1982

Economic Efficiency as the Primary Objective of State Utility Commission Policy

Neil Hamilton
Irving Colacci

Follow this and additional works at: http://open.mitchellhamline.edu/wmlr

Recommended Citation
Available at: http://open.mitchellhamline.edu/wmlr/vol8/iss2/3
ECONOMIC EFFICIENCY AS THE PRIMARY OBJECTIVE OF STATE UTILITY COMMISSION POLICY

NEIL HAMILTON† & IRVING COLACCI‡

I. INTRODUCTION ....................................... 309
II. DEFINITIONS AND PRIORITIES ......................... 311
III. ECONOMIC EFFICIENCY AS THE PRIMARY GOAL OF UTILITY REGULATION ................................ 315
A. Natural Monopoly .................................. 316
B. Non-Economic Models .............................. 317
   1. The Political Model ............................ 317
   2. Social/Consumerist Model ....................... 320
   3. Free Market Model ............................. 322
   4. Summary ...................................... 322
IV. APPLICATION OF THE ECONOMIC EFFICIENCY MODEL 323
A. Marginal Cost Pricing .................. 324
B. Production Efficiency .................. 327
V. CONCLUSION ........................................ 329

I. INTRODUCTION

Utility regulation in the United States reflects the influence of a wide range of social, political, and financial concerns and conditions. During the past decade the cost of new plant and resources has increased, resulting in a financially weakened utility industry.¹

† Distinguished Professor of Administrative Law, William Mitchell College of Law. Professor Hamilton received his B.A. degree from Colorado College in 1967, his J.D. degree from the University of Minnesota in 1970, and his M.A. degree from the University of Michigan in 1979.
‡ Member, Minnesota Bar. Mr. Colacci received his B.A. degree from Augsburg College in 1974 and his J.D. degree from William Mitchell College of Law in 1982. He is currently Law Clerk to the Honorable Lawrence R. Yetka of the Minnesota Supreme Court. At the conclusion of his judicial clerkship, Mr. Colacci will become an associate in the Minneapolis law firm of Dorsey & Whitney.
This was accompanied by a rise in consumer interest and participation in the regulatory process, further increasing costs. The regulatory process must be improved to more effectively address recent trends and developments in the industry.

Before implementing any meaningful changes, the overall objectives of utility regulation must be examined. Objectives must be clearly and operationally defined before the regulatory process will utilize them effectively and consistently. A laundry list of potentially conflicting and impracticable objectives serves little purpose. It is essential to indicate priorities among these objectives to guide the actions of the Minnesota Public Utilities Commission and ensure accountability. Two objectives seem appropriate for consideration by the commission: (1) economic efficiency, including allocative efficiency, production efficiency, and a limitation on profits (the satisfaction of the revenue requirement); (2) fairness in pricing, broadly defined as equal treatment of equals; and (3) accountability.

Both practical problems of implementation and conflicts among objectives are present. For example, the use of pure marginal cost pricing will only fortuitously approximate the revenue requirement. There is also controversy concerning whether there exists any practicable method of determining marginal costs. These is-


2. The concept of accountability has been addressed by several scholars. For accountability to be a practical tool in regulation, firms must be required to report on their actions and explain or justify actions taken. See W. ROBSON, NATIONALIZED INDUSTRY AND PUBLIC OWNERSHIP 190 (1960). Also, the concept must include the power "to prescribe the standards of expectation" against which to compare the firm, R. JAILE, MANAGEMENT OF STATE ENTERPRISES IN INDIA 912 (1967), and the power to penalize inadequate performance and reward excellence. Id. at 93; R. POZEN, LEGAL CHOICES FOR STATE ENTERPRISES IN THE THIRD WORLD 28 (1976). Application of the accountability concept is meaningless if objectives are not clearly articulated or consist of merely a listing of several concerns without indicating the order in which policies are to be pursued. See N. HAMILTON & P. HAMILTON, GOVERNANCE OF PUBLIC ENTERPRISE 25 (1981); see also Ethyl Corp. v. EPA, 541 F.2d 1 (D.C. Cir. 1975) (Bazelon, J., concurring), cert. denied, 426 U.S. 941 (1976); R. SCHMALENSEE, THE CONTROL OF NATURAL MONOPOLIES 18-19 (1979). See generally 1 K. DAVIS, ADMINISTRATIVE LAW TREATISE 207-08 (2d ed. 1978). It thus becomes important to adhere to one primary objective in order to improve accountability.


4. See, e.g., ONTARIO ENERGY BOARD, REPORT TO THE MINISTER OF ENERGY ON PRINCIPLES OF ELECTRICITY COSTING AND PRICING FOR ONTARIO HYDRO 50 (1979).
sues are discussed later.

This article will define and indicate priorities among the three above-mentioned objectives: economic efficiency, fairness in pricing, and accountability. It then discusses: (1) why economic efficiency should be the primary objective of utility regulation; (2) how the concept is more fully defined; and (3) why obstacles in applying marginal cost pricing do not compel abandonment of economic concepts.

