

December 1979

Title I of PURPA: The Effect of Federal Intrusion Into Regulation of Public Utilities

Timothy P. Dillon

Follow this and additional works at: <https://scholarship.law.wm.edu/wmlr>



Part of the [Energy and Utilities Law Commons](#)

Repository Citation

Timothy P. Dillon, *Title I of PURPA: The Effect of Federal Intrusion Into Regulation of Public Utilities*, 21 Wm. & Mary L. Rev. 491 (1979), <https://scholarship.law.wm.edu/wmlr/vol21/iss2/6>

Copyright c 1979 by the authors. This article is brought to you by the William & Mary Law School Scholarship Repository.

<https://scholarship.law.wm.edu/wmlr>

NOTES

TITLE I OF PURPA. THE EFFECT OF FEDERAL INTRUSION INTO REGULATION OF PUBLIC UTILITIES

Western economies are basically uncontrolled; critical economic decisions are made by individuals pursuing their self-interests, which results in unrestrained bargaining between buyers and sellers of commodities. Both a competitive market and a system of prices result from these independent decisions by individuals satisfying their own needs. In two major sectors of western economies, however, a competitive market and the resulting autonomously determined price system are absent. These areas are the enormous public sector, in which the allocation of resources is resolved by political rather than market decisions, and the public utility sector, in which the government through comprehensive regulation controls the marketplace.¹

A public utility is a firm² providing an important service or commodity³ regulated extensively by the government through

1. 1 A. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS* 2 (1970).

2. The utility firm may be owned privately by stockholders, owned publicly by either the federal, state or municipal government, or owned as a cooperative by its consumers.

3. Public utilities fall into two main categories: "(1) those enterprises which supply, directly or indirectly, continuous or repeated services through more or less permanent physical connections between the plant of the supplier and the premises of the consumer; and (2) the public transportation agencies." J. BONBRIGHT, *PRINCIPLES OF PUBLIC UTILITY RATES* 4 (1961). The salient members of the first group are firms supplying as, electricity, water, and telephone communication. The transportation agencies consist of railroads, trucking, and intracity transit systems. *Id.*

In *Munn v. Illinois*, 94 U.S. 113 (1876), the Supreme Court held that when private property is used in a manner that makes it important to the public, it becomes affected with a public interest, and therefore "grants to the public an interest in that use, and must submit to be controlled by the public for the common good." *Id.* at 126. Although *Munn* concerned grain elevators, subsequent court decisions held that other industries also were affected with a public interest. *See, e.g.,* *Nobel State Bank v. Haskell*, 219 U.S. 104 (1910) (banks); *Cotting v. Kansas City Stockyards Co.*, 183 U.S. 79 (1901) (stockyards corporations). Other industries, such as suppliers of gas, electricity, water, and transportation, required government franchises to operate because they needed special privileges. For example, these industries acquired the right of eminent domain in order to construct their distribution systems. Consequently, by entering freely into franchise contracts that contained extensive proscriptions, these suppliers subjected themselves to government control. 1 A. KAHN, *supra* note 1, at 3.

Sixty-seven years after *Munn*, in *Nebbia v. New York*, 291 U.S. 502 (1933), the Supreme Court held in part that "there is no closed class or category of businesses affected with a

control of entry into the industry, stipulation of the conditions of service, determination of rates, and mandates to serve all customers.⁴ This extensive regulation results because public utility industries require technology of production that leads to a natural monopoly.⁵ A natural monopoly is a decreasing cost firm. unit costs decrease as output increases over the entire extent of the market.⁶ When the entire market is concentrated in a single monopolistic firm with decreasing unit costs, greater overall efficiency results.

The principal reason for the economy obtained by concentrating the entire output of a market in a single firm is the requirement of a large initial investment in long-lasting assets. For example, an electric utility must build a huge electric generating plant, construct a distribution system between the generating plant and its customers, and install meters for every customer.⁷ Total costs are fixed and do not vary with the amount of units sold, but their per unit cost decreases as the quantity of the service increases, resulting in what economists term economies of scale.

Economies of scale concomitant with a large initial investment make competition wasteful in a public utility industry. Competition requiring duplication of facilities is inefficient; one firm could supply the entire market demand with lower average costs.⁸ When two firms compete, the output supplied by each is insufficient to achieve the economies of scale that result from increasing production in a firm with a large fixed capacity. Thus, the main reason for the regulation of public utilities is economic: to

public interest." *Id.* at 536. After *Nebbia*, the states could regulate all industries, not solely those affected with a public interest. According to Kahn, this decision blurred the line between public utilities and other utilities, but public utilities remain a fairly distinct group. 1 A. KAHN, *supra* note 1, at 10.

4. 1 A. KAHN, *supra* note 1, at 2.

5. J. BONBRIGHT, *supra* note 3, at 10-13; 2 A. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS* 119 (1971). See generally Posner, *Natural Monopoly and Its Regulation*, 21 STAN. L. REV. 548 (1969). Kahn has espoused several additional reasons supporting regulation of public utilities. Most public utility industries, for example, require government franchises because the various utilities necessarily use the right of eminent domain to construct their facilities. This in turn necessitates a close relationship between the utility and the government. 2 A. KAHN, *supra*, at 3.

6. This theory is anomalous because most firms experience decreasing unit costs over only a limited portion of their output and subsequently experience increasing unit costs.

7. 2 A. KAHN, *supra* note 5, at 120.

8. Plants constructed for higher levels of output have lower average costs than smaller plants.

provide important services at the lowest cost.⁹

This Note will focus on the electric utility industry's rate structure in light of the primary purpose of regulation. First, the history of the industry will be detailed. Next, electric rate determination and problems with the existing rate structure will be discussed and several innovative rate design theories will be analyzed. The focus then will shift to Title I of the Public Utility Regulatory Policy Act of 1978 (PURPA),¹⁰ a congressional response to these problems that requires state regulatory commissions to consider and determine for each covered utility whether implementation of certain rate structure standards would result in furtherance of the statute's purposes. Finally, this Note will conclude by analyzing the effects of PURPA on existing rate structures.

HISTORY OF THE ELECTRIC UTILITY INDUSTRY

The electric utility industry came into existence in 1879 with the construction of the first generation facility.¹¹ Reasoning that the electric industry's transmission systems would require special use of the streets that other industries did not, state legislatures required electric power companies to obtain special franchises from the municipalities they intended to serve.¹² Because economic and technological considerations at that time necessitated that generating facilities be located near their customers, most municipalities granted several franchises because of the impossibility of one generating plant serving an entire city.¹³

By the turn of the century, more technologically sophisticated

9. Asserting that the natural monopoly rationale for the regulation of public utilities is still valid if qualified, Bonbright has focused on the nature of the market, severely localized and restricted, to distinguish public utilities from other industries. J. BONBRIGHT, *supra* note 3, at 12-13. Other industries require huge investments in fixed plant capacity and operate under conditions of decreasing cost per unit up to a certain point, but do not require a monopoly of their market to achieve maximum efficiency because they can sell their commodities throughout the nation. *Id.* The market of a public utility, however, is limited geographically by the technology of the industry; the production facility of the utility must be near the customer's home. *Id.*

10. Pub. L. No. 95-617, 92 Stat. 3117 (codified in scattered sections of 15, 16, 26, 30, 42, 43 U.S.C.).

11. Jarrell, *The Demand for State Regulation of the Electric Utility Industry*, 21 J.L. & ECON. 268, 270 (1978).

12. *Id.*

13. 2 A. KAHN, *supra* note 5, at 70.

transmission and generation methods developed, enabling the facilities to transmit electricity over greater distances. Because power plants then no longer had to be situated only in small jurisdictions, municipalities lost the authority to regulate them. Accordingly, in 1907 both New York and Wisconsin passed legislation creating state public service commissions with jurisdiction to regulate all electric utilities statewide.¹⁴ Between 1907 and 1914, twenty-seven states enacted legislation creating

14. Jarrell, *supra* note 11, at 270. The Wisconsin statute served as a model for subsequent legislation.

The Wisconsin Law (1) convert[ed] all existing utility franchises to "indeterminate franchises"; (2) require[d] a certificate of "convenience and necessity" for new public utilities; (3) authorize[d] the state commission to establish service standards, to fix rates in accordance with accepted valuation principles, and to investigate rates upon complaint and upon its own initiative; and (4) empower[ed] the commission to control the capitalization and issuance of securities by public utilities.

