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FACTORS TO BE CONSIDERED IN DISTRIBUTING REVENUES AMONG UTILITY CUSTOMER CLASSES

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I. LEGAL GUIDELINES GOVERNING ALLOCATION OF REVENUE REQUIREMENT

The standard governing the Minnesota Public Utilities Commission in its allocation of rates between electric and natural gas utility customer classes is set forth in Minnesota Statutes, section 216B.03:

> Every rate made, demanded, or received by any public utility, or by any two or more public utilities jointly, shall be just

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> and reasonable. Rates shall not be unreasonably preferential, unreasonably prejudicial or discriminatory, but shall be sufficient, equitable and consistent in application to a class of consumers. Any doubt as to reasonableness should be resolved in favor of the consumer.[1]

The commission is similarly responsible for determining "fair and reasonable" charges for intrastate telephone service.[2]

The Minnesota Supreme Court has consistently interpreted the above statutory language as conferring upon the commission broad legislative powers in the area of rate design.[3] The rationale for these decisions is perhaps best stated in *St. Paul Area Chamber of Commerce v. Minnesota Public Service Commission*:[4]

> The process of establishing rate allocations among diverse consumer classes is one requiring both technical expertise on the one hand and a careful balancing of many complementary and competing interests on the other. . . . We believe it to be in the public interest, which the legislature was surely intending to serve in the broadest sense by establishing the Public Service Commission, that the commission be allowed within the bounds of reasonableness to consider both facts within its expertise and facts of common knowledge in arriving at its decisions in the ratemaking area.[5]

The following sections analyze the manner in which the commission has carried out its broad legislative mandate in the area of rate design, and suggest an analytical framework to foster a more consistent and appropriate approach.

II. Factors Involved in Allocation of Revenue Requirement

A. In General

As noted above, the Minnesota Supreme Court accords the commission broad leeway in determining whether rates are "sufficient, equitable, and consistent" for a particular customer class, while not "unreasonably preferential, unreasonably prejudicial or

1. Minn. Stat. § 216B.03 (1982).
2. *Id.* § 237.06 (1982).
3. *See* Hibbing Taconite Co. v. Minnesota Pub. Serv. Comm'n, 302 N.W.2d 5, 12 (Minn. 1980); St. Paul Area Chamber of Commerce v. Minnesota Pub. Serv. Comm'n, 312 Minn. 250, 254-55, 251 N.W.2d 350, 354 (1977); Northwestern Bell Tel. Co. v. State, 299 Minn. 1, 28, 216 N.W.2d 841, 857 (1974).
4. 312 Minn. 250, 251 N.W.2d 350 (1977).
5. *Id.* at 255, 251 N.W.2d at 354 (footnote omitted).

discriminatory" as compared with rates for other customer classes. Implicit in these statutory and judicial guidelines is the understanding that the commission, in setting rates, must keep in mind such varying objectives as economic efficiency, equity, and fairness. The court has stressed the commission's implied authority to consider not only costs, but also other factors of importance to the utility, its customers, and the community at large, such as, the prevention of environmental pollution and the conservation of energy resources.[6]

Despite the seeming variety of approaches a utility might use in proposing and the commission might choose in setting rates, most utility filings contain a common starting point. That common approach is to prepare a cost study assigning costs by type and function to the various customer classes. Thus, we need to analyze the factors involved in these class-cost-of-service studies before turning to other factors which are or may be considered.

B. Accounting Cost

What does a cost study consist of? To take the example of an electric utility, first, the company chooses a test year and looks at all costs associated with its booked investment in plant and expenses for that year. It then makes a first rough cut in which costs are broken down into customer, capacity or demand, and energy components. These classifications relate, respectively, to costs involved in the delivery, availability, and usage of energy.[7]

The second cut in a cost study is functionalization of costs. To continue the example of an electric utility, these functions, which must be assigned on the basis of engineering studies, include the costs of producing, transmitting, and distributing electricity, and of providing service to electric customers independent of the amount of service demanded in a particular time period.

Several things become apparent from this very cursory explanation of the process of developing cost studies. The first is that enor-

6. *See id.* at 255-56, 251 N.W.2d at 354.