II. DEFINITIONS AND PRIORITIES

The primary objective of utility regulation should be economic efficiency. This overall objective embodies two principal conditions—allocative efficiency and production efficiency. Allocative efficiency is implemented through the use of marginal cost pricing. Basing prices on the incremental cost of service to various classes of users facilitates rational consumer responses and decisions by giving consumers accurate price signals. This provides an inherent pressure on the industry to respond to demand in an allocatively efficient manner.

The production efficiency concept seeks lowest cost production, minimal waste, conservation, and movement towards the most justifiable use of available resources. This type of efficiency is accomplished by scrutinizing managements' decision-making process. Production efficiency is concededly more practicably applicable than is allocative efficiency. Although both allocative efficiency and production efficiency should be pursued together as part of overall economic efficiency, either can be pursued

5. See infra notes 9-27 and accompanying text.
6. See infra notes 28-46 and accompanying text.
7. See infra notes 47-57 and accompanying text.
8. See infra notes 58-61 and accompanying text.
9. See A. Kahn, supra note 3. Professor Kahn, while recognizing that marginal cost pricing is only the starting point and is based on certain unprovable assumptions, succinctly states the theoretical basis for concluding that such pricing leads to the optimum allocation of resources:

Since under pure competition incremental revenues to the businessman are simply the market price times the additional quantities sold, we have the elementary proposition that under pure competition businessmen will increase production and sales up to the point where their marginal costs are equated to price. Therefore, competitive behavior assures the equation of price and marginal cost that is required if free consumer choices are to result in the optimum allocation of resources.

Id. at 67.
independently.\textsuperscript{10}

Limitation of supra-normal profits or satisfaction of the revenue requirement is a third condition, not normally associated with the basic analysis of economic efficiency, but actually following from it. This conclusion follows from the assumption that regulated utilities are natural monopolies. If capacity is to be maintained in a natural monopoly, a natural monopoly should, on the average, earn zero economic profit. As Schmalensee points out:

>[E]conomic efficiency is generally enhanced by marginal cost pricing. Under natural monopoly, marginal cost pricing need not imply zero economic profit for the enterprise as a whole. Indeed in the classic natural monopoly case of everywhere declining average cost and a single product, marginal cost pricing implies price below average cost and thus negative economic profit.\textsuperscript{11}

This situation presents two problems. If capacity is not to be contracted in the long run, this deficit must be covered by requiring the customers of the enterprise to meet total costs.\textsuperscript{12} A privately owned and unregulated natural monopolist, however, seeks not only to cover average total costs, but also to secure a monopoly

\begin{itemize}
\item \textsuperscript{10} See R. Schmalensee, supra note 2. Professor Schmalensee states:
A critical prerequisite for overall economic efficiency is efficient production, minimization of the total cost of providing goods or services. As Comanor (1970) and Schmalensee (1974) note in the natural monopoly context, a little production inefficiency can do more harm than a lot of irrational pricing. In the short run, output must be produced at minimum cost from existing facilities. In the long run, investment must be made at appropriate times and in appropriate amounts, and new technology should be developed and adopted at the optimal rate. The costs associated with social control processes should be as low as possible.

\textit{Id.} at 33-34 (emphasis added); see also A. Kahn, supra note 3, at 26-35; Ontario Energy Board, supra note 4. The Ontario Energy Board states:
While efficiency in the technical or engineering sense has always been an operational objective for Ontario Hydro, it is closely linked to pricing because movement towards engineering efficiency leads to the lowest possible unit cost of power and rate levels. ... [T]his objective would lead to the lowest cost allocation of resources used in producing electricity.

It is therefore a practical and appropriate objective for electricity pricing and would not interfere with the application of the fairness objective in the rate-setting process.

\textit{Id.} at 28.

\item \textsuperscript{11} R. Schmalensee, supra note 2, at 37.

\item \textsuperscript{12} The deficit could be covered by general taxation, but this, of course, imposes distortions elsewhere in the economy and, given the benefit theory of taxation, poses the serious equity issue of why taxpayers should subsidize those who consume a natural monopoly output. Requiring customers to cover total costs guards against excessive investment. See \textit{id.} at 37-38; A. Kahn, supra note 3, at 130-31 & n.15.
\end{itemize}
profit. This implies its own avoidable efficiency losses. Profit limitation (the satisfaction of the revenue requirement) is, therefore, a valid goal of efficiency-oriented natural monopoly control.

A secondary objective for the commission is fairness in pricing, referred to as the equal treatment of equals. This is an abstract and difficult to define objective. The principal meaning seems to be the equal treatment of equals based on cost causality. Fairness entails recovery of "tracking" costs, to the extent possible, from those who cause them. Fairness also implies stable rates that permit customers to predict what rates might be in the long term and to make appropriate decisions about their investments.

Tracking costs, avoiding undue discrimination among equally situated consumers, and ensuring predictable rates is consistent with economic efficiency. Pricing through cost tracking can be implemented using historical accounting costs, replacement costs or short or long run marginal costs. Moreover, a commission utilizing the principal objective of economic efficiency is more predictable than a commission balancing competing objectives, thus, greater stability will be apparent.