Id. at 271 (footnote omitted).

Today all states have public service commissions. Generally, the major aspects of the regulatory power conferred by the state legislature to the commissions have paralleled the original Wisconsin statute. Some provisions, however, have granted the commissions certain additional powers. Legislatures have authorized the commissions to require the utilities to keep extensive accounting records and file elaborate reports, including balance sheets, service performance reports, and budget estimates on new construction. F. WELCH, *CASES AND TEXT ON PUBLIC UTILITY REGULATION* 580-81 (1968). Additionally, any proposed purchase or sale of utility property, or any consolidation or merger of a utility usually requires commission approval. *Id.* at 581.

Judicial review of commission action has progressed from strict scrutiny to minimal judicial supervision. In *Smyth v. Ames*, 169 U.S. 466 (1898), the Supreme Court held that to ascertain the fair value of the property used by a utility the commission must consider "the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction . . . and the sum required to meet operating expenses." *Id.* at 547. This typifies the detailed determinations that the courts forced the state commissions to make for each utility. F. WELCH, *supra*, at 296. Thus, after *Smyth v. Ames*, courts carefully scrutinized the methods and results of the state commissions.

In *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944), however, the Supreme Court relinquished its review of the commissions' specific methods, stating that "[i]t is not the theory but the impact of the rate order which counts. If the total effect of the rate order cannot be said to be unjust and unreasonable, judicial inquiry is at an end." *Id.* at 602. *Hope Natural Gas* initiated a period of broad administrative discretion with little judicial review of the particular procedures employed by the commissions in making their required determinations. For example, when reviewing rates proposed by the utilities, the commissions are required by state law merely to discern that the rates are not unjust or unreasonable. See, e.g., N.Y. PUB. SERV. LAW § 66(5) (McKinney 1955); WIS. STAT. ANN. § 193.03(1) (West 1957); Priest, *Major Public Utility Decisions in Perspective*, 46 VAL. L. REV. 1327 (1960).

such public service commissions.¹⁵

The superior technology that provided greater opportunities for economies of scale in the generation and transmission of electrical power also led to the financial consolidation of formerly independent and local electric utilities.¹⁶ Small local companies continued to interconnect and merge, forming larger regional companies with combined financial and operating management.¹⁷ Seeking the advantages of economies of scale and more efficient management staffs, public utility holding companies acquired control over many regional utility companies by purchasing sufficient stock in each to direct its operation. One holding company, through stock ownership, thus could control many electric utilities located throughout the country. As a result of this concentration, a few stockholders controlled the direction and growth of the electric utility industry.¹⁸

In 1929 the stock market crash and subsequent depression brought financial disaster to the holding companies by causing a twenty percent reduction in electric utility sales.¹⁹ Financed mainly by debt, the holding companies defaulted on their fixed interest payments when their revenues declined;²⁰ consequently, many

15. Jarrell, *supra* note 11, at 270.

16. 2 A. KAHN, *supra* note 5, at 70.

17. H.R. REP. NO. 496, (Pt. IV), 95th Cong., 2d Sess. 127, reprinted in [1978] U.S. CODE CONG. & AD. NEWS 8454 [hereinafter cited as House Report Part IV].

18. By 1932, eight holding companies managed three-fourths of the electrical generation in the United States. *Id.* Numerous instances of corruption and financial manipulation resulted from this concentration of ownership.

The organizers could vote themselves large blocks of stock as compensation for their promotional efforts. Exercising this control, they could then exploit the operating companies and through them the ultimate consumers by selling equipment and technical, managerial and financial services to them at inflated prices. They could bid up the prices of operating company assets by exchanging them for securities of the acquiring company—securities that the investing public gobbled up at inflated prices; and they could then write up the book value of the assets acquired in this fashion.

2 A. KAHN, *supra* note 5, at 71.

State public service commissions were ineffective in attempting to control the holding companies because they lacked the skill to evaluate the industry, or the resources or the political power to dominate the powerful holding companies. *Id.* at 72. Moreover, in *Public Util. Comm'n v. Attleboro Steam & Elec. Co.*, the Supreme Court held the states were without authority to regulate interstate wholesale sales of electricity. 273 U.S. 83 (1927). The states thus had neither the resources nor the jurisdiction to correct any of the egregious practices of the holding companies.

19. House Report Part IV, *supra* note 17, at 8570.

20. *Id.*

declared bankruptcy. As a result, in 1935 Congress enacted the Public Utility Holding Company Act,²¹ which established a federal regulatory scheme to correct the abuses by the holding companies. Congress granted the Securities and Exchange Commission the authority to limit a public utility company, with exceptions, to a single integrated generation and transmission system.²² By 1950 the commission nearly had completed the task of reorganizing the holding companies, eliminating the unnecessary complication in their structure that had provided the opportunity for corruption.²³

Dynamic technological developments after World War II occurred in both the generation and transmission of high voltage electricity, enabling electric utilities to participate substantially in the tremendous industrial growth of the 1950's and 1960's. These innovations called for the coordination and interconnection²⁴ of electric utilities to achieve greater economies of scale, but because of the traditionally local nature of utility companies and the Securities and Exchange Commission's prohibitions on the

21. 15 U.S.C. § 79 (1970).

22. *Id.* § 79(k)(b)(1).

23. R. RITCHIE, INTEGRATION OF PUBLIC UTILITY HOLDING COMPANIES 25-33 (1954). See generally J. BONBRIGHT & G. MEANS, THE HOLDING COMPANY (1932); 7 B.C. INDUS. & COM. L. REV. 716 (1966).

24. Coordination of electric utilities can be accomplished in a number of ways, including interties and power pools.

Interties are physical connections between systems, usually undertaken to improve reliability and reduce generating reserve requirements. Today, there are three separate power transmission networks that serve all of the contiguous United States and parts of Canada and Mexico. One of these interties serves the eastern half of the country, a second serves the western half of the country and the third serves Texas. The latter is currently in considerable disarray.

These ties tend to be relatively loose arrangements with the strength of the ties varying between the systems. They are of critical importance in emergency situations. Interties, however, require coordination of construction and operating plans between systems. The benefits from interties have generally induced utilities to move toward creation of tighter coordinating groups, such as power pools. A pool is an organization which regulates the generation and dispatch of electric energy, to a greater or lesser degree, to all pool members in an effort to achieve the lowest cost for the pool as a whole. Cost savings can generally be achieved by operating a group of generating units in a network of interconnecting transmission lines to multiple population centers as if all the parts were a single system.

House Report Part IV, *supra* note 17, at 8571. See generally Fairman & Scott, *Transmission, Power Pools, and Competition in the Electric Utility Industry*, 28 HASTINGS L.J. 1159 (1977); Miller, *A Needed Reform of the Organization and Regulation of the Interstate Electric Power Industry*, 38 FORDHAM L. REV. 635 (1970).

development of new holding companies, utilities remain largely localized.²⁵ The electric utility industry has accomplished limited coordination mainly on a voluntary basis with only minimal assistance from the federal government.²⁶

In the past few years, the electric utility industry has confronted the following major problems:

declining load factors,²⁷ increasing fuel costs, rapidly rising costs of new capacity, lower than expected powerplant reliability and a virtual end to the economies of scale associated with increasing sizes of generating plants. Between 1965 and the present, the average national annual load factor has been declining—reflecting a substantial reduction in utility generation efficiency. In the past five years the cost of fuel has risen approximately 400 percent, and the cost of gas, over 175 percent. Plant capacity costs continue the steep rise as evidenced by a 68 percent rise, between 1970 and 1975, in the costs per kilowatt of new plant capacity.²⁸

The lowered efficiency and the tremendous increase in costs experienced by electric utilities have serious ramifications. The higher costs have increased dramatically electric utility bills, particularly for poorer families, thus requiring them to apportion a larger percentage of their disposable income for utility bills.²⁹ In addition, the reduction in efficiency has increased the use of oil for electric generation, thereby damaging the national economy by exacerbating dependence on imported oil. Moreover, the decreased efficiency has resulted in the unnecessary expansion of utility generation facilities.³⁰ These developments have created a controversy as to the economic validity of the rate design theories that underlie the actual rates consumers pay for electricity

25. 2 A. KAHN, *supra* note 5, at 73.

