

REGULATION AND EFFICIENCY

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THE literature of public utility regulation is rich in commentary on valuation theories and other problems focusing on the regulation of profits; it is surprisingly deficient in discussion of methods by which regulation can foster efficiency and progressiveness in the management of regulated enterprises.¹ This hiatus in the literature reflects the fact that regulatory agencies have been so preoccupied with problems of profit limitation that they have devoted relatively little attention to the task of improving utility operations.

An explanation of the lack of concern of regulatory agencies with problems of efficiency and progressiveness in management reaches out in a number of directions. In part, it is explained by inadequate personnel, meagre appropriations, lack of authority and absence of initiative on the part of the regulatory agency. In part, it is inherent in the traditional conception of the regulatory function as one of restraint rather than guidance. Regulation in its very nature is a cumbersome method of controlling economic activity.² It superimposes one set of persons acting on behalf of the public on another set of persons acting on behalf of a privately-owned industry, and it divides responsibility between them. As a result, the very difficult problem of the precise line of demarcation between the authority of private management and the authority of the government agency is presented. According to standard theory — generally accepted by the regulatory agencies — the commissions operate negatively rather than affirmatively. They may approve, modify, or veto policies when the law vests them with the requisite authority, but they ordinarily abstain from taking the responsibility of determining policy in the first instance. The initiative for the day-to-day conduct of the utility's business and the responsibility for efficient organization lie with private management.³

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1. For some notable exceptions see Whitten, *Regulation of Public Service Companies in Great Britain* in 1 ANNUAL REPORT N. Y. PUBL. SERV. COMM. (1913) Appendix F; MORGAN, *REGULATION AND THE MANAGEMENT OF PUBLIC UTILITIES* (1923); BUSSING, *PUBLIC UTILITY REGULATION AND THE SO-CALLED SLIDING SCALE* (1936); Ruggles, *Problems of Public Utility Rate Regulation and Control* (1925) 33 J. POL. ECON. 543; *Some Aspects of Public Utility Management and Regulation* in 53RD ANNUAL REPORT, CONNECTICUT SOCIETY OF CIVIL ENGINEERS (1937) 98-111; studies sponsored by the Federal Coordinator of Transportation 1933-1936.

2. For acute criticism of the regulatory technique, see Cooper, *New Horizons in Public Utility Control* (1938) 22 P. U. FORT. 268 *et seq.*

3. Occasional judicial pronouncements are cited to support this view. See, *e.g.*, Mr. Justice McReynolds in *Missouri ex rel. Southwestern Bell Tel. Co. v. Public Serv. Comm.*, 262 U. S. 276 (1923): "It must never be forgotten that while the state may regulate

But a large share of responsibility for the preoccupation of regulators with the control of profits must rest with the courts. A utility which is dissatisfied with the rate schedule imposed by a commission may appeal to the courts to protect it against confiscation of its property. In the language of the courts, it is entitled to a "compensatory" return, a "fair" return on the "fair value" of its property. Since rates cannot be finally fixed or adjudged valid until the required profits have been determined, and the required profits cannot be determined without a finding of "fair value" which the courts will be willing to accept, the effort to discover a judicially acceptable "value" to serve as the so-called "rate base" has become a major feature of rate regulation.⁴ The result has been to immerse commissions in the quagmire of valuation. In the effort to translate confused and contradictory judicial criteria of "fair value" into an acceptable rate base, they have been compelled to embark on long drawn-out investigations and elaborate, but necessarily highly speculative, appraisals of the current cost of reproducing a given piece of utility property. Not only may the resulting appraisal be unsatisfactory to the utilities and thus invite litigation, but the rate base fixed by the court may be obsolete as soon as it is determined. Fluctuations in the price level may make the figure no longer current, and the process of valuation must be begun all over again. These ineffective efforts to control profits have diverted regulatory agencies from the more important task of shaping a scheme of rate control designed to secure efficient and economical utility service.⁵

with a view to enforcing reasonable rates and charges, it is not the owner of the property of public utility companies and is not clothed with the general power of management incident to ownership." *Infra* p. 1197.

4. For a review of cases and some indications of recent changes in the Supreme Court's attitude, see Hale, *The "Fair Value" Merry-Go-Round, 1898 to 1938* (1939) 33 ILL. L. REV. 517.

5. In the effort to escape litigated delay and expensive appraisals, utility commissions have increasingly turned in recent years to informal negotiation as a technique for effecting rate adjustments. Other devices, such as short-cut valuation methods and temporary rate orders, have also been tried. The attempt to employ a short-cut valuation method utilizing corrective price indices met a rebuff in *West v. Chesapeake & Potomac Tel. Co.*, 295 U. S. 662 (1935). Meanwhile, a number of states, including New York and Pennsylvania, have enacted temporary rate order statutes, and a temporary rate order of the Pennsylvania Utility Commission requiring a rate reduction has been upheld by the Supreme Court as not confiscatory. See *Driscoll v. Edison Light & Power Co.*, 307 U. S. 104 (1939). The temporary rate order enables utility commissions to avoid some of the more wasteful aspects of rate litigation. Pending a final determination of value, there is opportunity to substitute "a judgment from experience as against a judgment from speculation" as to the effect of the new rates. Temporary rate order statutes ordinarily provide a recoupment scheme to protect utilities against possible losses which may be sustained under the temporary rate schedules. See Harbeson, *The Supreme Court and Temporary Rate Orders* (1939) 15 J. LAND & P. U. ECON. 287; Comment (1939) 87 U. OF PA. L. REV. 456.

The present Supreme Court has yet to issue a clear-cut repudiation of *Smyth v. Ames*. In the *Driscoll* case the Court upheld the Pennsylvania temporary rate order by a statu-

The control of profits is, of course, an important aspect of public utility regulation. But even a successful effort to limit profits will not necessarily produce low rates, widespread utilization, and efficient service. An efficiently conducted enterprise with high profit margins may charge low rates and render generally satisfactory service. Conversely, an inefficiently conducted enterprise with small profit margins may impose high rates and give poor service. Where operating expenses are inflated, where there is considerable unutilized capacity, where the economies of large-scale production and diversity of demand are not exploited, consumers may find themselves burdened by high rates and inadequate service, even though the profit margins of the utility company are impressively small.