7. These classifications also relate, in a rough way, to the economist's concepts of fixed and variable costs. Thus, customer costs include those fixed in both the long and short terms; capacity costs tend to be fixed over the short term but not the long term; and energy costs vary in the short and long terms. In practice, however, these classifications are not rigid. For example, the cost of a new electric plant may be partially allocated to the energy component as well as to capacity charges, on the theory that the new plant will be more efficient in fuel usage and thus save energy, as well as making more electricity available to customers.

mous resources are involved in preparing a cost study, including the compilation of load research data, the analysis of such data, and engineering studies to classify various plant and other capital investment. For this reason, utilities often support all or part of their rate increase filings on the basis of earlier cost studies updated insofar as possible to reflect recent changes.

A second point becomes apparent. Neither the commission nor other intervenors are likely to have the resources to do much more than spot check cost studies prepared by the utilities, especially when operating under rigid time constraints for commission issuance of decisions on rate change applications.

Finally, it is apparent that the historic accounting (embedded) costs traditionally considered by utilities in preparing cost studies may or may not bear any relationship to the actual, current costs of serving particular classes of customers. The last point will be elucidated in the next subsection.

C. Economic Cost

As previously noted, most cost studies presented to the commission by Minnesota utilities involve the allocation of historic or embedded costs among various customer classes. Economic theory, on the other hand, holds that the goal of efficient allocation of resources is best served when rates are set for each class in some reasonable relationship to the "marginal" rather than the embedded costs of serving each customer class.

A thorough examination of the theoretical basis for allocation of customer class revenue requirement responsibility on the basis of marginal costs exceeds the scope of this paper. What is of greater importance for the present is that Congress has implicitly recognized the value of setting rates in accordance with criteria giving greater attention to marginal rather than to embedded costs of serving various customer classes. The "cost of service" standard of the Public Utilities Regulatory Policy Act of 1978 (PURPA) compels state commissions to determine, to the maximum extent practicable, costs of serving customers which "permit identification of differences in cost-incurrence attributable to differences in customer, demand, and energy components of cost," including "the extent to which total costs to an electric utility are likely to change if additional capacity is added to meet peak demand relative to base demand and additional kilowatt-hours of electric energy are

delivered to electric consumers."[8] Thus, federal law has compelled state commissions, including Minnesota's, to consider at least one set of factors, marginal cost factors, not present in traditional class-cost-of-service studies.

D. Economic Externalities

Another group of cost factors the commission may consider, but which are inherently outside the scope of any kind of formal cost study, are economic externalities. Economic externalities may be defined as interactions among economic agents not adequately reflected in markets. Alternatively, they may be defined according to their specific effects, as in the following definition by Professor Paul A. Samuelson in his classic textbook *Economics*:[9]

> An "external economy" is defined as a *favorable effect* on one or more persons that emanates from the action of a different person or firm; it shifts the cost or utility curve of each person it helps, and such an *externally* caused shift should be distinguished from any *internal* movement along the affected individual's own cost curve.
>
> An "external *diseconomy*" is defined in the same way, except that it refers to external *harm* that is done to others. The case where expansion of fishing by others in limited waters serves to shift up each boat's cost curves would be an example of an external diseconomy; another case would be one where each man's haste to drill for oil near his neighbors' boundaries lowers the amount of oil ever recovered.[10]

A good example of the working of external economies may be seen in the area of basic telephone service. In analyzing this area, the commission often uses the concept of "value of service" to justify pricing basic residential telephone service below the costs associated with such service (as those costs are reflected in embedded cost studies prepared by the telephone companies) on the basis that telephone service is of greater "value" to business than to residential customers. An alternative analysis of this question, however, could justify a subsidy for basic residential service in terms of external economies associated with universal telephone service. Clearly, the value of a telephone line in some sense relates to the number of other lines that can be reached via the telephone sys-

8. Public Utilities Regulatory Policy Act of 1978 (PURPA), 16 U.S.C. § 2625 (Supp. V 1981).

9. P. SAMUELSON, ECONOMICS (9th ed. 1973).

10. *Id.* at 474.

tem. Therefore, if basic service is priced at a level where almost everyone can afford it, the presence of these additional lines on the network constitutes an "external economy" associated with a "subsidy" to universal telephone service.