The following discussion indicates that one of the critical conditions for economic efficiency, marginal cost pricing, may not yet be practicable. Until marginal cost pricing is practicable, the next best alternative called for by fairness in pricing is cost tracking based on historical accounting costs or replacement costs. If marginal cost pricing is not implemented, the sub-objective of pro-

13. See R. Schmalensee, supra note 2, at 37-38.
14. The Ontario Energy Board concludes that a revenue requirement based on accounting costs is in conflict with and prevents implementation of the theory of marginal-cost pricing. See Ontario Energy Board, supra note 4, at 24, 27. The view that anything other than first-best marginal cost pricing is the only alternative consistent with economic efficiency is erroneous. Economic efficiency implies the optimal use of available resources to maximize welfare. In an everywhere decreasing cost industry, second-best involving higher prices to inelastic demand consumers will permit a fuller achievement of economies of scale and will maximize welfare. This is consistent with economic efficiency. See A. Kahn, supra note 3, at 131-33 & n.17; R. Schmalensee, supra note 2, at 38-39.
15. See, e.g., Ontario Energy Board, supra note 4, at 12, 24.
16. Id. at 12.
17. Id. at 125.
18. Id. at 24, 44.
19. Id. at 34.
20. See R. Schmalensee, supra note 2, at 20.
21. Time-differentiated rates are not linked solely to marginal cost pricing. Fairness and cost tracking can be enhanced by time-differentiated rates "provided that there are significant cost variations over time and the rating periods match those patterns of cost variation to the extent practical." Ontario Energy Board, supra note 4, at 35.
duction efficiency or lowest cost production is independently meritorious. This sub-objective can be measured and is achievable.\textsuperscript{22}

When economic efficiency is the primary objective and fairness (cost tracking) is a secondary objective, regulation should avoid income redistribution through cross subsidies. Income redistribution is generally inconsistent with determinations based on economic efficiency and fairness, except where economic efficiency creates a choice among equal alternatives.\textsuperscript{23} Income redistribution is a legislative concern. It should not be promoted or advocated within the regulatory framework. Once rates and regulations are based on sound economic principles, legislative bodies may alleviate any hardships society as a whole deems inequitable. It should not be the role of utility commissions to make broad social welfare determinations based on personal, and therefore political, values.\textsuperscript{24}

Accountability is a principal secondary objective necessary to achieve economic efficiency.\textsuperscript{25} Commissions must allow consum-
ers, utility companies, courts, the media, and scholars to monitor and evaluate decisions. As Schmalensee points out, "The ability to review performance makes control possible. If individual agencies are charged with the pursuit of well-defined objectives, their performance can be reviewed. It is the notion that regulators should pursue and strike an appropriate balance among a variety of ill-defined goals that makes effective control difficult." 26

Utility commissions must stop avoiding accountability by playing legislator in balancing numerous objectives. Control of utilities is an area in which the single clear objective of economic efficiency can be adopted and accountability can be achieved. Leibenstein points out that social goals usually degenerate into vague assertions about how society is to be served, and are used to rationalize inept performance. Setting social goals as a regulatory objective substantially decreases accountability because it is difficult to separate and assign the costs for these functions. Yet, the self interest of a commission is served by failing to account separately for these functions. 27

III. ECONOMIC EFFICIENCY AS THE PRIMARY GOAL OF UTILITY REGULATION

Two significant considerations compel treating economic efficiency as the primary objective of utility regulation. First, and perhaps most important, is the nature of the industry being regulated. Classic public utility industries, such as water and sewer services and the local distribution of gas and electricity, are perceived as natural monopolies. 28 The nature of a natural monopoly justifies its regulation. Regulation is required because the economic performance of natural monopolies tends to be unsatisfactory without special controls.

The second consideration that compels treating economic efficiency as the primary objective of utility regulation is the inadequacy and inappropriateness of alternative objectives. Regulation based primarily on political or social objectives is inadequate because such models cannot be implemented effectively by regula-

PUB. UTIL. FOR., Oct. 8, 1981, at 41 (discussing predictability of regulatory climate as to elected versus appointed commissions, business training, and experience).


tory agencies. Utility commissions are not the proper forums to present and decide broad social issues. This task is more appropriately left to state and federal legislatures. The political model is inadequate because it, of necessity, ignores the overall public interest and responds only to interest groups who participate in the time-consuming regulatory process and who can meaningfully pierce the complex rulemaking and adjudicatory system. Part A below discusses the natural monopoly problem. Part B analyzes the inadequacies of alternative objectives.

