of judgment as to how indirect and overhead cost should be apportioned, and their accuracy is necessarily dependent upon the accuracy of this judgment. In many businesses certain departmental costs must be distributed and then redistributed several times, before the final overall cost is arrived at. The accuracy of all such costs, however arrived at, is in reverse proportion to the number of such distributions and redistributions.

To make clear what I mean, let us assume that three men agree to live together in one house and to divide the expenses between them. The youngest of these men is seldom at home in the evening and often away for meals, but usually at home at night. The eldest is seldom away during the day and never away for meals, but often away at night. The third has business interests which require him to come and go irregularly. Under these conditions, what would the relative cost of service to each be? How would expenses be divided?

They would probably first divide them into a number of items, such as: rent, insurance and taxes, light and heat, household, table, wages, etc., and keep a record of the number of nights and meals for which each was at home. They would then apportion the various expense items, on some equitable basis, to lodgings and meals, and these in turn to the three men. So far so good, but how would they decide what portion of each item of expense to apportion to lodgings and what portion to meals? Also what part of the cost of a night's lodging and of a meal should be apportioned to each as representing a demand or standby charge for the nights and meals for which each was away?

This is the element in cost accounting at which criticism is usually directed and so far as costs are determined by special studies the criticism is justified, for the reason that there is literally no means of checking the distribution. The final cost when arrived at must be accepted or rejected sight unseen. With overall costs arrived at through continuous routine, however, these distributions as well as the final cost can be compared with similar costs for other periods, and where the same methods are used in several concerns, as would be the case in the electric utility field, the same elements of cost can be compared as between different concerns. The fact that you have all of the cost, in the case of a continuous routine, is particularly helpful in checking the cost for any one product or service, because the effect of a change in one item is immediately reflected in some other item. Costs under these conditions become increasingly dependable as the basis of distribution of indirect and overhead expense becomes adjusted to the conditions involved.