26. In an attempt to further coordinate electric utilities, the Federal Power Commission has assisted in the establishment of nine nongovernmental regional reliability councils. House Report Part IV, *supra* note 17, at 8571.

27. A utility load factor is the ratio of its average load or production to its highest or peak generation level. A low load factor, a modest average load relative to the high peak periods, is inefficient because the peak capacity seldom is used. A high load factor, average load approximately equivalent to the highest peak period, is more efficient because most of the generation capacity is used continuously. See generally J. BONERIGHT, *supra* note 3, at 357-62.

28. House Report Part IV, *supra* note 17, at 8572.

29. *Id.*

30. *Id.*

RATE DETERMINATION

The procedure for determining electric utility rates is a bifurcated process. First, the gross revenue required to reimburse the utility for its costs incurred in supplying the electricity is determined. After this revenue requirement is established, rates for each class of customers are calculated to generate that revenue. The state regulatory commission must approve both steps.³¹

The gross revenue requirement consists of the utility's operating expenses, including maintenance, depreciation, all taxes, and a rate of return that the owners of the utility are allowed on their invested property.³² Although the operating expenses are easily ascertainable from the accounting records of an electric utility, the calculation of the rate of return allowed to the stockholders of the utility is more complex. First, a valuation of the owner's invested property, the rate base, is determined. When computing the rate bases, a formula of valuation is used to ascertain the value of the invested property.³³ Next, a fixed percentage is applied to the rate

31. Generally, electric utilities file proposed rate charges for each class of customers. After a hearing with all concerned parties, the public service commission files a final order containing the rates it has determined to be just, reasonable, and not unduly discriminatory. Rates are not unjust or unreasonable if the rate differences between classes are premised on cost differentials incurred when serving those classes. New York, for example, allows rate differentials between classes if they are based on the amount of the service used, the time used, the purpose for which used, and the duration of use. N.Y. PUB. SERV. LAW § 65.5 (McKinney 1955).

The rates of an electric utility are unduly discriminatory if they grant a preference to one class of customers over a substantially similar class of customers. The similarity between customer groups is determined by the costs the classes impose on the system. *Id.* § 65.3. If the utility incurs the same or substantially similar costs when serving different customers, then it must charge those customers the same rate. Thus, the overall reasonableness of utility rates is determined by examining the costs that the various classes impose on the operating system of the utility. Any rate differential between classes must be substantiated by a parallel cost differential.

32. 1 A. PRIEST, PRINCIPLES OF PUBLIC UTILITY REGULATION 45 (1969).

33. Commissions use three alternative measures of valuation: (1) original cost, the acquisition price of the property; (2) reproduction cost, the present cost of reproducing the property; and (3) prudent investment, what the original investment should have been. F. WELCH, *supra* note 14, at 269-72. A majority of jurisdictions use the original cost valuation method while a minority of jurisdictions adheres to the reproduction, or fair value, theory. 1 A. PRIEST, *supra* note 32, at 139-67. When evaluating utility property, both theories concentrate on historical or sunk capacity costs, ignoring the future construction costs that current consumers impose on the utility. This approach burdens future consumers with costs attributable to the consumption patterns of current consumers.

An innovative theory of capacity costing is the long-run incremental approach, defined as the incremental cost of capacity and output reasonably anticipated to be incurred in the

base, yielding the return that the owners of the utility may earn on their investment. Although this return theoretically should be roughly equivalent to the return made on similar investments in other industries, the return in the public utility industry performs the additional, crucial function of attracting additional capital when additions to plant capacity are necessary³⁴

Stated simply, the gross revenue allowed to an electric utility is the value of its capital multiplied by a fixed percentage, plus its operating expenses. After this total revenue requirement is established, the second step of the process allocates the figure among the various classes of customers.³⁵ Historically, this apportionment to customer categories resulted from a block pricing structure that provided additional electricity at a decreased price in a step manner;³⁶ the resulting declining block rate provided for

future. Morton, *Long-run Incremental Costs and the Pricing of Electricity Part I*, 97 PUB. UTIL. FORT. 34, 36 (March 11, 1976). Disregarding historical or sunk costs, the incremental approach focuses solely on increased future costs with the objective of charging those responsible for the new capacity with the marginal or incremental cost of providing it. Morrissey, *The Changing Structure of Utility Rates*, 97 PUB. UTIL. FORT. 15, 17 (June 17, 1976). Consumers imposing increased future costs on the system will be charged a correspondingly increased rate for this consumption, thus giving these consumers the proper price signal and tending to discourage wasteful consumption of electricity. For example, customers imposing heavy peak demands on the utility, see notes 43-47 *infra* & accompanying text, will be charged an increased rate reflecting the future cost of new capacity that an increased peak demand causes. See generally J. BONBRIGHT, *supra* note 3, at 317-36; 1 A. KAHN, *supra* note 1, at 63-122; Cohn, *Current Proposals in Rate Design*, 96 PUB. UTIL. FORT. 21, 24-25 (Dec. 18, 1975); Kadane, *The Legality of Marginal Cost Pricing for Utility Services*, 5 HOFSTRA L. REV. 755 (1977); McKie, *Time's Arrow and Marginal Cost Pricing*, in NEW DIMENSIONS IN PUBLIC UTILITY PRICING (H. Trebing ed. 1976). For a discussion of the problems in implementing the incremental approach, see Ranniger, *Electric Rates—Where We Have Been, Where We Are Going*, 99 PUB. UTIL. FORT. 29 (May 12, 1977); Morton, *Long-run Incremental Costs and the Pricing of Electricity Part II*, 97 PUB. UTIL. FORT. 25, 29-30 (March 25, 1976); Cohn, *supra*, at 24-25.

34. 1 A. PRIEST, *supra* note 32, at 195. "Unless investors are offered utility opportunities comparable with those available among industrials, they may keep their hands in their pockets." *Id.*, see J. BONBRIGHT, *supra* note 3, at 238-83; F. WELCH, *supra* note 14, at 477-514.

35. Generally, customers who impose similar costs on the utility are grouped into the same class, resulting in three basic classes: residential, commercial, and industrial. See note 31 *supra*.

36. Morrissey, *supra* note 33, at 16. "This block pricing was based on the threefold functional nature of utility costs, customer costs, demand costs, and energy costs." *Id.* The customer costs are costs that do not vary with the level of consumption, including meter installation and reading, billing, and construction of a distribution system of zero capacity. The demand charge, on the other hand, is the cost to the utility of providing the plant capacity to serve the particular customer. The energy charge is the variable cost of fuel necessary to operate the generation facility. Demand and customer costs are recovered in the initial

consumption of additional electricity at a successively lower charge than for the initial consumption. Justified by the economies-of-scale rationale that supported the existence of the monopolistic utility, the declining block rate is cost based in that as more production is concentrated in a utility plant with large fixed costs, the per unit cost decreases. Thus, the declining block rate reflects the parallel decreasing per unit cost.

Traditionally, the declining block rate has promoted consumption of electricity, which maximizes the utility's profits by using excess capacity in the generation plant. Recently, electric utilities repeatedly have asked state regulatory commissions for large rate increases. These requests signal the end of further economies of scale and reflect enormous increases in fuel costs.³⁷ As a result of rate increases, controversy has arisen concerning the continued economic justification for the declining block rate structure, given its promotional effect on electric power consumption, and experts have proposed several alternative rate structures designed to discourage the wasteful consumption of electricity through the use of price incentives.

Inverted Rates

One such proposed structure, the inverted rate, is the converse of the declining block rate: the initial block is the lowest priced and each succeeding block is priced higher. Arguing that the inverted rate structure is cost justified, proponents of this rate theory assert that growth in peak demand and exhaustion of economies of scale in production have resulted in the need for new generation facilities, leading to an additional rate base and finally higher rates.³⁸ Placing rising utility costs through higher priced, high volume, later blocks is cost justified in that large consumers are responsible for the costly growing peak demand. Opponents of this pricing method, however, argue that growth in electrical

higher-priced blocks while later lower-priced blocks reflect only the energy costs. See Taubman & Frieden, *Electricity Rate Structure: History and Implications for the Poor*, 10 CLEARINGHOUSE REV. 431, 432-34, 437-40 (1976).