A. Natural Monopoly

An industry is said to be a natural monopoly if production is most efficiently done by a single firm or other entity. 29 For example, the local distribution of gas and electricity involves networks along which energy is transmitted from a relatively small number of locations to a relatively large number of geographically dispersed consumers. If there are everywhere decreasing average costs of transmission within the network, such a distribution system is a natural monopoly. 30

An industry that experiences decreasing average costs is a natural monopoly. The most efficient market structure is a single firm. In such an industry, only one firm will survive, either as a result of competition between firms or due to a grant of monopoly status by a governmental entity. With this monopoly status comes some control over price. Any firm that is the sole producer of a product enjoys some degree of control over price. The extent of this control depends on the existence of other products or services that serve as substitutes for the products or services offered by the monopolist. If other products are close substitutes, the monopolist’s control over price will not be great.

If, however, the monopolist produces goods or services for which there are no close substitutes, the demand for the good or service is likely to be insensitive to the price charged by the monopolist. In

29. Id. at 3; see also Hamilton & Hamilton, Duopoly in the Distribution of Electricity: A Policy Failure, 28 ANTITRUST BULL. — (1983) (manuscript accepted for publication); A. KAHN, supra note 3, at 121. But see Primeaux, Some Problems with Natural Monopoly, 24 ANTITRUST BULL. 63, 63-64 (1979) (considerable ambiguity associated with definition of natural monopoly).

30. See R. SCHMALENSERSE, supra note 2, at 4; Hamilton & Hamilton, supra note 29. The presumption derived from such a situation is that costs of providing the service will be lower if a single supplier provides the service in the given market. See A. KAHN, supra note 3, at 11.
such cases, the monopolist is likely to charge prices substantially in excess of cost and suffer no loss of demand. Such prices can have sizable adverse effects on the efficiency with which scarce resources are employed. Regulatory control provides potential benefits by forcing prices down to the level of costs. The gain from such benefits depends on the costs faced by the industry, the success of the regulatory process in minimizing those costs, and the demand conditions in the industry. Benefits of regulation increase to the degree that demand is unresponsive to price.

If we apply the above analysis to gas and electricity distribution, it becomes clear why a special control strategy is necessary and beneficial. Few substitutes exist for electricity and gas. Substitutes which do exist are generally more expensive to the consumer than the products offered by the public utility industries. Clearly, the benefits achieved through regulation result from the essentially captive nature of demand and depend upon the ability of utility commissions to keep prices and costs down. Since these benefits derive from an economic basis, and have no direct political or social implications, the primary goal of utility commissions should be to compel economic efficiency in these natural monopoly industries.

B. Non-Economic Models

The conclusion that utility regulation should focus on economic efficiency is further compelled by the inadequacy of alternative regulatory goals in achieving beneficial, equitable, and economically sound results. Three alternative models are often advanced as superior or preferable to economic based regulation. For convenience, they are labeled the political, social/consumerist, and free-market models. None of these approaches to utility regulation is adequate or preferable to the economic efficiency model.

1. The Political Model

The political model of utility regulation is based on achieving perfect political competition between interest groups. This view

31. R. Schmalensee, supra note 2, at 5.
33. R. Schmalensee, supra note 2, at 11-12.
argues that utility regulation is only one important example of
government regulation of private activity. The problems of utility
regulation are similar to those of health, safety or education. The
economic considerations are secondary and are given only passing
attention. Regulation fails under this model when the commission
fails to act in the same manner as elected officials would have if
put in the same position.\textsuperscript{34}

There are several deficiencies in this concept. It does not serve
as an effective approach to regulation nor does it provide adequate
guidance to utility commissions. The political model sacrifices the
overall public interest by responding only to special interest groups
that participate in the regulatory process. The adjudicatory pos-
ture of rate cases coming before the commission results in an ex-
ceedingly complex process. Parties must present detailed and
thorough evidence to support their positions. Meaningful partici-
piration by groups not commanding substantial resources and ex-
pertise is essentially precluded.\textsuperscript{35} While public hearings are
provided, and any interested group may intervene as a party in the
rate case, the practical influence of such input is minimal. As a
result, the commission only considers the interests of a few select
interest groups. The utility company, state agencies, and a very
limited number of citizen groups are the dominant parties. Of ne-
necessity, a narrow cross section of interests is represented. The com-
mission is therefore unable to respond to the vast number of
potentially conflicting social goals and interests that exist but are
not adequately represented in rate cases.\textsuperscript{36}

Proponents of the political model prescribe political action and
tighter control of the commission by the elected chief executive as
general remedies for the ineffectiveness of regulation.\textsuperscript{37} This pre-
scription has little chance of curing the inherent problems of the
political model. Tighter executive control does nothing to narrow
the range of social choices available to the commission. Objectives

\textsuperscript{34} Id.
\textsuperscript{35} The experience of Evan Henry illustrates this problem. See Hagen, \textit{Man Finds it's Hard to Make Mark in Rate Case}, Minneapolis Trib., Mar. 1, 1982, at 1, col. 1. Mr. Henry is a semi-retired certified public accountant who intervened in a Northwestern Bell rate case before the Minnesota commission. See Northwestern Bell Tel. Co., Docket No. P-421/GR-80-911 (Minn. P.U.C. Dec. 29, 1981). His experience was one of frustration and financial sacrifice. Not only was he unable to participate effectively in the case, but he was also denied compensation for his costs.