The practical application is that because of external economies of this sort, business telephone customers might on average actually benefit from paying a higher portion of the telephone company's overall revenue requirement. This would occur if the value of telephone service increases more than the increase in costs, and thus lowers the true unit costs for business customers.

Economic diseconomies also occur. One example of this is the well-known "peak-load" problem. These external diseconomies also can be addressed by proper use of the rate structure.

The Minnesota commission recognized one of these external diseconomies in *Minnesota Power & Light Co.*[11] In that case, the commission expressly based its adoption of the company's proposed class revenue allocations upon the conclusion that the large power (taconite) class of customers clearly imposed "a higher relative risk on MP&L's system than do other customer classes."[12] Since MP&L paid a higher return on its equity capital and borrowings because of the predominance among its customers of taconite companies whose unstable electricity consumption resulted in uneven contributions to MP&L earnings, the commission felt it fair to assess a greater share of these capital costs to the class of taconite customers whose presence caused those added costs.

E. Non-Cost Factors

In addition to the embedded, marginal, and external cost factors, the commission is frequently urged to take into account factors that are unrelated to costs. Traditionally the commission takes non-cost factors into account in setting and approving rate structures. For example, in *Northern States Power Co.*,[13] the commission discussed this matter as follows:

> [T]he Commission believes that other factors such as value of service, billing impact, ability to pass on the increases, and ability to write off electric costs on taxes must be taken into account. The Commission is fully aware that these factors are not easily quantified and subject to substantial judgment; however,

11. Docket No. E-015/GR-80-76 (Minn. P.U.C. Jan. 30, 1981).
12. *Id.* at 40.
13. Docket No. E-002/GR-76-934 (Minn. P.S.C. Mar. 2, 1977).

> this does not mean they are without importance. It does mean that the Commission is required to exercise extreme care and caution in weighing these factors in its deliberations.[14]

In upholding the commission's power to take such noncost factors into account, the Minnesota Supreme Court, in *St. Paul Area Chamber of Commerce v. Minnesota Public Service Commission*,[15] agreed with the reasoning expressed in a United States Supreme Court opinion that the ratemaking responsibilities of a utility regulatory commission "necessarily oblige it to give continuing attention to values that may be reflected only imperfectly by producers' costs; a regulatory method that excluded as immaterial all but current or projected costs could not properly serve the consumer interest placed under the Commission's protection."[16] The Minnesota Supreme Court went on to hold that when the commission acts in a legislative capacity, as it does when allocating revenue requirements among customer classes, and "balanc[es] both cost and noncost factors in making choices among public policy alternatives, its decisions will be upheld unless shown to be in excess of statutory authority or resulting in unjust, unreasonable or discriminatory rates by clear and convincing evidence."[17] In enacting PURPA, Congress similarly has recognized that non-cost factors may at times be appropriate, and in fact mandated consideration of "lifeline" provisions in electric rate schedules to cover essential human needs.[18]

III. Role of Cost Studies in the Commission's Rate Setting Process

Having identified the various types of factors that can be taken into account by the commission, we now turn to an analysis of what types of costs are actually presented in cost studies prepared by utilities. As previously noted, cost studies prepared by the utility companies traditionally reflect little more than historic accounting costs after allocation according to often outdated engineering studies. It is important to reiterate in this context the unique control the company exerts over such cost studies in light

14. *Id.* at 47.

15. 312 Minn. 250, 251 N.W.2d 350 (1977).

16. *Id.* at 257, 251 N.W.2d at 355, *quoting* Permian Basin Area Rate Cases, 390 U.S. 747, 815 (1968).

17. *Id.* at 262, 251 N.W.2d at 358.

18. Public Utilities Regulatory Policy Act of 1978 (PURPA), 16 U.S.C. § 2625 (Supp. V 1981).

of the immense difficulties faced by the commission's staff or intervenors in reviewing even parts of such studies.

This pattern certainly conflicts with that envisioned by the legislature and courts. In *St. Paul Area Chamber of Commerce v. Minnesota Public Service Commission*,[19] the Minnesota court presumed "that the members of the commission itself, with their supporting staff, have in their grasp practical knowledge in the field of utilities regulation not possessed by either the courts or laymen in general."[20] Such a presumption would be unwarranted if the commission viewed its role as limited to review of companies' cost studies, which would then be blindly ratified as part of an approved rate structure.