An effective regulatory policy which will secure efficient, widespread and economical service for the consuming public thus involves more than the regulation of profits. It must organize the utility to achieve the economies of optimum size and scale, eliminating wasteful duplication of facilities and minimizing unutilized capacity. It must hold operating expenses to the minimum consistent with efficient performance of the utility function. It must make adequate allowances for current maintenance and depreciation while providing safeguards which will prevent depreciation allowances from being capitalized in the rate base and translated into excessive rates for consumers. It must keep capital costs as low as possible and supervise the utility's capital structure. It must fix rates at the lowest point consistent with the legitimate requirements of the utility while providing a return sufficient to attract investors without encouraging over or under investment in utility facilities. It must deal with the marketing problem of adjusting the utility's rate structure to bring about the widest possible utilization of utility services. It must avoid undesirable discrimination in rates by a proper allocation of costs as between various classes of services and by a close study of the price of substitutes. The utility rate structure which it devises must be capable of flexible variation with phases of the business cycle. Finally, regulatory policy must make deliberate provision for encouraging efficiency and progressiveness in management.

tory construction which made it unnecessary to pass on the broader question "of the constitutionality of a temporary rate, based solely on depreciated original cost." To Mr. Justice Frankfurter, concurring, the Court's opinion appeared "to give new vitality needlessly to the mischievous formula for fixing utility rates in *Smyth v. Ames*." See 307 U. S. 104, 122 (1939). The Court also avoided taking a stand in *Pacific Gas & Electric Co. v. Railroad Comm.*, 302 U. S. 388 (1938). "In this instant case," said the Chief Justice, "we cannot say that the Commission in taking historical cost as the rate base was making a finding without evidence and therefore arbitrary." The Court refused to say whether the rates fixed were confiscatory but, in remanding the case for a finding as to confiscation, it gave some indication that rates fixed on a historical cost basis might be upheld as valid.

If these be accepted as proper objectives of public utility regulation, are they attainable under the present system of regulation? What are the barriers to their realization? Are these barriers formidable enough to make all efforts to patch up or improve the traditional technique of public utility regulation an adventure in futility? An analysis of these objectives in terms of the background of regulatory experience may help to provide the material for an answer to these questions.

It is remarkable how long delayed was recognition of the apparently elementary rule that wasteful duplication of facilities should be avoided. Duplication of facilities was the rule in the early stages of development of all the great public utilities; consolidation was the exception. Competition was relied upon to protect the interests of consumers. As consolidation took place and monopolies emerged, regulatory agencies were established to safeguard consumer interests. But public faith in competition still persisted and colored regulatory policy. Thus pooling agreements among railroads were prohibited by the Act of 1887,⁶ the Sherman Act⁷ was applied to railroad traffic agreements and proposed consolidations,⁸ even the Transportation Act of 1920,⁹ which in important respects manifested a new spirit, still retained many traces of the old desire to preserve competition.¹⁰

Regulation, in other words, did not exclude competition either immediately or entirely. Regulators were compelled to shoulder the burdensome heritage of previous unwise construction policies; they were rarely endowed with any power to effect a present reorganization of the industry along more efficient lines. Efforts to vest them with such power were resisted on the ground that they involved drastic encroachments on property rights and invaded the traditional domain of managerial freedom. The record of the Interstate Commerce Commission, one of the strongest of the regulatory agencies, illustrates the difficulties encountered in this field. Successful as that agency has been in its negative functions of checking extortionate rates and eliminating discrimination and similar abuses, it has failed to secure a more efficient and economical organization of the railroad industry.¹¹ Studies have revealed considerable competitive waste within the industry and suggested that substantial savings might be

6. 24 STAT. 380 (1887), 49 U. S. C. § 5(1) (1934).

7. 26 STAT. 209 (1890), 15 U. S. C. § 1 (1934).

8. See *United States v. Trans-Missouri Freight Ass'n*, 166 U. S. 290 (1897); *United States v. Joint Traffic Ass'n*, 171 U. S. 505 (1898); *Northern Securities Co. v. United States*, 193 U. S. 197 (1904).

9. 41 STAT. 481 (1920), 49 U. S. C. § 5(2) (1934).

10. *E.g.*, "In the division of such railroads into such system under such plan, competition shall be preserved as fully as possible." 41 STAT. 481 (1920), 49 U. S. C. § 5(2) (1934) (referring to plan for consolidating railroads into limited number of systems).

11. See Locklin, *Fifty Years of Government Regulation* (1938) 52 Q. J. ECON. 679, 685.

effected through consolidation, unification of terminals, direct routing, pooling of operations and facilities, and other "coordination" projects.¹²

The Transportation Act of 1920 was designed, at least in part, to facilitate such savings. It was not particularly successful. Carriers failed to utilize the opportunities presented by the legalization of pooling agreements, and the Interstate Commerce Commission was powerless to compel them to do so. Little was accomplished under the provision which gave the Commission power to require the joint use of terminals. Consolidation was left largely to the initiative of private management. Although piece-meal consolidation between railroads required the approval of the Interstate Commerce Commission, until 1933 consolidations achieved through the non-carrier holding company device escaped control. The Interstate Commerce Commission was instructed to prepare a comprehensive consolidation plan, but since the Commission was vested with no real authority to force its wishes upon the carriers, its plan was necessarily a paper plan. Traditional competitive business strategy continued to determine railroad alignments and realignments. The Interstate Commerce Commission was also vested with power to control constructions and abandonments, but the requirement of a certificate of convenience before new construction could be undertaken came too late. In a period when railroad mileage was on the decline, it resembled locking the stable door after the horse had been stolen. The Commission was also given power to compel new construction in order to insure an adequate transportation system, but this provision was so narrowly interpreted by the Supreme Court that much of its potential usefulness was lost.¹³ Thus, despite the affirmative planning and coordinating powers which the Transportation Act of 1920 vested in the Interstate Commerce Commission, relatively little progress was made toward placing the railroad industry on a more efficient basis.

The Emergency Railroad Transportation Act of 1933¹⁴ represented still another effort to eliminate the wastes of competition. Like its predecessor, this Act relied largely on voluntary coordination among the carriers. It set up a Federal Coordinator of Transportation with power to compel action. This power was ineffectual, however, in the face of resistance from both railroad labor and management. The valuable studies initiated by the Coordinator with their indication of significant possibilities for the elimination of waste and the improvement of service had

12. See EASTMAN, SUMMARY OF THE WORK OF THE FEDERAL COORDINATOR OF TRANSPORTATION UNDER THE EMERGENCY RAILROAD TRANSPORTATION ACT OF 1933 (1935) with studies there cited; Cunningham, *The Federal Coordinator's Contribution to Railroad Coordination* (1937) 15 HARV. BUS. REV. 265.