37. See notes 27-29 *supra* & accompanying text.

38. Aman & Howard, *Natural Gas and Electric Utility Rate Reform: Taxation through Ratemaking?*, 28 HASTINGS L.J. 1085, 1108 (1977). For an empirical analysis of inverted rates, see Wilson & Uhler, *Inverted Electric Utilities Rate Structures: An Empirical Analysis*, in NEW DIMENSIONS IN PUBLIC UTILITY PRICING (H. Trebing ed. 1976).

consumption occurs over the entire range of the rate structure and not solely in the later blocks. Both small and large users thus contribute to the need for additional generating facilities, and pricing solely to discourage high volume consumption will not reduce the need for additional facilities.³⁹

A second justification advanced in favor of inverted rates is the theory that a higher price for later blocks of electricity will discourage consumption and promote energy conservation.⁴⁰ The consequences of attempting conservation through an inverted rate structure, however, would be undesirable because the larger users, to avoid paying higher rates, would produce their own power, reducing the production and revenues of the utility.⁴¹ The loss in revenues would cause higher rates for the remaining customers because the utility would have the same fixed capacity costs and less production concentrated in that plant, resulting in higher per unit costs of electricity. The failure of the inverted rate to distinguish between peak and high volume consumption and the loss in utility revenues when implemented make the rate an unacceptable alternative to the declining block rate.

39. Herbert Cohn has noted:

The proposal for inverted rates violates three basic principles of rate making in at least three respects:

First, lower prices in the initial blocks would mean that the low use customer might never pay for the customer and fixed costs associated with the service rendered to him.

Second, the higher use customer would be paying considerably more for the kilowatt-hours in the later blocks than the cost of providing such kilowatt-hours.

Third, the failure of one group of customers to pay the costs associated with service to them would inevitably require the remaining customers to subsidize the favored group. This might well be found to constitute unreasonable—and, therefore, unlawful—discrimination among customers similarly situated.

Cohn, *supra* note 33, at 23.

In addition, a general price increase for large volume users with no reference to the time of use will not decrease peak demand. For example, assume the largest customer of the utility consumes all his power in the middle of the night. A price increase and a resulting decrease in his consumption will not affect the peak demand because the peak occurs during the day. Thus to decrease a peak, attention should be focused on the time of use rather than the amount of use. See notes 48-50 *infra* & accompanying text.

40. Aman & Howard, *supra* note 38, at 1108-11; Cohn, *supra* note 33, at 24; *Public Utility Rate Reform: A Multibias Approach*, 13 GONZ. L. REV. 365, 374 (1978) [hereinafter cited as *Public Utility Rate Reform*].

41. *Public Utility Rate Reform*, *supra* note 40, at 374.

Peak-Load Pricing

Peak-load pricing,⁴² another innovative rate structure, allocates higher costs and correspondingly higher rates to consumption that occurs during peak generation periods when the utility is generating near capacity. Lower prices are assigned to nonpeak periods when the utility has ample excess capacity.⁴³ Electricity produced during a peak period is more expensive than nonpeak electricity because inefficient peak generation facilities must be operated in order to handle the demand. Utility policy has been to purchase facilities with low capital costs for peak periods, even though these plants have low energy efficiency and require oil or natural gas to operate;⁴⁴ thus, growth in peak demand requires utilities to build new generation plants that are operated by scarce oil or gas.

Premised on consumer willingness to respond to price changes in electricity,⁴⁵ the peak pricing system attempts to persuade consumers to defer their electrical usage to nonpeak periods,

42. Peak-load pricing differs from conservation-pricing schemes in that peak-load pricing attempts to shift the consumption of electricity from a peak period to a nonpeak period, while a conservation-pricing system is designed to reduce the total consumption of electricity. For an example of such a conservation scheme, see Treadway, *Energy Conservation Rates for an Effective Conservation Program*, 102 PUB. UTIL. FORT. 16 (Aug. 17, 1978).

43. Cudahy & Malko, *Electric Peak-load Pricing: Madison Gas and Beyond*, 1976 WIS. L. REV. 47, 56-57; Lande, *A Cost-Benefit Analysis of Electric Peak-loading Pricing*, 103 PUB. UTIL. FORT. 9, 9-10 (March 29, 1979); Teed, *A Practitioner Looks at Peak-load Pricing*, 97 PUB. UTIL. FORT. 26, 26-27 (Jan. 29, 1976).

44. S. REP. NO. 442, 95th Cong., 2d Sess. 24-25, reprinted in [1978] U.S. CODE CONG. & AD. NEWS 7903, 7921-22 [hereinafter cited as Senate Report].

45. A consumer's demand response to a price change is termed his elasticity. A large decrease in demand in reaction to a small price increase is an elastic demand, whereas a negligible change in demand in response to a huge increase in price is termed inelastic demand. Inelastic demand, for example, occurs when the price of heroin to a heroin addict increases significantly; regardless of the price the addict will consume the same quantity or more. The demand for beef by most consumers, on the other hand, is elastic. As the price increases, the quantity of beef consumed decreases because consumers will purchase chicken and other substitute goods.

The elasticity of demand for electricity, central to any price-based innovative rate-design scheme, is not measured easily. Lambert, *The Elasticity of Electricity Demand: Hazards of Measurement*, 97 PUB. UTIL. FORT. 44, 44-45 (April 22, 1976). One commentator has concluded that the weight of the evidence indicates that consumption of electricity is responsive to price. Thorton, *The Effects of Price on Consumption*, 96 PUB. UTIL. FORT. 17, 21 (Nov. 6, 1975). See generally Coyle, *A Note on the Price Elasticity of Electricity*, 98 PUB. UTIL. FORT. 38 (Nov. 18, 1976). If the demand for electricity at peak periods is inelastic, then peak-load pricing will not defer electrical consumption from peak periods to nonpeak periods and the purpose of peak pricing, to reduce the need for generation facilities, is frustrated.

thereby decreasing the need for new generation facilities and the wasteful use of oil.⁴⁶ Additionally, the peak-load pricing scheme is more equitable in that the consumers responsible for the rising peak-load costs would be given a choice between paying the increased costs they are imposing on the system or paying the lower nonpeak price and avoiding burdening the system with new construction requirements and the expensive use of fossil fuels.⁴⁷ Thus, assuming a customer response to a change in the price of electricity, peak-load pricing is a solution to some of the major problems confronting the electric utility industry

Time-of-day rates are a specific type of peak-load pricing with the peak period occurring in the daytime and the nonpeak period at night.⁴⁸ The resulting price structure produces higher rates for consumption during the day and lower rates for consumption at night. Consumers should respond to the increased price during the day by shifting their consumption to the lower-priced nighttime, nonpeak period, thereby reducing the generation peak of the utility and minimizing the necessity of new construction.

Peak-load pricing theory and time-of-day pricing in particular, nevertheless contain two major flaws. First, additional costs are incurred because of the new meters required to measure time-of-day usage. A cost-benefit analysis therefore is necessary to determine whether the savings achieved through the decrease in peak demand and the attendant reduction in the need for generation facilities supersedes the cost of installing sophisticated new meters.⁴⁹ In addition, some consumers will be unable to shift their demand regardless of the magnitude of the price increase. For example, large industrial users who are required to operate their plants continuously, or commercial users who supply a daytime service such as subway transportation, would be unable to react to a daytime price increase by shifting their demand to the nighttime.⁵⁰

46. Cudahy & Malko, *supra* note 43, at 56-58, 68-70; Lande, *supra* note 43, at 9-10.

47. Lande, *supra* note 43, at 10.

48. Bossert, *Defining Time-of-Use Periods for Electric Rates*, 99 PUB. UTIL. FORT. 19, 19-20 (March 31, 1977); *Public Utility Rate Reform*, *supra* note 40, at 376.

49. One commentator has concluded that time-of-day rates are cost-effective for large industrial users but not for the small residential consumer. Lande, *supra* note 43, at 10.