\textsuperscript{37} See R. Schmalensee, supra note 2, at 12.
are no more clearly articulated and the commission, therefore, is no better able to respond effectively to crises. It is just not possible for the commission to be responsive to the entire range of legitimate social interests.\textsuperscript{38}

Direct election of regulators seems no more useful. Commentators suggest that direct elections result in less educated commissioners, less staff, and higher costs.\textsuperscript{39} Voters have neither the time nor the knowledge to make rational selections among candidates. This conclusion does not assume that the electorate is ignorant or indifferent, but recognizes the specialized nature of the task and the need for commissions that possess a working knowledge of or an expertise in economics, administration, management, and engineering. Voters simply do not have the requisite knowledge to make informed choices.\textsuperscript{40}

Administrative law requirements that all affected interests be heard are of little benefit. The very nature of the process results in specialized interest groups exercising an inordinate influence in comparison to other legitimate interests. The adjudicatory framework is costly, time consuming, and precludes meaningful participation by most groups and individuals. Additionally, it is best suited to address bipolar issues. Many important issues in a rate case, however, are not bipolar. Several commentators have suggested a more cooperative approach to utility regulation.\textsuperscript{41} Such an approach seems unlikely given the adversary nature of rate case proceedings. In short, the political model of utility regulation achieves few if any of the objectives sought by the model. Not only are the goals and objectives vague and uncertain, but the nature of

\textsuperscript{38} A former commissioner has been quoted as saying, "And if you take a broader social view of it in addition, you never are on top of it. It's a vastly complex, rapidly changing area. [Utility companies] bring in six economists to intentionally shatter your brain at rate hearings. It's very heavy stuff to try and comprehend." Layton, \textit{supra} note 36, at 14A.

\textsuperscript{39} See N. HAMILTON & P. HAMILTON, \textit{supra} note 2, at 120-22; see also Pelsoci, \textit{The Energy Crisis and the New Breed of Regulators: A Study of State Public Utility Commissions} (manuscript accepted for publication in Midwest Review of Public Administration); Pelsoci, \textit{Commission Attributes and Regulatory Discretion: A Longitudinal Study of State Public Utility Commissioners} (1978) (unpublished manuscript).

\textsuperscript{40} See N. HAMILTON & P. HAMILTON, \textit{supra} note 2, at 121; see also Heggs, \textit{Merit Selection of the Ohio Judiciary: An Analysis of S.J.R. 6, and a Proposal for Implementation}, 28 CASE W. RES. L. REV. 628 (1978).

the process precludes the achievement of these goals. 42

2. Social/Consumerist Model

A second model, often advocated by consumer oriented interests, is based on furthering a narrow range of social concerns, particularly those of lower income consumers. The goal is to keep utility rates as low as possible for the benefit of low income users. 43

No one can deny the hardship to consumers of increasing energy rates. Utility commissions, however, are not the appropriate forum to address income redistribution issues. Commissions should not act ad hoc as legislatures, imposing personal values on the industries subject to regulation. Lifeline rate issues and other income redistribution schemes are a legislative concern better addressed through taxation. Such issues are ill-suited for consideration by state utility commissions.

While this article does not analyze lifeline rates and other income redistribution programs in depth, a brief mention must be made of the failure of lifeline rates to achieve its own goals and objectives. This failure illustrates the inadequacy of any utility commission in dealing with issues better left to the legislature.

The basic premise of lifeline rates is that such rates aid needy consumers in coping with rising energy bills and promote energy conservation. It is assumed that low income consumers use less energy than more affluent consumers and that by allowing lower rates for initial blocks of consumption such consumers will use less energy. Low income consumers are likely to have fewer large appliances and are encouraged to keep usage down, with a view to-

42. See Hitch, supra note 1, at 18. Mr. Hitch states:
And what is peculiar to both [the U.S. and electricity] is our system of rate regulation, with its rules and traditions (including the use of historical capital costs as the rate base), its time-consuming and legalistic due processes, and its built-in political pressures. The system worked well enough as long as inflation was low and slow and the costs of producing electricity were constant or falling. It has not worked well in an era of double digit inflation and even more rapidly escalating costs of electricity generation. Replacement costs are now two to four times or more the historical capital costs used in rate determinations. The delays inherent in the system are no longer tolerable when costs are escalating rapidly. And the sheer magnitude of the cost increases has made it difficult, both procedurally and especially politically, for regulators to cope.
Id. at 19.