13. See *Interstate Commerce Comm. v. Oregon-Washington R. R.*, 288 U. S. 14 (1933).

14. 48 STAT. 211 (1933), 49 U. S. C. § 214 (1934).

very little immediate effect, and, in June 1936, the office of Coordinator was permitted to go out of existence.

This experience in the railroad field does not bode well for attainment of efficient and economical organization through the regulatory devices which have thus far been employed. Professor Locklin has recently suggested that "if the regulatory system fails because of its inability to cope with this problem of reorganizing the industry along more efficient lines, it will not be because regulation has failed in its traditional sphere, but because management failed to perform its functions properly, with the result that public authority is asked to assume functions which management should perform."¹⁵ Given the inability or unwillingness of railroad management voluntarily to undertake to reorganize the industry "along more efficient lines," is there any escape from the conclusion that, unless the more drastic alternative of government ownership is to be embraced, regulatory agencies must be vested with sufficient additional power to enable them to compel action? Such strengthening of regulatory authority would involve a redefinition of the traditional boundaries of regulation and management, but unless these boundaries are to be regarded as more sacred than the goal of efficient and economical service for the consumer, it is difficult to see how such a redefinition is avoidable. Regulation, after all, always involves some degree of interference with management. The only serviceable rule is that the degree of interference be adjusted to the necessities of each case.

Effective regulation must likewise concern itself with the underlying costs upon which rates and profits depend. It must analyze operating costs critically, with the purpose of reducing these costs to the lowest level consistent with efficient operation. Regulatory agencies have been slow to recognize the importance of such activity, perhaps because court decisions and jurisdictional barriers have frequently served to check activity in this field.

Some judicial sanction for a critical scrutiny of operating expense in rate cases was provided by the Supreme Court as early as 1892. In *Chicago & Grand Trunk Ry. v. Wellman* it said that a court, before declaring an act fixing maximum railroad rates unconstitutional as confiscatory, should inquire into the utility's operating expense account to see whether the utility's need for higher rates was caused by excessive salaries or other inflated expenses.¹⁶ This invitation to regulatory agencies to scrutinize operating expenses was acted upon in part. Requirements for filing operating and accounting reports with commissions became more rigid and detailed. These reports often yielded interesting data, but they did not in themselves reveal whether operating expenses were reasonable and regulatory agencies encountered considerable difficulty in developing

15. Locklin, *Fifty Years of Government Regulation* (1938) 52 Q. J. ECON. 679, 687.

16. 143 U. S. 339, 345 (1892).

criteria of reasonableness. In the electrical field, for example, regulatory agencies were rarely equipped with facilities to investigate such a basically important item as distribution costs; it was consequently almost impossible for them to develop any satisfactory gauge to judge the claims of utilities with regard to such elements of expense.

With the rapid growth of holding company systems and the development of intricate financial and service relationships between the holding company and its constituent operating companies, the task of controlling the expenses of operating companies became infinitely more difficult.¹⁷ The holding companies themselves were largely immune from regulation. As the fees which they imposed were treated as part of the operating expenses of the operating companies, they were reflected in the rate structure. State commissions, without control over the holding companies and without access to their records, found it difficult to question the propriety of these fees, though they were frequently determined without arm's length bargaining. Nor were the courts particularly helpful. In the *Southwestern Bell Telephone Co.* case, the effort of the Missouri commission to reduce certain fees paid under a license contract between the American Telephone & Telegraph Co. and a subsidiary received a stinging rebuke from the Supreme Court.

"There is nothing to indicate bad faith. So far as appears, plaintiff in error's board of directors has exercised a proper discretion about this matter requiring business judgment. It must never be forgotten that while the state may regulate with a view to enforcing reasonable rates and charges, it is not the owner of the property of public utility companies and is not clothed with the general power of management incident to ownership. . . .

"The Commission is not the financial manager of the corporation and it is not empowered to substitute its judgment for that of the directors of the corporation; nor can it ignore items charged by the utility as operating expenses unless there is an abuse of discretion in that regard by the corporate officers . . ." ¹⁸

This rule was later qualified in *Smith v. Illinois Bell Telephone Co.* where the Supreme Court requested the lower tribunal to make a specific finding as to whether the fees charged to operating companies for services bore a reasonable relation to the cost to the holding company of furnishing these services.¹⁹ A commission's right to inquire into payments to affiliated companies not themselves subject to its jurisdiction was definitely

17. See FEDERAL TRADE COMMISSION, *UTILITY CORPORATIONS*, SEN. DOC. NO. 92, 70th Cong., 1st Sess. (1928) §§ 72A, 73A; BONBRIGHT AND MEANS, *THE HOLDING COMPANY* (1932); Lilienthal, *The Regulation of Public Utility Holding Companies* (1929) 29 COL. L. REV. 404.

18. *Missouri ex rel. Southwestern Bell Tel. Co. v. Public Serv. Comm.*, 262 U. S. 276, 288-289 (1923).

19. 282 U. S. 133 (1930).

upheld in *Western Distributing Co. v. Public Service Commission of Kansas*. Mr. Justice Roberts ruled that where both parties to the service transaction constituted in effect a single business enterprise, scrutiny by the commission of double profits and inter-company charges was prerequisite to a satisfactory consideration of the reasonableness of retail rates.²⁰

These decisions thus open the way to commission inquiries into the reasonableness of charges imposed by holding companies on operating affiliates as part of the rate-making process. The Public Utility Holding Company Act,²¹ moreover, in providing for direct regulation of holding company transactions in all their ramifications seems to remove the obstacles to the effective control of improper charges through "service" or other types of contracts between holding companies and their affiliates. To the extent that the Act is successful in foreclosing use of the holding company as a device for the financial exploitation of operating companies, it may force utility managements to concentrate their efforts on actual operations, and thus contribute to the more efficient organization of the electrical industry.²²

Despite these recent improvements in the framework of control, the problem of regulating the reasonableness of operating expenses still presents a challenge which regulatory agencies have not adequately met. The present system of rate regulation, which in effect guarantees the utility a compensatory return on fair value, offers little temptation to utility management to keep down the expense account. Until regulatory agencies make extensive analyses of actual utility operations and develop yardsticks of reasonable expenditures, operating expenses can not be subjected to effective control.

Another *sine qua non* of effective rate regulation is commission control of expenditures for maintenance and depreciation. Such control is important not only because these items contribute significantly to a utility's operating expenses and thus help to determine the level of rates, but also because depreciation generally affects the rate base and thus is reflected in the net income which the utility will be permitted to earn.