The difficulties for the commission and its staff in evaluating and challenging the foundations of cost studies are shared by intervenors, especially intervenors with limited financial and technical resources. Even intervenors assisted by high-fee expert witnesses generally find substantial difficulty in challenging more than selected elements of companies' cost studies. The problems for intervenors without access to experts or technical staff are magnified, especially to the extent that the commission fails to award intervenor compensation as it has already refused to do in telephone cases.[21]

These problems, of course, would not be as serious if the companies' cost studies were truly objective, comprehensive, and reflective of current incremental costs of serving various customer classes. In fact, however, the commission has recognized the arbitrariness of all cost studies. In its order in *Minnesota Power & Light Co.*,[22] the commission, in discussing the various cost studies proposed by the parties, noted: "The very diversity of results that those studies are able to produce indicates to the Commission that cost analysis is far from an exact science. Much still depends upon the analyst devising and performing a study, and any study's results may be easily altered by that analyst's choices."[23]

Despite this admission, the commission continues to demand that intervenors present formal, expensive cost studies in order to be heard on common-sense proposals clearly within the commission's expertise and power to evaluate without unnecessary studies.

19. 312 Minn. 250, 251 N.W.2d 350 (1977).

20. *Id.* at 255, 251 N.W.2d at 354.

21. *See* Northwestern Bell Tel. Co., Docket No. P-421/GR-80-911 (Minn. P.U.C. Feb. 5, 1982) (Order Denying Intervenor Compensation).

22. Docket No. E-015/GR-80-76 (Minn. P.U.C. Jan. 30, 1981).

23. *Id.* at 45.

The commission accorded the proposals of the United Handicapped Federation in *Northern States Power Co.*[24] this burdensome treatment.[25]

Similarly, in *Northwestern Bell Telephone Co.*,[26] the commission heard the testimony of a public school accountant and financial expert with more than twenty years of practical experience in public school administration. Despite that witness's quantification of the common-sense notion that school telephone usage is less than that of the average business customer because of the limited number of days per year and hours per day that schools are in session, the commission found it "inappropriate to implement a reduced school rate on the basis of the record of this proceeding."[27] Presumably, the intervenor sponsoring such testimony would have had to have retained an expert at costs upwards of $10,000 to formally analyze this proposition. The next section of this paper questions the appropriateness of such a requirement.

IV. TOWARD A MORE WORKABLE REGULATORY MODEL

It is submitted that, as the commission's work load increases relative to its own resources, the results of cost studies filed by companies receive increasingly inordinate deference. Conversely, the underlying goals of equity, efficiency, fairness, and other public policy objectives that should be the focus rather than an occasional peripheral subject of commission analysis obtain inadequate attention. Cost of service as reflected in a particular cost-of-service study may, of course, afford some useful information, but should only be one factor in achieving appropriate overall regulatory objectives. Reconsideration of objectives may be viewed as especially crucial in light of recently published comparisons of Minnesota rate structures to those in other states. Using data from *Energy User News*,[28] and employing the industrial electric rate as a base for comparing the rates to commercial and residential rates, we see the following relationships between these rates in six selected cities:

24. Docket No. E-002/GR-80-316 (Minn. P.U.C. Apr. 30, 1981).

25. *Id.* at 43-44.

26. Docket No. P-421/GR-80-911 (Minn. P.U.C. Dec. 29, 1981).

27. *Id.* at 78.

28. Mar. 1, 1982, at 6. Mr. Wayne Schmidt, an analyst with the Residential Utility Consumer Unit, Minnesota Office of Consumer Services, extrapolated the table provided in the text from price data for consumer classes for particular cities.