50. See note 45 *supra*. An example of such an inelastic demand is the eastern electrified rail system. Richardson, *Aggressive Time-of-Day Electric Rate Making*, 101 PUB. UTIL. FORT. 19 (April 13, 1978). For a discussion of other problems involved in applying the peak-load

In summary, the precise benefits of time-of-day rates are unknown. The enormous potential savings possible through reduction of the necessity for the additional generation facilities warrant further study, particularly with regard to consumer reactions to changes in the price of electricity. If projected consumer behavior demonstrates a sufficient response to the price increase and significant savings that exceed the cost of the new meters, then time-of-day rates should be implemented. In order to compel the states to ascertain whether customers will respond sufficiently to time-of-day rates and other innovative rate theories, Congress has passed a statute requiring the state public service commissions to determine the effects of implementing certain rate design standards.

THE PUBLIC UTILITY REGULATORY ACT OF 1978 (PURPA)

On April 20, 1977 as part of his national energy plan⁵¹ submitted to a joint session of Congress, President Carter proposed the reformation of electric retail rate design by imposing national standards on electric utilities.⁵² Reasoning that individual states have difficulty initiating such reforms because of competition among themselves to attract industry, the President recommended the elimination of promotional and declining block rates that make electricity artificially inexpensive for large consumers.⁵³ The President also proposed requiring the utilities to offer time-of-day rates and reduced rates to customers willing to have their power interrupted at times of highest peak demand.⁵⁴ The suggested national standards constituted an infringement on state autonomy

pricing theory to the electric industry, see Wenders, *The Misapplication of the Theory of Peak-load Pricing to the Electric Utility Industry*, 96 PUB. UTIL. FORT. 22 (Dec. 4, 1975).

51. Other elements of the Carter plan included the following: a tax credit for homeowners who installed solar energy equipment; a gas-guzzler tax on inefficient cars; a standby gasoline tax to be imposed if gasoline consumption did not decline; a crude oil equalization tax to raise the cost of domestic oil; a revision of federal controls over the price of natural gas; standards of energy efficiency for major consumer products; a federal grant program to encourage schools and hospitals to conserve energy; a prohibition on the use of oil or natural gas by new fuel-burning plants; and increased funding for weatherization of low-income homes. Wagner, *Multiple Referral: House Energy Bill*, 35 CONG. Q. WEEKLY REP. 841 (May 7, 1977).

52. *Id.*

53. 13 WEEKLY COMP. OF PRES. DOC. 566, 569 (April 25, 1977).

54. Senate Report, *supra* note 44, at 7918-19. See notes 48-50 *supra* & accompanying text.

in that retail electric rates traditionally have been determined by the states,⁵⁵ but after making only minor amendments, the House passed the President's initiatives establishing mandatory national minimum retail standards for electric utilities.⁵⁶

The Senate, however, restricted the federal role to data collection, further study, and advocacy of rate reforms by the Secretary of Energy within the existing state rate-making procedures, believing that imposition of national standards would intrude unnecessarily into a traditionally state-regulated area.⁵⁷ House and Senate conferees⁵⁸ then produced a compromise bill containing no mandatory national standards, but including provisions for the state regulatory agencies to determine whether the hypothetical adoption of certain standards was appropriate to further any of the bill's purposes.⁵⁹ Congress passed and the President subsequently signed this bill, the Public Utility Regulatory Policy Act of 1978.⁶⁰ Although it does not explicitly remove rate-making authority from the state regulatory commissions, PURPA significantly increases federal involvement in state rate

55. As a procedural matter, the federal government would become involved only if the state commission refused to implement the provisions of the bill; substantively, however, the federal government would usurp totally the autonomy of the state commissions by dictating the rate theories that the commissions use in deciding a rate case. One commentator concluded that the President's bill was an unconstitutional infringement on state autonomy. Graney, *Conservation and the National Energy Plan*, 11 CREIGHTON L. REV. 1169, 1196 (1978).

56. H.R. 8444, 95th Cong., 1st Sess. (1977).

57. Senate Report, *supra* note 44, at 7910-11. In addition, the Senate found that significant rate reform already had occurred in the states without extensive federal involvement. *Id.*

58. H.R. REP. NO. 1750, 95th Cong., 2d Sess. 63, reprinted in [1978] U.S. CODE CONG. & AD. NEWS 7797 [hereinafter cited as House Conference Report].

59. *Id.* at 7804-05.

60. The President signed PURPA on November 9, 1978. Title I of PURPA, entitled "Retail Regulatory Policies for Electric Utilities," contains the rate reforms discussed in this Note. PURPA contains five additional titles. Title II, Certain Federal Regulatory Commission and Department of Energy Authorities, amends the Federal Power Act to encourage wheeling, pooling, and interconnection of power. See note 24 *supra*. Title III, Retail Policies for Natural Gas Utilities, establishes two standards for gas utilities for consideration by state regulatory authorities. Contained in Title IV of PURPA, Small Hydroelectric Projects, are provisions to encourage the development of small hydroelectric projects at existing dams. Title V, Crude Oil Transportation Systems, attempts to hasten the development of an east-west oil pipeline. Unrelated provisions are collected in Title VI, Miscellaneous Provisions. Public Utility Regulatory Policy Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified in scattered sections of 15, 16, 26, 30, 42, 43 U.S.C.); see House Conference Report, *supra* note 58, at 7803-54; Alpert, *The National Energy Act: Representing the Low-Income Consumer-Part I*, 12 CLEARINGHOUSE REV. 806, 806-12 (1979).

proceedings by establishing new procedures that override state procedural law, by requiring the commissions to consider various federal standards, and by granting new rights of intervention into the state rate-making proceedings.⁶¹

Title I of PURPA⁶² consists of standards that the state commissions must consider for each utility, the three purposes that these standards are intended to achieve, the procedures to be followed when considering the standards, and the establishment of new classes of intervenors who may argue for furtherance of the purposes through adoption of the standards.⁶³ Two types of

61. 16 U.S.C.A. §§ 2621, 2623, 2631 (West Cum. Supp. 1979).

62. Title I of PURPA applies to electric utilities retailing over 500 million kilowatt hours per year.

63. Mississippi has filed a suit alleging that Title I of PURPA is an unconstitutional infringement on its state autonomy. *Mississippi v. FERC*, No. J79-0212(c) (S.D. Miss., filed May 7, 1979). Relying on the tenth amendment and article 10, section 4 of the United States Constitution, Mississippi asserts that PURPA's required considerations and determinations, and the concomitant expense of employing additional state workers constitute an intrusion into the sovereign right of Mississippi to establish its own rate-making utility policies and procedures.

In *National League of Cities v. Usery*, 426 U.S. 833 (1976), the Supreme Court, premising its decision on the tenth amendment, recognized that Congress may not infringe upon certain attributes of state sovereignty. The Court held that the congressional imposition of maximum hour and minimum wage requirements on state employees would interfere with "the state's freedom to structure integral operations in areas of traditional governmental functions." *Id.* at 852. Thus, Congress cannot usurp the right of the states to provide traditional governmental functions. Historically, electric rate determination has been a state function. In light of the Court's protection of traditional state functions, this precedent supports Mississippi's allegations.

PURPA, however, does not impose mandatory rate design standards on the states, but rather requires the states only to consider certain rate design standards and then determine whether implementation of the chosen standard would further the statute's purposes. See note 67-71 *infra* & accompanying text. Thus, Congress through PURPA has not usurped the right of Mississippi to set the rates for electric utilities within the state.

Although the Court in *National League of Cities* did not base its decision on the precise resolution of the factual dispute, the effect of the minimum wage requirement on the states, it noted the significant impact of the increased costs on the functioning of the states. 426 U.S. at 846. Accordingly, Mississippi has alleged that Title I of PURPA "places an intolerable burden of time and money" on the Mississippi Public Service Commission in its utility rate-making function. Complaint at 9, *Mississippi v. FERC*, No. J79-0212(c) (S.D. Miss., filed May 7, 1979). The extent and nature of the costs and the attendant infringement of PURPA on the functioning of the Mississippi Public Service Commission is a factual issue. If Mississippi can prove that these costs are substantial and that they will have a serious adverse impact on the functioning of its Public Service Commission, PURPA could be an unconstitutional infringement on the sovereignty of Mississippi.