Depreciation accounting is one of the most elusive and complex problems in public utility regulation. Confusion about the nature of depreciation has resulted in wide differences of opinion as to the most desirable method of its calculation. It is generally accepted that depreciation is an inevitable part of the cost of doing business, and that a utility is entitled to "include in its depreciation calculations all the factors which constitute the normal causes of plant retirement, wear and tear and other

20. 285 U. S. 119 (1932).

21. 49 STAT. 838 (1935), 15 U. S. C. §79 (Supp. 1938).

22. See Douglas, *Scatteration versus Integration of Public Utility Systems* (1938) 22 P. U. FORT. 255.

forms of physical depreciation as well as functional depreciation arising from obsolescence, inadequacy, or other functional or social factors that can reasonably be anticipated."²³ To the professional accountant, however, "the real purpose [of depreciation accounting] is to account appropriately for the fact that capital has expired,"²⁴ not to make provisions for future expenditures. The functions commonly attributed to depreciation accounting in many court and commission decisions — the financing of replacements, the preservation of continuity of service and physical efficiency, and the maintenance of capital investment — do not belong to depreciation as an accounting concept.²⁵

Regulatory agencies seek to control depreciation practices by prescribing accounting regulations. The Transportation Act of 1920 specifically authorizes the Interstate Commerce Commission to

"prescribe for carriers subject to this act, the classes of property for which depreciation charges may properly be included under operating expenses, and the percentages of depreciation which shall be charged with respect to each of such classes of property. . . . The carriers subject to this chapter shall not charge to operating expenses any depreciation charges on classes of property other than those prescribed by the Commission or charge with respect to any class of property a percentage other than that prescribed therefor by the Commission. . . ." ²⁶

The Federal Communications Commission and the Federal Power Commission are endowed with similar powers.²⁷

Commission control over depreciation practices is, like other aspects of rate regulation, subject to judicial review. Supreme Court pronouncements on depreciation are therefore very significant in appraising the effectiveness of regulatory agencies in this field. While the Court, recognizing the necessity of provisions for depreciation, has indicated that it is primarily interested in the constitutionality of depreciation provisions rather than in the details of calculation, its conception of the function of depreciation accounting has not always been reconcilable with the best professional opinion in the field. Thus in *United Railway & Electric Co. of Baltimore v. West*, Mr. Justice Sutherland, speaking for the majority, set forth the view that the proper basis for depreciation calcula-

23. MASON, PRINCIPLES OF PUBLIC UTILITY DEPRECIATION (1937) 53-54.

24. *Id.* at 49.

25. "There is a very real problem in connection with the financing of replacements of retired property with which a public utility commission may well concern itself, particularly as a means of insuring adequate and continuous service, but it should be considered as quite distinct from, or at least not more than supplementary to, the problem of depreciation." *Id.* at 50.

26. 41 STAT. 493 (1920), 49 U. S. C. § 20(5) (1934).

27. 48 STAT. 1078 (1934), 47 U. S. C. § 220 (1934) (Federal Communications Comm.); 49 STAT. 855 (1935), 16 U. S. C. § 825a (Supp. 1938) (Federal Power Comm.).

tion was present or reproduction cost, so that adequate provision might be made for the financing of replacements of property. He stated:

"The allowance for annual depreciation made by the Commission was based upon costs. The court of appeals held that this was erroneous and that it should have been based upon the present value. The court's view of the matter was plainly right. One of the items of expense to be ascertained and deducted is the amount necessary to restore property worn out or impaired, so as continuously to maintain it as nearly as practicable at the same level of efficiency for the public service. The amount set aside periodically for this purpose is the so-called depreciation allowance. Manifestly, this allowance cannot be limited by the original cost, because, if values have advanced, the allowance is not sufficient to maintain the level of efficiency. The utility is entitled to see that from earnings the value of the property invested is kept unimpaired, so that at the end of any given term of years, the original investment remains as it was at the beginning. . . . This naturally calls for expenditures equal to the cost of the wornout equipment at the time of replacement; and this, for all practical purposes, means present value. It is the settled rule of the court that the rate base is present value, and it would be wholly illogical to adopt a different rule for depreciation."²⁸

Mr. Justice Brandeis's dissenting opinion levelled scathing criticism at this theory. Citing the experience of business men and prevailing professional opinion, he pointed out:

"By those accustomed to read the language of accounting a depreciation charge is understood as meaning the appropriate contribution for that year to the amount required to make good the cost of the plant which must ultimately be retired . . . to attempt to make the depreciation account reflect economic conditions and changes would entail entry upon new fields of conjecture and prophecy which would defeat its purposes . . ."²⁹

The Supreme Court's views with respect to the adjustment of past errors in depreciation estimates also seem unnecessarily rigid. In *Board of Public Utility Commissioners v. New York Telephone Co.*,³⁰ the Court held that the consumer had no equitable interest in a utility's depreciation reserve, and that even when such an accumulated reserve was admittedly excessive, the company could not be forced to reduce its depreciation allowance and charge rates that would otherwise be confiscatory in order to offset the excessive past accumulation of depreciation. Mr. Justice Butler said:

"The just compensation safeguarded to the utility by the fourteenth amendment is a reasonable return on the value of the property

28. 280 U. S. 234, 253-254 (1930).

29. 280 U. S. 234, 267-268, 270 (1930).

30. 271 U. S. 23 (1926).

used at the time that it is being used for the public service, and rates not sufficient to yield that return are confiscatory rates for the future The property or money of the company represented by the credit balance in the reserve for depreciation cannot be used to make up the deficiency."³¹

The force of this opinion was somewhat mitigated, however, by the Court's later declaration in *Lindhimer v. Illinois Bell Telephone Co.*³² that "the questionable amounts annually charged to operating expenses for depreciation are large enough to destroy any basis for holding that it has been convincingly shown that the reduction in income through the rates in suit would produce confiscation."³³

Mr. Chief Justice Hughes also pointed out in this case that excessive depreciation allowances not only mean high rates for consumers through increase of operating expenses, but also may be used to inflate the rate base and thus be reflected in still higher rates for the future. He said:

"If the amounts charged to operating expenses and credited to the accounting for depreciation reserve are excessive, to that extent subscribers for the telephone service are required to provide, in effect, capital contributions, not to make good losses incurred by the utility in the service rendered and thus to keep its investment unimpaired, but to secure additional plant and equipment upon which the utility expects a return."³⁴

The courts generally require some depreciation deductions in calculating the "rate base" upon which utilities will be permitted to earn a return. But whether the deduction shall be measured by "observed depreciation" as determined from a physical inspection of the property, or by the size of the "depreciation reserve" which the company has been permitted to accumulate, has not yet been conclusively resolved.³⁵ The two computations may yield very different results. Consumer interests seem to require consistent treatment of depreciation from both the operating expense and the "rate base" standpoint. In the words of the Interstate Commerce Commission, ". . . The same elements which produce depreciation for accounting purposes likewise produce depreciation for valuation purposes, and they cannot properly be observed and taken into account in the one use and at the same time be overlooked and neglected in the other. . . ."³⁶

Since regulatory agencies have had to govern their treatment of the problem by prevailing legal standards, as expressed in court decisions,

31. 271 U. S. 23, 31-32 (1926).