43. Lifeline rates have been the primary vehicle for furthering this objective. A related program deals with the winter shutoff issue. Minnesota has instituted a “cold weather rule” to deal with the problem of low income users being unable to keep up with their energy bills. For a brief discussion of a similar program in Missouri, see Smartt, Shutoffs in Winter: Balancing Conflicting Needs, PUB. UTIL. FORT., Jan. 7, 1982, at 4.
ECONOMIC EFFICIENCY

wards lowering monthly energy bills. Opponents of lifeline rates challenge these basic assumptions. The correlation between income and energy use is far from conclusive. If the premise is erroneous, a major support for the rates is absent. In addition, if demand is relatively inelastic, low income users may actually be injured as a result of lower front end block rates, since succeeding blocks are priced higher. Finally, such rates may not promote conservation because consumers receive distorted price signals. Lower prices at the initial levels of use may encourage increased consumption rather than conservation.\(^44\)

No definitive conclusions are drawn here regarding the success or failure of lifeline rates to achieve their stated objectives. After years of discussion, study, and experimentation, the wisdom and advisability of using a system of lifeline rates to aid a segment of the population and promote energy conservation are far from established. These inconclusive results are a persuasive reason to discourage utility commissions from experimenting with ad hoc income redistribution plans. The better reasoned approach is to put the social policy decisions in the hands of the legislature, where it rightly belongs. Aid to low income consumers is essentially an issue of taxation. If the decision is made to impose a tax on the majority of society to aid those less fortunate, then it should be made by elected officials who are accountable to the electorate. This decision should not rest with utility commissioners who have no effective way of evaluating the totality of social concerns because they are unable to address social policy questions in a sufficiently comprehensive manner.

The pursuit of vague and conflicting social objectives also reduces the effectiveness of judicial review. The proper role of a court is not to make social policy choices, but to compel accountability for the decisions that are made. If policies and objectives are ill-defined at the administrative level, judicial review cannot effec-

tively exercise its overseeing function. If, however, commission policy is clearly articulated and based on economic principles and objectives, the court is better able to monitor performance and compel accountability.\footnote{See K. Davis, supra note 2, at 207-08.}

3. Free Market Model


The promotion of competition where feasible is a valid goal. Introducing competition into any industry, such as the generation of electricity or the telecommunication area, deserves serious study. One basic fact, however, must be kept in mind. The phenomenon of natural monopoly is the basis for utility regulation. As long as the economic performance of an industry without regulatory controls results in the power of one firm to control price and create monopoly profits, that industry must be governed by more than competitive market pressures. The problems remaining are those of identifying natural monopoly markets in the utility industry, and of effectively regulating them, not whether the industry should be regulated at all.

4. Summary

Examination of alternative utility regulation models indicates that economic efficiency should be the main guide for policies and objectives to control natural monopoly power. Such an approach avoids most of the shortfalls and deficiencies of other potential models. It allows consumers to rationally choose consumption levels. It also allows the social policy and income redistribution decisions to be made by legislatures. Finally, the economic efficiency model allows meaningful monitoring of the regulatory process and holds commissions and participants accountable to the courts for their decisions.
Once economic efficiency is determined to be the prime objective of utility regulation, the task becomes one of application. The concept of economic efficiency must be broken down into two parts for purposes of implementation. Both allocative efficiency and production efficiency should be pursued simultaneously as primary objectives. Allocative efficiency is based on micro-economic theory and dictates the use of marginal cost pricing to achieve the efficient use and allocation of resources. It provides accurate price signals to consumers and allows rational choices between alternative uses of resources. Production efficiency also seeks the efficient allocation of scarce resources but is more concrete in application. The goal is lowest cost production. This implies a minimum of waste, the promotion of economically efficient and justified uses of resources through load management techniques, and close monitoring of management decisions.

Allocative efficiency focuses on the area of rate design. Rate design has long been neglected by courts and is given less attention from utility commissions than it requires. The Minnesota Supreme Court has made it clear that it will not analyze commission rate design decisions in detail. By labeling the issue as legislative, the court has deferred the policymaking function to the commission.

Perhaps the greatest impetus for careful consideration of rate design issues was the passage of the Public Utilities Regulatory Policies Act of 1978 (PURPA). PURPA mandates that state commissions consider rate design issues and write conclusions and determinations as to why specified guidelines are rejected or adopted. PURPA caused a wealth of study and examination of rate design issues. The PURPA guidelines spawned debate and consideration of important rate design issues in general and margin-
nal cost pricing theory in particular.\textsuperscript{52} This development is important because it has provided an opportunity to evaluate the desirability and feasibility of marginal cost pricing methodologies. In a time of rising energy costs and growing scarcities of resources, efficient and well considered rate design policies are crucial to the achievement of conservation, continued adequate supplies, and efficient regulation. It is still unclear whether commissions have the ability to apply marginal cost pricing theory to rate cases. Whether they do or not, marginal cost theory should be a prime policy objective in utility regulation. Further study and evaluation may be necessary before practical application can be achieved. This is, however, not a reason to abandon the concept in favor of more easily applicable but theoretically bankrupt concepts inherent in traditional regulatory approaches.\textsuperscript{53}

The following sections of this article discuss the basic theory of marginal cost pricing, major criticisms of its use by regulatory commissions, justifications for its application, and the validity of production efficiency as a sub-objective.