For a discussion of the uncertain implications of *National League of Cities*, see Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196 (1977).

standards are enumerated: section 2621(d) standards concerning rate structure⁶⁴ and section 2623(b) standards not directly relating to rate structure, but affecting the conditions of service.⁶⁵ Less strenuous procedural requirements and more limited intervention privileges are attached to the section 2623 standards than to section 2621. Through adoption of these standards, PURPA attempts to achieve conservation of the energy supplied by electric utilities, optimization of efficiency of facility and resource use by electric utilities, and equity in the rates charged to electric consumers.⁶⁶

Rate Structure Standards

Six rate structure standards are set forth in section 2621. cost-of-service rates, declining block rates, time-of-day rates, seasonal rates, interruptible rates, and load management techniques.⁶⁷ Although PURPA does not require adoption of these standards,⁶⁸ it does mandate that the state regulatory commission consider each standard on a utility-by-utility basis to determine whether implementation of the standard would further the three purposes of PURPA.⁶⁹ Furthermore, PURPA requires consideration of these standards after public notice and hearings, which must be initiated before November 9, 1980.⁷⁰ The final determination must include

64. 16 U.S.C.A. § 2621(d) (West Cum. Supp. 1979).

65. *Id.* § 2623(b). The standards contained in this section are mastermetering, automatic adjustment clauses, information to consumers, procedures for termination of electric service, and advertising. *Id.* For a full discussion of these standards, see Partridge, *A Road Map to Title I of the Public Utility Regulatory Policies Act of 1978*, 103 PUB. UTIL. FORT. 16, 21-22 (Jan. 18, 1979).

66. 16 U.S.C.A. § 2611 (West Cum. Supp. 1979). The purposes are general and little legislative history is provided to define them more narrowly.

The conferees intend that it is not necessary that all of these three purposes be achieved for any action to be considered as carrying out these purposes. Rather, if any of these purposes is achieved and the others are not negatively impacted, a finding can be made that the purposes of the title are carried out.

House Conference Report, *supra* note 58, at 7803.

67. 16 U.S.C.A. § 2621(d) (West Cum. Supp. 1979).

68. PURPA states that the states may implement any standard found to be appropriate to further one of PURPA's purposes or decline to implement any such standard. *Id.* §§ 2621(c)(A)—2621(c)(B). See note 93 *infra* & accompanying text.

69. House Conference Report, *supra* note 58, at 7804. "[W]ould the implementation aid energy conservation by consumers? Would it help the utility optimize the efficient use of resources and facilities? Would it provide equity to ratepayers?" *Id.*

70. 16 U.S.C.A. §§ 2621(b)(1), 2622(b)(1) (West Cum. Supp. 1979).

written findings, be based on the evidence established in the hearings, and be completed by November 9, 1981.⁷¹

Cost-of-Service Standard

The first standard in section 2621, the cost-of-service standard, dictates that rates for each class of electrical consumers reflect the cost of providing service to that class.⁷² Specifically, the commission must choose a method of measuring cost that "permit[s] identification of differences in cost-incurrence, for each class of electric consumers, attributable to daily and seasonal time of use and customer, demand, and energy components of cost."⁷³ By mandating that the state commissions examine in detail the various costs their customers impose on the system, PURPA forces the state commissions to develop rates that reflect accurately the costs that different classes of customers impose on the system.⁷⁴ The purpose of cost-reflective rates is to give the customers a price signal upon which they may choose between paying the increased price parallel to the cost they impose on the system or deferring their consumption to a time when consumption imposes a lesser burden on the system.

After development of truly cost-reflective rates, the commission, after hearing evidence, would make certain assumptions concerning the consumer response to these rate changes.⁷⁵ In particular, the regulatory agency would determine whether customer response to these new rates would result in conservation of electricity, efficient use of resources, and equity among ratepayers. Whether these cost-reflective rates would promote efficient use of resources turns on the degree of customer response to the rate modifications. If consumers reacted to the rate change by significantly altering their consumption patterns, then a component of that reaction would be conservation. Another component would be deferral of consumption

71. *Id.* §§ 2621(b)(1)(B), 2622(b)(2).

72. *Id.* § 2621(d)(1).

73. *Id.* §§ 2625(a)(1)—2625(a)(2). See note 36 *supra*.

74. See note 31 *supra*. PURPA does not dictate that state commissions follow either the original or the incremental cost theories. Instead, PURPA advocates a more flexible hybrid approach combining elements of both the original and incremental philosophies. The conferees intended that costs be measured in terms of both future demands and existing facilities. See House Conference Report, *supra* note 58, at 7812.

75. See note 45 *supra*.

to a lower-priced, nonpeak period when ample excess capacity is available, resulting in more efficient use of resources by the utility

Thus, assuming sufficient customer reaction, more cost-reflective rates would result in both conservation and efficient use of resources. Even without a customer response to cost-reflective rates, implementation of these rates would result in more equitable treatment of ratepayers because they would pay the actual cost they impose on the system. Therefore, even without a customer reaction to the rate changes, the regulatory agency would determine that cost-reflective rates further at least one of the purposes of PURPA, equity among customers.

Declining Block Standard

Unlike the cost-of-service standard, which PURPA encourages, the traditional declining block standard is allowed only if the utility can demonstrate that cost actually decreases as consumption increases.⁷⁶ Accordingly, PURPA requires a hearing to make factual inquiries into whether existing declining block rates are cost justified. The state commissions must consult detailed cost examinations of different customer classes to ascertain whether declining costs, the economies of scale, are still present in the electric utility. If cost increases as consumption increases and economies of scale no longer exist for that customer class, then the declining block rate must be eliminated hypothetically for that class to determine whether this elimination would result in conservation, efficient use of resources, or equity among taxpayers.

Assuming the declining block rate is not cost justified and is replaced with a more cost-reflective rate, the extent to which conservation of efficient use of resources would be achieved again turns on the degree and the nature of the customer reaction to the rate changes. If a significant beneficial alteration of consumption patterns occurred, then the elimination of the declining block rate would eliminate some of the wasteful consumption of electricity that the antiquated declining block rate structure promotes. This conservation, combined with a deferral of use from a peak to nonpeak period, would achieve more efficient use of utility capacity

76. 16 U.S.C.A. § 2621(d)(2) (West Cum. Supp. 1979); see notes 35-37 *supra* & accompanying text.

and resources because less inefficient peak generation capacity would be required and more productive nonpeak generation facilities would be utilized. As in the cost-reflective rate standard, even without a customer response to elimination of the declining block rate, more equitable rates would result from customers paying the share of the costs they impose on the system. Thus, if the state agencies were to determine that the declining block rate was not cost justified and hypothetically eliminate it, they would further at least one of the objectives of PURPA, equitable rates.

Time-of-Day Rates

The third section 2621 standard, time-of-day rates, mandates that state commissions consider whether the adoption of time-of-day rates, which reflect the varying costs incurred at different times of the day, would result in longrun benefits that exceed the cost of implementing such a rate.⁷⁷ The time-of-day rate structure is a specific type of peak-load pricing in which daytime usage is priced higher than nighttime usage because of the materially higher cost of generation during the daytime peak period.⁷⁸ The long-range benefits of such a rate are premised on consumer deferral of consumption from the daytime to the nighttime, reducing the peak daytime period generation demands and thereby decreasing the use of inefficient peak generation facilities.⁷⁹ The major cost of implementing this rating scheme would arise from the connection of each customer to a sophisticated new meter capable of calculating consumption at different times of the day

While developing the hypothetical time-of-day rates, the state commissions also must make assumptions concerning the customer

77. 16 U.S.C.A. § 2621(b)(3) (West Cum. Supp. 1979).

78. See notes 42-44 *supra* & accompanying text.

79. The House Conference Report stated:

The conferees intend long-run benefits to included savings by reason of using less expensive, rather than more expensive, fuels as well as using more efficient generation facilities rather than less efficient generation facilities. In terms of metering costs and other costs associated with the use of such rates, the conferees intend that the term "other costs" be interpreted narrowly and include only those costs directly involved in using these rates (such as added costs due to more complex billing services) and not costs indirectly involved such as the start up costs involved in fashioning a time of day rate structure for initial consideration in a rate case.