32. 292 U. S. 151 (1934).

33. 292 U. S. 151, 175 (1934).

34. 292 U. S. 151, 169 (1934).

35. For excellent summary of conflicting court and commission decisions, see FCC, TELEPHONE RATE & RESEARCH DEPT., FUNDAMENTAL LEGAL PROBLEMS UNDERLYING THE REGULATION OF INTERSTATE TELEPHONE RATES (1938) 1-121.

36. Depreciation Charges of Telephone Companies, 177 I. C. C. 351 (1931).

the results of imposing ill-founded judicial ideas of depreciation upon utility administration have frequently been detrimental to effective regulation of depreciation, both as an item of operating expense and as a factor in rate base calculations. The views suggested by the court in the *Lindheimer* case and expressed in Mr. Justice Brandeis's dissent in the *West* case promise a more realistic attack on the problem. If these views receive widespread acceptance the way will be open to effective control of this important item in rate regulation.

Effective regulation requires control of capital costs as well as of operating expenses and depreciation, for, from the consumer's viewpoint, there is no essential difference between capital costs and operating expenses.³⁷ Inasmuch as both are part of the cost of doing business, both must be kept at the minimum consistent with efficient performance if consumer rates are to be lowered. Efficient operation of a utility ordinarily requires that earnings be sufficient to cover essential capital costs, maintain credit, and enable the company to secure new capital on reasonable terms.

Regulatory agencies may maintain capital costs at a proper and reasonable level through supervision of security issues. Those agencies which possess and have exercised this power over a period of years are particularly competent to determine earning requirements with reference to reasonable capital costs. Massachusetts, for example, which has a long record of strict control over security issues by public utility companies, "has followed, essentially, the principle of regulating utility rates on the basis of providing for the annual costs of fixed charge capital, plus a return on common stock sufficient to meet the demands of the securities markets The control of rates has been coordinated with the control of security issuance."³⁸ In states where there has been no such control over security issues, the task of relating earning requirements to reasonable capital costs presents serious problems which have been intensified by the Supreme Court's method of ascertaining earning requirements. While the so-called Massachusetts rule—that it is the money honestly and prudently invested and devoted to the public use that is entitled to earn

37. "In essence, there is no difference between the capital charge and operating expenses, depreciation and taxes. Each is a part of the current cost of supplying the services; and each should be met from current income. When the capital charges are for interest on the floating debt paid at the current rate, this is readily seen. But it is no less true of a legal obligation to pay interest on long term bonds, entered into years before the rate hearing and to continue for years thereafter, and it is true also of the economic obligation to pay dividends in stock, preferred or common. . . . Where the financing has been proper, the cost to the utility of the capital, required to construct, equip, and operate its plant, should measure the rate of return which the constitution guarantees opportunity to earn." Mr. Justice Brandeis concurring in *Missouri ex rel. Southwestern Bell Tel. Co. v. Public Serv. Comm.*, 262 U. S. 276, 306 (1923).

38. FCC, TELEPHONE RATE & RESEARCH DEPT., THE PROBLEM OF THE RATE OF RETURN IN PUBLIC UTILITY REGULATION (1938) 5.

a fair return — has received approval in minority opinions of the court,³⁹ the majority, until recently, has tended to give much more weight to reproduction cost as the base for computing the utility's earning requirements.⁴⁰ The result has been to focus commission energies on valuation at the cost of other aspects of regulation.

Particularly neglected was the possibility of relating earning requirements to reasonable capital costs through adjustments in the "rate of return."⁴¹ Under the "fair return on fair value" formula, it is obvious that the relationship between "fair return" and "fair value" is that of multiplier and multiplicand. Practically, a slight variation in the rate of return may be equivalent to a very considerable variation in the "rate base." Thus, for example, an increase in the rate of return from 6 to 8 per cent would equal a $33\frac{1}{3}$ per cent increase in the rate base. Variations in the rate of return clearly offer considerable opportunity for manipulating the total return allowed to the utility.

The process of adjusting the rate of return has been hindered by vague and inconclusive Supreme Court pronouncements such as that in the *West* case:⁴²

"What will constitute a fair return in a given case is not capable of exact mathematical demonstration. It is a matter more or less of approximation about which conclusions may differ. The Court in the discharge of its constitutional duty on the issue of confiscation must determine the amount to the best of its ability in the exercise of a fair, enlightened, and 'independent' judgment as to both law and facts."⁴³

The Court has on occasion developed somewhat the constituents of a "fair, enlightened, and 'independent' judgment." It has stated that a utility is entitled to charge such rates as will permit it to earn as much on its investment as is being generally realized by nearby non-speculative private businesses. It has conceded that the proper rate might vary with changes in investment opportunities, the money market or general business conditions.⁴⁴ But this is as far as the courts have guided the process of rate making. Aside from a very few cases in which attempts have been made to base rates upon studies of capital costs or examination of cor-

39. See note 37 *supra*.

40. For discussions of valuation problem see BAUER AND GOLD, PUBLIC UTILITY VALUATION FOR PURPOSES OF RATE CONTROL (1934); BONDRIGHT, THE VALUATION OF PROPERTY (1937).

41. See FCC, TELEPHONE RATE & RESEARCH DEPT., THE PROBLEM OF THE RATE OF RETURN IN PUBLIC UTILITY REGULATION (1938); SMITH, THE FAIR RATE OF RETURN IN PUBLIC UTILITY REGULATION (1931).

42. 280 U. S. 234 (1930).

43. 280 U. S. 234, 251 (1930).

44. *Bluefield Waterworks & Improvement Co. v. Public Serv. Comm.*, 262 U. S. 679, 692 (1923).

porate earnings in relation to market prices, the rate of return is usually, as the F.C.C.'s telephone research department has pointed out,⁴⁵ an arbitrary figure plucked from the air.