\textbf{A. Marginal Cost Pricing}

Marginal cost is the cost of producing one more unit, or alternatively, the cost that would be saved by producing one less unit. The economist argues that consumers ought to pay a price equal to the cost of providing that marginal unit. This conclusion is based on the concept of choice. Since the cost of producing any one unit is the cost of lost opportunity, that is, foregoing the pro-


\textit{Lest I appear unduly critical of marginal costing procedures let me comment briefly on the use of rate making of embedded cost-of-service studies. It is better to be approximately right than precisely wrong. Embedded cost studies simply ignore the relevant future costs altogether. They therefore lack theoretical justification for providing even the limited assistance for efficiency-oriented rate making that marginal costs provide, however imprecise the latter may be. Moreover, the seeming precision of embedded cost approaches vanishes when one attempts to allocate capital costs to different users in some rational manner; the large number of equally inadequate formulas for this allocation has provided grist for many unproductive hours of wrangling at rate hearings. I am convinced that marginal costs, however difficult they may be to obtain, are the proper economic criteria for establishing efficiency-oriented rates.}

\textit{Id.}
duction of an alternative product, the ultimate decision as to what will be produced should lie with the consumer. To make such decisions correctly, the consumer must be guided by accurate price signals. Consumers must be able to quantify the lost opportunity cost of any choice. Only then will they be able to determine whether the choice provides greater satisfaction than any alternative. “If their judgments are correctly informed in this way, they will, by their individual purchase decisions, guide our scarce resources into those lines of production that yield more satisfaction than all available alternatives—which means that total satisfaction will be maximized.  

The extension of this reasoning to utility regulation dictates the setting of utility rates at marginal cost. Numerous measurement techniques have been proposed by marginal cost advocates. The various techniques address and seek to remedy specific problems which arise in applying marginal cost concepts to actual ratemaking. The remainder of this section discusses whether marginal cost pricing can be meaningfully applied to ratemaking.

In theory, there is little argument that marginal cost pricing is conceptually sound and appropriate. By reflecting the actual costs and demand of energy use, marginal cost pricing allows consumers to make rational choices as to individual use and quality of service demanded. Accurate price signals are crucial to rational choices. Beyond this basic justification, the concept provides a vehicle to avoid cross subsidization. By exposing the extent to which rates are not based on actual costs, the areas of cross subsidization are identifiable and can thus be addressed openly and thoroughly, rather than being merely implicit judgments of regulators, beyond the reach of informed study, evaluation, and criticism. If discrimination and income redistribution are identified and eliminated, the ratemaking process becomes more closely tied to objective economic considerations. It is then possible to minimize the value judgments of commissioners based on personal perceptions of equity and fairness. This provides an objective reviewable standard. Without such a clear standard, many decisions cannot be scrutinized by observers and participants and the accountability of the commission is diluted.

The principal criticism of marginal cost pricing focuses on prac-

54. See A. Kahn, supra note 3, at 29.
55. Id. at 29, 66; see also R. Schmalensee, supra note 2, at 29.
56. See Posner, supra note 23.
tical problems of its application to ratemaking proceedings. For example, in rejecting allocative efficiency as an appropriate pricing objective, the Ontario Energy Board stated:

We consider that economic efficiency cannot be achieved through electricity rate structures. This objective reflects a theoretical exercise not valid in the context of a single electric utility. . . . While it may be theoretically desirable for society as a whole, it is without practical significance for Ontario Hydro, and there is no evidence that it would be even directionally appropriate as a pricing objective.\(^{57}\)

There are practical problems in applying allocative efficiency as a pricing objective. These include the high cost of metering and administration associated with generating adequate data, the judgmental nature of allocating joint costs among various users, the failure of current and available utility accounting data to reflect marginal costs, the imprecise nature of long-run marginal cost pricing, and the selection of “true” marginal cost.\(^{58}\) The Minnesota commission has articulated a concern with the practical problems encountered when applying a marginal cost approach in a ratemaking proceeding. The commission apparently recognizes the desirability and appropriateness of marginal cost theories, but has encountered problems in finding a practical and applicable method. It has continued to compel cost studies to develop data as a basis upon which to prescribe rates.\(^{59}\)

The principal response to criticisms of marginal cost principles is that while the application of marginal cost pricing may only be approximately right, the use of embedded costs is precisely wrong.\(^{60}\) Consumers should be given accurate information regarding the actual costs of present and future consumption. Information about historic embedded costs is irrelevant to consumers’

\(^{57}\) ONTARIO ENERGY BOARD, supra note 4, at 27.


\(^{60}\) See Crespi, supra note 53. Professor Kahn states:

[A]s a matter of pure economics, adoption of any particular economic policy on the basis of the rules we have expounded could well end up doing more harm than good in practice. But the observation applies equally to the policy of hav[18]

18

http://open.mitchellhamline.edu/wmlr/vol8/iss2/3
ECONOMIC EFFICIENCY

present planning. The use of embedded costs ignores future costs entirely, lacks theoretical justification, and, no matter how precise the figures, bears no relation to valid allocation of present and future costs.