House Conference Report, *supra* note 58, at 7812.

reaction to increased rates during the day and the cost of the new meters. Finally, the commission must determine whether customer deferral of consumption to the nighttime sufficient to reduce the use of inefficient peak generation facilities would result and thus cause savings from implementation to exceed the cost of new meters. Assuming that the benefits exceed the cost, the commission then must determine whether implementation of time-of-day rates would further the purposes of PURPA.

A substantial beneficial alteration of customer consumption patterns would be necessary for the benefits of implementation to outweigh the associated cost; therefore, this same factual finding of the commission would lead to the conclusion that implementation of time-of-day rates would promote conservation of electricity and efficient use of utility resources. A portion of the modified consumption patterns in response to the increased daytime price would be conservation; the other portion would be deferral of consumption from the daytime to the nighttime and the resulting efficacious use of capacity. Finally, more equitable rates would be achieved because both daytime and nighttime consumers would pay the cost they actually impose on the system. In summary, if customer response to the augmented daytime rate and the diminished nighttime rate were sufficient, then implementation of such rates would further all three purposes of PURPA.

Seasonal Rates

Premised on the peak-load pricing theory, the fourth section 2621 standard, seasonal rates, permits higher rates for electricity consumed during a seasonal peak period than for consumption during a seasonal nonpeak period.⁸⁰ Anticipating this price modification, customers could choose to defer or decrease their consumption of electricity. Consumers, however, would find deferral of consumption more difficult in a seasonal rating scheme than in a time-of-day scheme because a seasonal rate design requires a customer to defer his usage several months whereas the

80. 16 U.S.C.A. § 2621(d)(4) (West Cum. Supp. 1979). The seasonal peak period depends on the climate. In warm climates the peak period occurs in the summer because of the operation of air conditioners. In colder climates the peak may be either winter or summer depending on the main power source of winter heating. If electricity supplies most of the heat during the winter, then the peak is in the coldest part of the winter.

time-of-day structure encourages customers to defer consumption only a few hours. Time-of-day rates therefore offer a better solution to the growing peak demand problem than seasonal rates because consumers are more able to defer their consumption in the time-of-day scheme than in the seasonal rating scheme. Unlike the adoption of time-of-day rates, however, implementation of seasonal rates would not necessitate the installation of new meters because existing meters can measure seasonal usage.⁸¹

To make the required determination, commissions therefore must construct seasonal rates and make assumptions concerning the consumer response to such a rate modification. If the commission would assume a significant alteration in customer consumption patterns, then a portion of that alteration would be conservation of electricity. The other portion would be deferral of consumption from the seasonal peak period to the seasonal nonpeak period, resulting in the more efficient use of utility capacity. Moreover, more equitable rates would result because both seasonal peak and nonpeak consumers would pay the cost they impose on the utility. Thus, if a significant change in consumption occurred in response to the increased seasonal peak price, implementation of such a standard would further all three purposes of PURPA.

Interruptible Rates

The fifth PURPA rate structure standard is the interruptible rate scheme.⁸² An interruptible rate is a reduced rate to a customer willing to have his consumption decreased or terminated during a peak demand period, thereby minimizing the necessity of using the wasteful peak generation facilities. As with the seasonal rate

81. The House Conference Report noted:

The standard concerning seasonal rates does not contain any qualification reflecting cost effectiveness. The cost of reflecting seasonal variations in cost does not involve the use of time of day metering equipment or other expenses at the consumer's end of the line. However, State Regulatory authorities may choose to disregard insignificant seasonal variations in costs of providing electric service. A variation of the rates based upon these insignificant variations in costs is not necessary to reflect costs accurately to consumers or otherwise carry out the purposes of this title.

House Conference Report, *supra* note 58, at 7807-08.

82. 16 U.S.C.A. § 2621(d)(5) (West Cum. Supp. 1979); see *Public Utility Rate Reform*, *supra* note 40, at 382-83.

determination, interruptible rate determination would involve no cost-benefit analysis because only negligible implementation costs are associated with interruptible rates. Unlike seasonal rates, however, interruptible rates would allow the utility to control the change in consumption patterns by consumers. When the utility experienced a peak period, it would terminate service to those customers with interruptible rates, thereby reducing the peak generation demand. Thus, the interruptible rate would be a highly reliable method of reducing the peak load of the utility

In considering the effects of this rate, the regulatory agencies first would create interruptible rates and then estimate the number of customers willing to accept diminished service for a reduced price. If the agency found that a significant number of customers would accept this decreased rate, then implementation would further all of the purposes of PURPA.

Under this pricing scheme, if the utility experienced a growing peak period, it could terminate service to all customers who accepted the interruptible rate, thereby forcing conservation of electricity. Furthermore, through the termination of a portion of its peak generation demand, the utility would realize more economical use of resources because the necessity of using expensive peak generation facilities would be attenuated. Additionally, more equitable rates would result from the adoption of an interruptible rate because each customer would pay the actual cost that he imposed on the system. If the customer chose the higher noninterruptible rate, his rate would reflect the higher cost associated with his peak generation demands. On the other hand, if he accepted the reduced quality of service and the concomitant lower rate, his rate would parallel the lower cost that attends nonpeak usage. Thus, if the commission determined that a significant number of customers would accept the interruptible rate, then it would conclude that implementation would further the purposes of PURPA.

Load Management Techniques

The final rate structure standard, the use of load management techniques,⁸³ includes the implementation of "any technique (other than a time-of-day or seasonal rate) to reduce the maximum

83. 16 U.S.C.A. § 2621(3)(6) (West Cum. Supp. 1979).

kilowatt demand on the electric utility."⁸⁴ An example of a load management technique is a device installed on a water heater to terminate electric service temporarily when the utility is experiencing a peak period.⁸⁵ This results in a decreased peak demand, thereby reducing the need to operate the costly peak generation facilities. To make the determination required by PURPA, a cost-benefit analysis similar to the one employed for time-of-day rates is required.

The cost associated with implementing a load management technique would be the expense of the device and its installation; the benefits of implementing this standard would depend upon the number of people willing to have the device installed on their heaters. As with the interruptible rate, when the utility experienced a peak-demand period, it would terminate electrical service temporarily to those customers. In the load management technique situation, however, the utility would terminate electricity only to the customer's water heater, not his entire household as in the interruptible rate situation. The ability of the utility to reduce a portion of its peak demand would make the described load management technique a valuable rate standard to electric utilities.

If the commission concluded that the benefits outweighed the cost, then it would determine that implementation would further the purposes of PURPA. The termination of electrical service during a peak would conserve electricity, and utility capacity and resources would be employed more efficaciously because use of expensive peak facilities would decrease. In addition, more equitable rates would result because customers who chose to have this device installed on their water heaters would pay less for their electricity because of temporary termination of electricity at peak periods. Thus, if the commission determined that the benefits from implementation of a load management technique—for example, a device to terminate electrical service to a water heater—exceeded the cost associated with implementation, then it would determine that implementation would further the purposes of PURPA.

84. *Id.* § 2602(8).

85. Nordin, *Residential Electric Load Control and Time-of-Use Pricing*, 102 PUB. UTIL. FORT. 16, 18 (July 20, 1978). See also Malko & Uhler, *The Rate Design Study, Helping Evaluate Load Management*, 104 PUB. UTIL. FORT. 11 (Oct. 11, 1979).