The haphazard nature of rate-of-return determinations reflects the absence of basic information on the matter of capital costs. A prerequisite to satisfactory provision for reasonable capital costs through adjustments in the rate of return would be a systematic collection of accurate data bearing on such matters as the financial history of the company, the historical costs of debt and capital stock where available, the current market yields on the company's securities, studies of capital costs of other companies with similar risk characteristics, the effect on investors' demand of the special circumstances surrounding the operation of the particular industry, etc. It is difficult to see how the choice of a "rate of return" without such data can be more than an arm-chair guess.

Availability of this data would, moreover, facilitate direct control of the regulated utility's capital structure through more intelligent appraisal of new security issues. A commission fortified with knowledge of the financial markets and the demands of investors in general as well as of the financial needs of the particular utility would be equipped to play a much more positive role in supervising a utility's capital structure. It might help to stimulate the transfer of high-cost into low-cost capital;

45. FCC, TELEPHONE RATE & RESEARCH DEPT., THE PROBLEM OF THE RATE OF RETURN IN PUBLIC UTILITY REGULATION (1938) 2-3. The Commission has listed "ten judicially recognized principles surrounding the problem of return" which are summarized as follows (FCC, TELEPHONE RATE & RESEARCH DEPT., FACTORS UNDERLYING THE "RATE OF RETURN" IN PUBLIC UTILITY REGULATION (1938) vi-vii):

1. A proper rate of return (percentage) or return (compensation) is a flexible concept and not a static rule.
2. Fixing the proper return necessitates the exercise of "enlightened judgment" in each case.
3. Current conditions are controlling, and general conditions affecting all business should be considered.
4. The return should be sufficient to assure confidence in the financial soundness of the utility, maintain its credit and attract the required capital.
5. The propriety of the allowed return depends largely upon the circumstances, locality and risk of the utility enterprise.
6. The return should be equal to that generally being made at the same time and in the same general region on investments in other enterprises which have corresponding risks.
7. The historical cost of money to the utility, and the current cost of money should be considered.
8. A utility's corporate structure, financial history and past operations should be considered.
9. The return should accomplish, among other things, due recognition of efficiency or lack of efficiency in management.
10. The future prospects of the utility, its taxes and development, the potential stimulation from reduced rates and the character of the service should be considered.

by developing a program of credit strengthening over a period of years — possibly implemented by a system of equalization reserves designed to iron out fluctuations in income — it could both provide investors with greater security and reduce the costs of securing capital to consumers.

Control of costs or expense, however, is but one side of the problem of utility regulation. The other side is the control of revenue, the problem of pricing public utility services. Regulatory agencies ordinarily try to fix rates at a level which will meet the utility's reasonable expenses and the legal requirement of a fair return on fair value. This objective is, of course, predicated on the assumption that the rate structure of the utility can be adjusted to yield the revenues necessary to cover these requirements. This assumption may be justified where the utility is serving an expanding market; it may be quite unjustified where the utility operates in a static, declining, or highly competitive market, or where it is exposed to marked cyclical fluctuations in revenue.

Granted that a utility's revenue requirements can be met, the question remains how best to adjust the rate structure to meet them. For, at any given time, a utility's necessary revenue requirements may be secured at varying rate levels and with different combinations of class rates. Which should be chosen? What considerations govern the utility in pricing its services? What considerations govern or ought to govern the regulatory agency in shaping utility pricing policies?

Rate regulation, to be effective, must take the economic behavior of the utility under consideration as its point of departure. In the electrical industry, for example, utilities ordinarily operate at decreasing cost. As Professor de Chazeau has pointed out: "When the utility operates at decreasing cost and demand is elastic with a fall in price [often characteristic in electrical utilities], cost may be price determined, and an increase in required net revenue may be most efficiently attained by a reduction in the level of rates."⁴⁶ The electrical utility is dealing, moreover, not with one market but with a whole series of markets, each with its peculiar characteristics. Demand for power in the wholesale industrial market varies greatly with boom and depression; the demands of domestic consumers are much less affected by cyclical fluctuations. The competition of substitutes may be very uneven in different segments of the market. While the industrial consumer dissatisfied with the rates may almost always install his own power plant, the domestic consumer ordinarily lacks such bargaining power. The electrical utility anxious to retain industrial business must sell power at a rate equal to or less than the cost to the industrial consumer of generating his own power. But unless the rates set for industrial users cover their full share of the

46. de Chazeau, *The "Earning Base" as a "Rate Base": Reply* (1938) 52 Q. J. ECON. 355; see de Chazeau, *The Nature of the "Rate Base" in the Regulation of Public Utilities* (1937) 51 Q. J. ECON. 298.

common costs attributable to that class of business, domestic consumers may be burdened with unfairly high rates. The behavior of the segment of the market composed of domestic consumers dictates its own special treatment. Demand is ordinarily quite inelastic when the price of power rises but may demonstrate marked elasticity with a fall in price. Elasticity of demand, moreover, is not only a function of the price of services; it also depends on the cost of standard appliances. Where these costs are reduced and appliances brought within the reach of consumers who could not previously afford them, the result (as experience in the Tennessee Valley has demonstrated) may be a striking expansion of demand for utility service.

Any realistic program of regulation must therefore consider all the pertinent information which can be obtained on such matters as shifting price levels, substitute services, market characteristics, and elasticity of demand. The regulatory agency, no less than the utility, must devote its attention to marketing problems; it must attempt to predict accurately the effect of rate changes upon volume of sales and revenue. Although long run interests of consumers dictate a price policy of lower charges and higher consumption, regulatory agencies frequently find it difficult to persuade utility managements to make the transition from a high price-low utilization policy, to lower prices and fuller utilization. The reluctance of utility managements to experiment with lower rates is understandable. A considerable interval may elapse before the stimulating effect of lower rates is noticeably felt. If the charges imposed by the commission during this interval turn out to be inadequate, the utility enjoys no legal right to recover the deficit over a future period.⁴⁷ The legal doctrine of "spot" control of rates makes past profits and past losses irrelevant; the reasonableness of rates is measured by the net revenue at the time the rate litigation is before the court. Legal barriers of this character tend to check rate experimentation. But there is indication in recent decisions that these barriers may not be as rigid as is commonly supposed. "We are not unmindful," Mr. Justice Cardozo pointed out in *West Ohio Gas Co. v. Public Utility Commission of Ohio*, "of the argument . . . that the effect of lower prices may be to swell the value of the business, and by thus increasing revenues enhance the ultimate return."⁴⁸ While this contention was denied in the *West Ohio Gas* case because of lack of evidence of the effect of reducing prices, the intimation is nonetheless present that a more careful marshalling of

47. "The just compensation safeguarded to the utility by the Fourteenth amendment is a reasonable return in the value of the property used at the time that it is being used for the public service, and rates not sufficient to yield that return are confiscatory. . . . Past losses cannot be used to enhance the value of the property or to support a claim that rates for the future are confiscatory. . . ." *Board of Public Utility Comm'rs v. New York Tel. Co.*, 271 U. S. 23 (1926).