The main problem with marginal cost pricing techniques lies not in theory or justification, but rather in practical application. This does not, however, justify dismissing it as an inappropriate pricing objective. Continued study and experience will undoubtedly improve methods of measurement and bring down the cost of gathering necessary data. Workable methodologies soon will be available as to both application and reconciliation of the concept with the revenue requirement. Continued effort and promotion of marginal cost pricing methodologies will provide better pricing techniques.61

The benefits of using allocative efficiency as a primary pricing objective far outweigh any temporary obstacles to implementation of marginal cost pricing. This is especially true since there is no justification for adhering to traditional cost approaches. The commission should continue to compel detailed and extensive marginal cost studies. The information and evidence generated by such studies should be applied whenever feasible.

A byproduct of these efforts is the inevitable increase in commission expertise and ability to evaluate and apply various methodologies, theories, and techniques. As the commission becomes more comfortable with marginal cost studies, it should attempt to increase the general public's awareness and acceptance of the approach. If the objectives are clearly articulated and consistently applied, the public will understand the basis and rationale behind decisions and better respond through appeals to the legislature for low-income programs, participation in rate cases or direct pressure on the commission.

B. Production Efficiency

Production efficiency is the second sub-objective of economic efficiency. Contrasted with allocative efficiency, production ef-

ciency is considerably less theoretical. It seeks lowest cost production and efficient allocation of the resources of any particular utility company though promotion of operational efficiency, both in the long and short run. This is crucial to pricing decisions. For example, if lowest cost production is achieved, and resources are efficiently utilized through load management techniques, rates paid by consumers are reduced.

The validity of production efficiency as a primary objective is established by several considerations. Such a goal is both practical and appropriate.

It is an objective that the layman can understand and one that does not introduce esoteric economic concepts such as optimality. [It] is also consistent with the objective of meeting the revenue requirement. It is therefore a practical and appropriate objective for electricity pricing and would not interfere with the application of the fairness objective in the rate-setting process.

Several avenues exist that enable commissions to promote production efficiency. The regulatory framework can be altered to provide greater incentives for the industry to minimize costs. Regulatory lag encourages inflated costs and higher revenue requirements to minimize the inherent penalty involved in long and protracted rate proceedings. Incentives and penalties could be implemented, such as, an incentive oriented rate of return and a streamlined regulatory process, to lessen burdens. In addition, closer review of utility management decisions through prehearing management audits and closer evaluation during rate cases prods the industry to minimize costs.

62. See R. Schmalensee, supra note 2, at 33-34.
63. Ontario Energy Board, supra note 4, at 28.
65. In the determination of the revenue requirement, special attention should be given to the rate of return as it relates to efficiency. A higher rate of return for efficient management would introduce an incentive not currently present in the regulatory process. Providing a more adequate rate of return, tied to management performance, would go far towards alleviating the financial crises currently faced by many utility companies. See Abell, supra note 41, at 31; Lerner, The Effect of the Regulatory Environment on Utilities, Pub. Util. Fort., Jan. 7, 1982, at 15; Nolan, Incentive Rate of Return, Pub. Util. Fort., July 30, 1981, at 50; see also Willis, supra note 41, at 15.
The key here is for the commission to monitor the decision-making processes, not to remake management decisions. A cost minimizing production strategy requires full time work and an inside knowledge of the industry. Management is in the best position to make these decisions. The issue is whether the process by which the decision is made is a rationale one. Finally, the commission should encourage competition whenever possible. For example, the generation of electricity appears not to require active regulation of the type needed in a natural monopoly market. Much can be gained by opening this area to competition. Electrical generation, or any other area which appears to be free from natural monopoly factors justifying regulation, should be explored for possible introduction of competition.

Production efficiency should be pursued through mechanical and procedural adjustments to the regulatory scheme. Management decisionmaking should be scrutinized by the commission before and during rate cases to assure the best possible management performance. A system of incentives and penalties should be instituted to provide the industry with incentives to seek lowest cost production. Finally, the rate case proceeding should not be excessively adversarial. An effort should be made to increase the honesty, integrity, and cooperation of the parties. Clearly defined objectives based on concepts of economic efficiency promote cooperation and effective regulation.

V. CONCLUSION

The utility industry in the United States is undergoing a period of financial, social, and administrative reexamination. Pressures facing the industry and government agencies are forcing consideration of different approaches, concepts, and justifications as to the method by which utilities are regulated. In such an atmosphere, it

67. See N. HAMILTON & P. HAMILTON, supra note 2, at 73-74, 100, 113. For example, has the decisionmaking process adequately considered less costly alternatives to the construction of new generating capacity? Have aggressive conservation and load management measures been fully explored? See Carrigan, supra note 66, at 15-17.
68. See supra note 46.
69. See Abell, supra note 41, at 32; Willis, supra note 41, at 15.
is essential that utility commissions determine and give priorities to objectives.

This article advocates the adoption of economic efficiency as the principal objective, with fairness in pricing and accountability as secondary objectives. Adoption of such an approach will aid commissions in effective decisionmaking and allow the public, courts, and commentators to monitor and evaluate the choices made. The consumer will ultimately be the primary beneficiary of such a policy and the industry will be better able to predict future requirements and thus improve its financial position and quality of service.