Procedural Provisions of PURPA

PURPA grants to any affected electric utility, any electric utility customer of an affected utility, and the Secretary of Energy the right to intervene in any ongoing rate-making proceeding and to initiate consideration of the standards.⁸⁶ Public notice of the upcoming proceeding must be provided to afford all eligible intervenors an opportunity to be present.⁸⁷ At the proceeding, all participants must have the opportunity to present direct and rebuttal evidence and to cross-examine witnesses.⁸⁸ Thus, the state rate-making proceeding, in effect, is a full hearing with direct and rebuttal evidence offered by all parties. This evidence is to consist of detailed studies and the testimony of expert witnesses concerning the appropriateness of implementing a rate structure standard. For example, industrialists may present evidence that time-of-day rates are inappropriate because the fixed nature of their production processes prevents any shifts in their demand. In addition, small residential consumers may challenge the industrialists' conclusions and offer evidence demonstrating that the implementation of time-of-day rates is cost effective, because residential consumers can defer their consumption more easily. The Secretary of Energy and the utility may offer testimony reflecting their views on the appropriateness of implementing time-of-day rates. After reviewing all the testimony, the commission issues a written determination containing its finding of whether implementation of the standard would further the purposes of PURPA.⁸⁹

Any participant subsequently challenging the validity of the commission's final determination in state court would have a substantial burden of proof. The applicable law would be state administrative law,⁹⁰ which typically provides that the commission's factual findings must be based on the record and supported by substantial evidence.⁹¹ State courts have interpreted

86. 16 U.S.C.A. § 2631(a) (West Cum. Supp. 1979).

87. *Id.* § 2621(b).

88. *Id.* § 2602(6)(A)(ii).

89. *Id.* §§ 2602(6)(A)(iii), 2621(a).

90. "State law governs on such matters as burden of proof, standard for review in state courts, and in any other matters not inconsistent with the requirements of this title." House Conference Report, *supra* note 58, at 7806.

91. See, e.g., MASS. GEN. LAW ANN. ch. 30A, § 14(7)(e) (West 1979); VA. CODE § 9-6.14:17

the substantial evidence standard broadly, and thus have granted state regulatory commissions extensive discretion when deciding factual issues. As long as some evidence supports the commission's finding, courts will not usurp the authority of the regulatory commission by substituting their own judgment for that of the commission.⁹² Thus, to overturn a commission finding, the participant would face the formidable burden of proving that no evidence was presented to support the commission's finding.

When applied to the determinations required by PURPA, the substantial evidence standard of review allows state commissions great discretion in deciding whether implementation of a section 2621 structure standard is appropriate to further the purposes of PURPA. The breadth of the commission's discretion is a function of the complexity of the factual issues involved in the consideration of the particular standard. The complexity of the factual questions ranges from the relatively simple consideration in the interruptible rate standard of the number of customers willing to accept the reduced rate, to the extensive cost-benefit analysis required for the time-of-day and load management technique standards. As the complexity and number of factual issues in a rate structure consideration increases, the quantity of evidence offered by all interested intervenors increases, thereby increasing the possible grounds to support a commission determination under the substantial evidence standard. Thus, the more complex the consideration of a rate structure, the more evidence the record will contain to support a commission decision either to implement or reject a standard.

IMPACT OF PURPA ON EXISTING RATE DESIGN

When the state commissions make the above determinations, PURPA grants interested parties the right to intervene in the proceeding and requires that the commissions follow certain procedures. PURPA states that the state commission may implement any standard found to further conservation, efficient

(Repl. Vol. 1978).

92. See, e.g., *Commissioner Baltimore City Police Dep't v. Cason*, 34 Md. App. 487, 368 A.2d 1067 (1977); *Duato v. Commission of Pub. Welfare*, 352 Mass. 635, 270 N.E.2d 782 (1971); *Minnesota Microwave, Inc. v. Public Serv. Comm'n*, 291 Minn. 241, 190 N.W.2d 661 (1971); *New Jersey Bell Tel. Co. v. Communication Workers*, N.J. Traffic Div., 5 N.J. 354, 75 A.2d 721 (1950).

use of resources, or equity among ratepayers, or may decline to implement any such standard.⁹³ The intent of PURPA is not to override the discretion of the state regulatory commissions in deciding the appropriate rate structure for their states. The conferees intended that PURPA supplement state law; that is, it should provide a basis for implementing a standard when state law furnishes inadequate authority. They noted in their report that "[i]n effect the three purposes of the title expand the discretion of the state regulatory authority to adopt the standards of section 111."⁹⁴ Thus Congress intended that when the state commission made a determination that implementation of a rate structure standard would further conservation, efficient use of resources, or equity among ratepayers, and state law provided insufficient authority for the commission to adopt the standard, then PURPA would provide additional authority to implement that standard.

The situation in which state law would provide insufficient authority for implementation of a section 2621 rate structure standard is difficult to imagine. Typical state law provides the commission with broad discretion to set rates, limited only by the requirement that the rates must be reasonable, just, and not unduly discriminating.⁹⁵ Generally, rates meet these requirements if they are premised on cost.⁹⁶ This result is precisely the intent of the section 2621 standards, to base electric utility rates on the cost of supplying the electricity. Each proposed rate standard attempts to charge customers the exact burden that they impose on the system, particularly at times of utility peak generation demand.⁹⁷ Existing state law provides the commissions with ample authority to premise utility rates on the cost of service by enacting the section 2621 standards without PURPA's supplemental discretionary authority.

The objectives of PURPA become irrelevant when considering the effect of these required determinations on a state's existing rate

93. 16 U.S.C.A. § 2621(c)(1) (West Cum. Supp. 1979).

94. House Conference Report, *supra* note 58, at 7805.

95. See note 31 *supra*.

96. *Id.*

97. For example, the time-of-day rate standard charges the daytime customer a higher rate than the nighttime user, reflecting the higher peak generation costs incurred during the day.

structure. The underlying determination of the cost effectiveness of the standard is dispositive; in this intermediate determination the commission has broad discretion to make a finding because it is unguided by any prior factual findings. For example, in considering the cost effectiveness of interruptible rates, the commission would not embark on a cost-benefit analysis. Instead, the commission would rely on an initial assumption concerning the number of people willing to accept such a rate. The final determination of the standard's furtherance of PURPA's purposes is controlled by this determination. Additionally, in light of state law, this underlying intermediate determination would dictate whether actual implementation of the standard would be required.

If the commission determined that the standard was cost effective, then the purposes of PURPA would be achieved and state law would require implementation of that standard. If, for example, declining block rates were found not to be cost justified, then their elimination and replacement would further PURPA's purposes. Additionally, state law that provides that rate differentials be based on cost would require the elimination of the declining block rate. Any other course of action by the commission would be an abuse of discretion and unlawful because rate differentials no longer would be based on the parallel cost differentials. Thus, once the commission made a favorable determination on the cost effectiveness of a standard, state law would require its implementation.

The commission could avoid this mandated implementation of the standard simply by using its broad discretionary powers and finding that the standard was not cost effective. That standard therefore is infeasible; implementation of a noncost-justified rate structure is not mandated by state law. For example, if the commission initially determined that the declining block rate was cost justified, then the standard of elimination of the declining block rate would be infeasible and nothing in state law would mandate its implementation. In summary, the underlying factual inquiry into the cost relatedness of the standard is the dispositive determination of the commission upon which furtherance of PURPA's purposes and actual implementation of the standard hinges.

CONCLUSION

The electric utility industry is experiencing serious problems caused mainly by the inability of the existing rate structure to defer growing peak demand. Growing peak demand is deleterious because it necessitates the operation of inefficient peak generation facilities, which operate on scarce oil. In addition, this continually growing peak demand augments the need for the construction of new generation plants. In response to these problems, several innovative rate design standards have been developed to defer consumption from expensive peak generation periods to less costly nonpeak generation periods. PURPA, a federal statute, requires that state utility regulatory commissions consider these innovative rate designs.

Rather than mandating implementation of these rate designs, PURPA merely obligates that state commissions determine whether the implementation of the rate design would result in conservation of electricity, effective use of utility resources, and equity among ratepayers. In order to make these required determinations, the state regulatory commissions must make assumptions concerning the cost of implementing the particular standard, the consumer response to the new rate, and the benefits from the altered consumption patterns. State administrative law grants the commissions broad discretion in deciding factual issues; therefore, because of the large quantity of variant evidence offered by all interested parties, the commissions will have nearly total discretion in determining whether a standard is cost effective.

Cost-effective standards further PURPA's purposes, and actual implementation of such standards is mandated by state law. Because the determination of the standard's cost effectiveness controls whether actual implementation of the standard will occur, and because the commissions have nearly total discretion in making this determination, the state commissions have wide latitude in determining whether actual implementation will occur. The actual impact of PURPA on existing rate design therefore will be negligible, because the state regulatory commissions retain the discretionary power to continue existing rate design.

TIMOTHY P DILLON