48. 294 U. S. 79, 82-83 (1935).

data by the Commission, perhaps a close analysis of analogous market situations, might have changed the result. Willingness on the part of the courts to sanction rate experimentation would seem to depend partially upon the ability of commissions to present pertinent information indicating the likelihood of success for these experiments.

Rate experimentation designed to put a "low rate-full utilization" program into effect largely depends on cooperation between commissions and utilities in the solution of long-range marketing problems. Unless a utility has some assurance that the prescribed rates will yield the necessary return or that it will not be compelled to suffer a loss of income as a result of rate readjustments, it will prefer litigation to experimentation. The regulatory agency seeking voluntary rate reductions must not only demonstrate the advantages to consumers of the pricing policy which it advocates; it must also show that the utility itself has little to fear from such a policy. The agency must provide some assurance that the long-run earning requirements of the utility will be protected, even though actual earnings in a given year may fall below a compensatory return. It must also be willing to readjust rates if, after a sufficient lapse of time, the new schedules fail to yield the required return. It must, in short, provide incentive to utility managers to undertake rate experimentation.

Utility price problems are by no means confined to the domestic or rural market. Electric utilities which serve an industrial market are not only compelled to meet the competition of substitutes but are increasingly affected as well by the swings of the business cycle. Unfortunately, regulatory agencies have given relatively little attention to the wholesale industrial market. Inasmuch as industrial rates are determined by "competitive forces," agencies have therefore considered them *per se* "fair and reasonable." When it has been found necessary to adjust rates so as to assure a utility a fair return, those adjustments have generally been made in the domestic market. Unless, however, a proper proportion of common costs is allocated to wholesale power consumers, domestic users may be subjected to unfair burdens and capital investment may suffer severe maladjustment.

Cyclical considerations further complicate the problem. The sharp decline in the demand for power caused by business depression exposes the utility to severe and inevitable losses. Indeed, a decline in the cost of substitute fuels during a depression may force a utility to reduce its rates to prevent its industrial customers from installing their own power plants. A regulatory policy which is calculated to minimize the effect of the business cycle on utility revenue and to relieve the domestic consumer of the heavy fixed charges of a plant expanded to provide for boomtime industrial consumption, must increase charges to industrial consumers during periods of prosperity to a level as high as competing

substitutes will permit. There is much to be said for a system of equalization reserves, applied particularly to the wholesale power market, which would set aside the surplus earnings of a boom period to provide for the inevitable deficiencies in power revenue during depressions. Unless the depression drop-off in industrial revenues is anticipated in some such way, utilities may attempt to compensate for their industrial losses through increases in domestic rates. Other prices may meanwhile be falling; purchasing power may have suffered a sharp contraction; consumers with sharply reduced incomes may clamor for rate reductions. Rate increases will no doubt be difficult to effect under such circumstances, but even the maintenance of rates at prosperity levels may burden consumers and contribute to price maladjustments.

The demand for cyclical adjustments in rates finds some sanction in judicial admissions that rates reasonable during prosperity may be excessive during depression or that reasonable depression rates may be confiscatory in boom periods.⁴⁹ But cyclical considerations have yet to receive the attention they deserve.⁵⁰ The fact that the electrical industry is still in a phase of secular expansion has to some extent mitigated the impact of depression on the industry and diverted attention from the problem. But the industry is by no means immune to cyclical disturbances, and the importance of framing a policy designed to cope effectively with cyclical requirements becomes more pressing as the industry nears maturity. The task is a difficult one. The mysteries of business cycles are yet to be fully revealed, and public utility commissions usually are poorly equipped to probe either their breadth or depth. Few commission staffs are capable of dealing continuously with the long term economic and business problems of the utilities subject to their jurisdiction; they are even more poorly equipped to cope with the complex interrelationships between utility price policies and other prices. Certainly, one of the first steps in any program for the improvement of rate regulation is the establishment of able rate research bureaus for those commissions which do not now possess them. Utility regulation can scarcely realize its full potentialities until commissions are able to make intelligent and continuous analyses of marketing problems, pricing policies and operating costs, which will enable them to view the utility problem in a wider economic perspective.⁵¹

49. See *Ohio Bell Tel. Co. v. Public Util. Comm.*, 131 Ohio St. 539, 598, 3 N. E. (2d) 475, 500 (1936); *Illinois Commerce Comm. v. Public Serv. Co.*, 4 P. U. R. (N.S.) 1, 69 (Ill. 1934); FCC, TELEPHONE RATE & RESEARCH DEPT., FACTORS UNDERLYING THE "RATE OF RETURN" IN PUBLIC UTILITY REGULATION (1938) 8-12.

50. See Lilienthal, *Regulation of Public Utilities During the Depression* (1933) 46 HARV. L. REV. 745; BERNSTEIN, PUBLIC UTILITY RATE-MAKING AND THE PRICE LEVEL (1937).

51. See RUGGLES, ASPECTS OF THE ORGANIZATION, FUNCTIONS, AND FINANCING OF STATE PUBLIC UTILITY COMMISSIONS (1937), especially c. VI.

The conception of the regulatory function which has been presented here implies a much more active and vigorous role for the regulatory agency than is commonly envisaged. It visualizes regulation, not in terms of lodging all policy-making initiative with private management and concentrating on the limitation of profits after they have accrued, but as a process in which the regulatory agency shares in the formulation of policy and assumes affirmative responsibility for promoting efficiency in the organization of the utility itself. The regulatory task, in such a view, involves positive efforts to reduce the underlying costs upon which rates depend. It requires the formulation of standards of operating efficiency by which the reasonableness of operating expenses can be appraised and management held accountable for results; it means effective control of allowances for maintenance and depreciation; it involves regulation of the capital structure of the utility and efforts to reduce the costs of securing capital without drying up the supply of funds for necessary plant expansion. It also contemplates research into utility rate and marketing problems and continuous concern with problems of unutilized capacity, programs of market development, elasticity of demand, prices of substitute fuels, cyclical movements and other factors which affect the formulation of utility price policy. The focus, in short, is on the actual operations of the utility, and on methods of improving those operations.