	Industrial	Commercial	Residential
Houston	1.00	1.20	1.19
Boston	1.00	1.31	1.25
Cleveland	1.00	1.28	1.28
Philadelphia	1.00	1.55	1.32
Denver	1.00	1.48	1.46
Minneapolis	1.00	1.32	1.57

The table indicates that the normal pattern of electric rates in these communities appears to be lower rates for industrial use and roughly comparable rates for commercial and residential use. The exceptions to this pattern are in Philadelphia, where commercial users carry the heaviest relative load, and Minneapolis, where residential customers suffer a similar burden. To the extent that the methodology employed in setting electric rates for Northern States Power's Minneapolis customers is not reexamined, this situation will continue even though no readily apparent distinction between these cities in terms of electric usage characteristics exists.

Failure to look to consistent regulatory objectives can also lead to disparate rate relationships among otherwise comparable utilities. Thus, we may see situations where business customers of one telephone company pay rates double those of residential customers, while in an adjacent exchange served by another company the comparable ratio is more on the order of 1.5 to 1. Another example in the telephone area may be seen in the commission's pursuit of universal telephone service in setting basic phone service rates, while not recognizing that for some customers, especially in rural areas, high extended area service rates and the absence of a "community calling plan"[29] or similar options may undercut the universal service goal.

In the area of electric rate design, the commission may wish to pursue the goal of energy conservation in an effort to avoid the construction of expensive new generating capacity. At the same time, the commission may order a utility to charge all its residential customers a flat rate energy charge reflecting the average cost of providing electric service to that class so that customers who have invested in electric space heating do not pay disproportionately greater costs for their above-average

29. Under "community calling plan" proposals, customers would be allowed a certain number of toll-free calls each month to adjacent exchanges where their local schools, local governmental bodies, and other services are located.

consumption. Under such a rate structure, the commission will not only be providing rate relief to those who already have electric space heating, but also will encourage additional customers to install energy-intensive space heating systems. This undercuts energy conservation goals, a factor the commission should take into account.

The fact that the commission generally faces several competing rate design objectives underscores its need to keep all of these objectives in focus for each type of utility and each individual case. It also underscores the need to reject inappropriate rate design objectives such as merely tracking the results of cost studies. Allowing the company the opportunity to fully recover its costs is a constitutionally compelled objective. Economic efficiency is another valid objective. The use of cost studies in rate design, however, is merely one possible means to achieve certain rate design objectives and not an objective in itself.

In concluding this section, one commonly made argument must be addressed. That is the suggestion that embedded cost studies are somewhat more objective and less arbitrary than marginal cost studies or other forms of analysis. Perhaps the best recent refutation of this contention may be found in the prefiled testimony of Dr. Frederick Wells in *Northern States Power Co.*[30] Dr. Wells notes the many different and widely disputed ways of allocating embedded costs, as compared with general agreement on at least the definition of marginal cost.[31]

This is not to deny that marginal cost studies also harbor elements of arbitrariness. It merely demonstrates that all cost studies involve somewhat arbitrary decisions and should be viewed as instructive starting points rather than as presumptive determinants of ultimate rate structures. The legislature, in setting up the Minnesota Public Utilities Commission, sought to vest the rate-setting process in the hands of a broadly representative group of citizens whose primary collective attribute is common sense. The commission should not cower in the shadow of cost studies, but should open-mindedly evaluate as broad as possible a range of proposals from public and private intervenors in terms of the underlying principles their specific proposals represent without undue attention to their mathematical content.

30. Docket No. E-002/GR-80-316 (Minn. P.U.C. Apr. 30, 1981).
31. *Id.* at 69-71.

To do otherwise would be to abandon to the technocrats the most important aspect of the commission's statutory mandate.

V. CONCLUSION

The purpose of the foregoing discussion has not been to suggest that the Minnesota Public Utilities Commission has in any way failed to diligently carry out its important statutory responsibilities. The hope is, rather, that the commission will reconsider its occasional tendency to place undue weight on cost studies submitted by utilities in connection with filings. The commission must recognize that such studies involve only estimates. All parties to proceedings should be encouraged to submit alternatives, such as marginal cost data, for determining fair charges for particular services. Under such circumstances, data submitted by both the utilities and intervenors can be used equally for the purpose it should be: as a means to address the more fundamental objectives of regulation. By encouraging as many proposals as possible, the commission will obtain the input necessary to allow it to accomplish the task for which it is better equipped than any utility company: the balancing of the many important and often conflicting public and private interests the legislature has given it the duty to resolve.