

# Principles of Public Utility Rates

*Second Edition*

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instance, regulation should allow a fair rate of return, but not guarantee or protect a regulatee against mismanagement or adverse business conditions. Sound rate relationships are essential to the attainment of these desirable ends, but criteria are required to judge whether, and to what extent, these objectives have been attained. In our attempt to put the competing criteria into an explicit form we recognize that we are violating the sage advice of Charlie Brown that: "No problem is so big that it can't be run away from."

### Attributes of a Sound Rate Structure

What are the attributes to be sought in the development of a sound rate structure? Many different answers have been suggested in the technical economics literature and in the reported opinions by courts and commissions. A number of writers have summarized their answers in the form of a list of desirable attributes of a rate structure, comparable to the canons of taxation found in Adam Smith's *Wealth of Nations* (1937 — originally 1776) and subsequent treatises on public finance. In very general terms (see e.g., Federal Energy Regulatory Commission, Order No. 436, October 9, 1985) optimal rates: should provide clear, efficient, effective, informative, and cost-effective market signals about the present and the future cost of service to buyers and sellers, (which requires that prices track costs); should embody strong incentives for optimal present and future cost and service quality configurations; should give buyers and sellers optimal flexibility in selecting sellers and buyers respectively; should allow utilities to serve as agents of progress; should maintain or improve distributive equity, and should allow for the attainment and maintenance of a flexible (non *ad hoc*) regulatory framework with a modicum of necessary delay and obfuscation (and even a willingness of a commission to dissolve itself under the appropriate competitive or contestable conditions!). But this is a pretty general menu, and more specific direction is needed when applying them to an empirical world. As someone once said, "the real world is only a special case of the theoretical world, and not a very interesting one at that." But many practical-minded people would disagree, so let us push on to greater specificity.

The list that follows is fairly typical, although we have derived it from a variety of sources, instead of relying on any one presentation. Of the ten proposed attributes enumerated in this section, the first three relate to the provision of adequate stable and predictable revenues and rates; the next five are based on cost, efficiency, and equity considerations, and the remaining two deal with matters of practicality

and acceptability. However, the sequence in which the ten attributes are presented is not meant to suggest any order of importance. Moreover, there is, perforce, some inconsistency and redundancy in any such listing. We are simply trying to identify the desirable characteristics of utility performance that regulators should seek to compel through edict.

### Revenue-related Attributes.

Effectiveness in yielding total revenue requirements under the fair-return standard without any socially undesirable expansion of the rate base or socially undesirable level of product quality and safety.

2. Revenue stability and predictability, with a minimum of unexpected changes seriously adverse to utility companies.

Stability and predictability of the rates themselves, with a minimum of unexpected changes seriously adverse to rate-payers and with a sense of historical continuity. (Compare "The best tax is an old tax.")

### Cost-related Attributes

4. Static efficiency of the rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use:
  - (a) in the control of the total amounts of service supplied by the company;
  - (b) in the control of the relative uses of alternative types of service by ratepayers (on-peak versus off-peak service or higher quality versus lower quality service).
5. Reflection of all of the present and future private and social costs and benefits occasioned by a service's provision (i.e., all internalities and externalities).
6. Fairness of the specific rates in the apportionment of total costs of service among the different ratepayers so as to avoid arbitrariness and capriciousness and to attain equity in three

dimensions: (1) *horizontal* (i.e., equals treated equally); (2) *vertical* (i.e., unequals treated unequally); and (3) *anonymous* (i.e., no ratepayer's demands can be diverted away uneconomically from an incumbent by a potential entrant).

- 7 Avoidance of undue discrimination in rate relationships so as to be, if possible, compensatory (i.e., subsidy free with no intercustomer burdens).
- 8 Dynamic efficiency in promoting innovation and responding economically to changing demand and supply patterns.

#### *Practical-related Attributes*

- 9 The related, practical attributes of simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability, and feasibility of application.
- 10 Freedom from controversies as to proper interpretation

Lists of this nature are useful in reminding the ratemaker of considerations that might otherwise be neglected, and also useful in suggesting important reasons why problems of practical rate design do not yield readily to scientific principles of optimum pricing. But they are unqualified to serve as a base on which to build these principles because of their ambiguities (how, for example, does one define "undue discrimination"?), their overlapping character, their inconsistencies, and their failure to offer any basis for establishing priorities in the event of a conflict. For such a basis, we must start with a simpler and more fundamental classification of ratemaking functions and objectives.

Some of these attributes in the aforementioned list are based directly on the primary functions of public utility rates first presented in Chapter 4, and the related objectives to be sought in the establishment of a cost-based standard of ratemaking (Chapter 5). These objectives provided the basis for development of the criteria of a fair return (Chapter 10). These same objectives, derived from the four primary functions, can now be used to specify the criteria of a sound rate structure discussed in the following section.

#### **The Primary Criteria Are Based on the Objectives of Regulation**

General principles of public utility rates and rate differentials are necessarily based on simplified assumptions both as to the objectives

of ratemaking policy and as to the factual circumstances under which these objectives are sought to be attained. Attempts to make these stated principles subserve all special objectives and cover all specific conditions would be hopeless. Writers on the theory of rates are therefore at liberty to base their analyses on the acceptance of those objectives which are of wide application and the attainment of which may be aided by whatever tests or measures of sound rate structure the analyses suggest.

Among these objectives, the following three may be called primary, not only because of their widespread acceptance, but also because most of the more detailed objectives discussed in the literature are ancillary thereto: (1) the revenue-requirement, production-motivation, or financial-need objective; (2) the optimum-use, demand control, or consumer-rationing objective; and (3) the compensatory income transfer function or fair-cost-apportionment objective. Based on these objectives we propose the following three primary criteria by which to judge the soundness and desirability of a rate structure for public utility enterprises. As outlined below, these objectives are related closely to five of the ten attributes specified above.

#### *Criterion 1 - Capital Attraction*

(Attribute 1): based on the revenue-requirement objective, with due regard to potential problems of socially undesirable levels of rate base, product quality, and safety; it takes the form of a fair-return standard with respect to private utility companies;

#### *Criterion 2 - Consumer Rationing*

(Attributes 4 and 5): based on the consumer-rationing objective, under which the rates are designed to discourage the wasteful use of public utility services while promoting all use that is economically justified in view of the relationships between the private and social costs incurred and benefits received;

#### *Criterion 3 - Fairness to Ratepayers*

(Attributes 6 and 7): fair-cost-apportionment objective, which invokes the principle that the burden of meeting total revenue requirements must be distributed *fairly* and without arbitrariness, capriciousness, and inequities among the beneficiaries of the service and so as, if possible, to avoid undue discrimination.

The objectives specified above correspond to three of the four primary functions of utility rates set forth in Chapter 4. The efficiency-incentive function, or that of encouraging managerial efficiency, is