Some changes will perforce be necessary before this approach to the regulatory function becomes practicable. The agencies implementing such a program must have abler staffs and larger financial resources than most commissions now possess. The scope of their powers will require broadening; many agencies will be forced to reshape their conceptions of the regulatory task. And the legal imperatives which still dictate preoccupation with the problem of valuation will have to be relaxed.

Such changes may be difficult to achieve. Perhaps they are impossible of attainment. Unless the possibilities in this direction are fully explored, however, the outlook for the present system of regulated private ownership appears gloomy. It must be conceded that the present system of regulation offers many inducements to utility managements to maximize their profits by litigation and few inducements to reduce their costs through efficient operation. The paradoxical situation which permits an inefficient plant charging high prices generally to earn as large a return on its "rate base" as an efficient plant charging low prices offers utilities little incentive to improve their operating standards. Commissions, to be sure, have authority at present to penalize inefficiency by excluding improper items from operating expenses, and the Supreme Court and many commissions have recognized "efficient and economical management" as a factor in determining the return permitted to a utility.⁵² But relatively

52. "The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, *under efficient and economical manage-*

little effort has been made to develop criteria for judging "the efficiency" of management. Nor is it altogether clear that schemes which merely increase the return allowed to stockholders in efficiently operated utilities necessarily provide the most effective incentives to managerial efficiency. In large corporations with widespread ownership of stock, such schemes may "result in nothing more than a windfall to those stockholders who have taken no part in the conduct of the company's affairs and hence have done nothing to promote the efficiency for which the reward has been allowed."⁵³ Ownership, where it is separated from management, will presumably be led by the hope of increased rewards to promote the more efficient exercise of management functions. But there is no assurance that management, which may be primarily responsible for heightened efficiency, will be directly rewarded. Management must look for its share of reward to the stockholders whence it may or may not be forthcoming. It may well be, as Morgan has suggested, that managerial efficiency can be most effectively promoted through a scheme of direct awards bestowed by regulatory agencies for exceptional performance.⁵⁴ Such a scheme would raise the problem of how to measure managerial efficiency; it would require the elaboration of standards of performance and determination of the degree to which individual utilities meet these standards. The task would scarcely be easy, but it at least offers a more direct attack on the problem of efficiency than is achieved by merely varying the rates of return to stockholders.

The sliding scale plan is often put forward as an effective technique for stimulating managerial efficiency. Under the Washington sliding scale plan, which has attracted attention because of the rate reductions which have attended its application, a basic or "normal" rate of return is established on an agreed base.⁵⁵ Super-normal earnings of a given

ment, to maintain and support its credit and to enable it to raise the money necessary for the proper discharge of its public duties." [Italics supplied]. Mr. Justice Butler in *Bluefield Waterworks & Imp. Co. v. Public Serv. Comm.*, 262 U. S. 679, 693 (1923); cf. Mr. Justice Brandeis concurring in *Missouri ex rel. Southwestern Bell Tel. Co. v. Public Serv. Comm.* 262 U. S. 276, 291 (1923): "The compensation which the constitution guarantees an opportunity to earn is the reasonable cost of conducting the business. Cost includes not only operating expenses, but also capital charges. Capital charges cover the allowance, by way of interest, for the use of the capital, whatever the nature of the security issued therefor; the allowance for risk incurred; and enough more to attract capital. *The reasonable rate to be prescribed by a commission may allow an efficiently managed utility much more.*" [Italics supplied]. For summary of court and commission decisions on this problem see FCC, TELEPHONE RATE & RESEARCH DEPT., FACTORS UNDERLYING THE "RATE OF RETURN" IN PUBLIC UTILITY REGULATION (1938) 46-49.

53. FCC, TELEPHONE RATE & RESEARCH DEPT., *op. cit. supra* note 41, at 17.

54. See MORGAN, REGULATION AND THE MANAGEMENT OF PUBLIC UTILITIES (1923), especially c. VII.

55. See BUSSING, PUBLIC UTILITY REGULATION AND THE SO-CALLED SLIDING SCALE (1936) for more elaborate exposition and criticism of the system. The policy of sharing

year go to stockholders in that year, but rates are subsequently reduced over a period of years to absorb the super-normal earnings of that year. If, however, earnings on the rate base fall below the "normal" return, the commission must increase rates sufficiently to yield the agreed "normal" return. Under this plan, super-normal profits go to stockholders rather than to management or employees, and no effort is made to differentiate between increased profits which are due to managerial efficiency and profits attributable to industrial fluctuations or other factors apart from management. No penalty is imposed for sub-standard performance; if managerial inefficiency causes the company to earn less than the "normal" return, the commission is required to raise rates in order to increase its income to the required level. The plan gives inadequate attention to the regulated utility's capital structure; it offers no incentive to reduce capital costs or debt. Finally, it appears peculiarly inapplicable to that segment of the utility market—industrial power—which is especially exposed to cyclical fluctuations. Under the sliding scale plan, rates on industrial power will be reduced during a boomtime period of rising utility profits. It is precisely during such periods, however, that industrial rates should be increased to provide a reserve against the losses which will be suffered in the industrial market when depression comes.

Until these deficiencies in the sliding scale plan are remedied by appropriate adjustments, the plan must be regarded as seriously inadequate. But despite its present defects, the plan is to be preferred to the conventional regulatory procedures with their constant and vexatious redeterminations of the rate base and their long drawn-out, costly controversies.

It is unlikely that a search for expedients to improve the regulatory technique will reveal any single panacea. The sliding scale in its present form is certainly not the answer. The problems of public utility regulation ramify in as many directions as the problems of public utility operation—regulators must concern themselves with all of them. This does not mean that the success of regulation depends upon the transfer of all managerial initiative from the utilities to the regulatory agencies. It does mean that the regulatory agency must be sufficiently expert in the premises to hold management to a standard of reasonable achievement over the whole range of its activities. It also means that regulatory agencies have a creative as well as a disciplinary function to perform, that they must be prepared not only to intervene to check irregularities and abuses, but also to collaborate with and, if necessary, guide utility managements in achieving the most efficient utilization of utility resources.

the rewards of efficiency with management and employees is an integral feature of the British use of the sliding scale technique; it is not, however, employed in the American version of this regulatory device.