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Imprudent Power Construction Projects: The Malaise of Traditional Public Utility Policies

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IMPRUDENT POWER CONSTRUCTION PROJECTS: THE MALAISE OF TRADITIONAL PUBLIC UTILITY POLICIES

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INTRODUCTION

Bailouts or bankruptcy? Economically unfortunate investments in nuclear powered electric generating facilities forced many public utility policymakers to confront this Hobson's choice during the last ten years. This Article is not concerned with how public utility policymakers should resolve bankruptcy-bailout dilemmas. Instead, the Article focuses on how the nation can avoid making the inappropriate electric power investment decisions that lead to these dilemmas.

The present public utility policy is functionally incompatible with emerging economic and technological realities. This policy-reality dichotomy is the major reason why so many disastrous electric power investments were made over the last decade. In order for public utility decisionmakers to make optimal utility investment decisions in the future, a new public utility policy framework must be developed. This Article describes the dominant twentieth century public utility policy framework, compares emerging economic and technological trends with the conditions and assumptions that gave rise to such a framework, and outlines a new public utility policy framework for the twenty-first century.

I. PRESENT PUBLIC UTILITY POLICY: THE TRADITIONAL FRAMEWORK

The dominant public utility policy framework now in existence was constructed from six regulatory building blocks: (1) calculation

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of rates on the basis of average costs of service;[1] (2) evaluation of utility company investors' rates of return by public finance standards;[2] (3) grants of exclusive service area franchises to electric power generators;[3] (4) mandatory public utility service for anyone requesting it;[4] (5) determination of the reasonableness of utility construction projects on the basis of facts considered during construction certification proceedings;[5] and (6) discouragement of diversification by electric power companies into related businesses.[6] Each of these

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1. *See, e.g., In re* Consolidated Edison Co., 8 P.U.R.4th 475, 478-79 (N.Y. Pub. Serv. Comm'n 1975).

2. *See, e.g.*, Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944). The Court emphasized that rates set by the regulatory commissions "which enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed certainly cannot be condemned as invalid, even though they might produce only a meager return on the so-called 'fair value' rate base." *Id.* at 605. As applied, the *Hope* standard created a cost of capital approach that limits utilities' rates of return to the level needed to service their imbedded debt and secure equity investment. Pennsylvania Pub. Util. Comm'n v. Philadelphia Elec. Co., 31 P.U.R.4th 15, 50-64 (Pa. P.U.C. 1978). Therefore, rates of return are simply one of the costs utilities are entitled to recover, rather than a reward limited only by the companies' revenues and costs, as they are for unregulated firms.

3. *See, e.g.*, Retail Electric Supplier Certified Territory Act, OKLA. STAT., tit. 17, §§ 158.21-.32, 158.24(A) (Supp. 1981). This Act was passed in 1971 because the legislature felt that it was

> in the public interest that, in order to encourage the orderly development of coordinated statewide retail electric service, to avoid wasteful duplication of distribution facilities, to avoid unnecessary encumbering of the landscape of the State of Oklahoma, to prevent the waste of materials and natural resources, for the public convenience and necessity and to minimize disputes between retail electric suppliers which may result in inconvenience, diminished efficiency and higher costs in serving the consumer, the state be divided into geographical areas, establishing the unincorporated areas within which each retail electric supplier is to provide the retail electric service as provided in this act.

Id. at § 158.23.

4. *See, e.g.*, Dickinson v. Maine Pub. Serv. Co., 223 A.2d 435, 438-40 (Me. 1966); Preston County Light & Power Co. v. Renick, 145 W. Va. 115, 120-24, 113 S.E.2d 378, 383-87 (1960).

5. *See, e.g., In re* Rochester Gas & Elec. Co., 41 P.U.R.4th 438 (N.Y. Pub. Serv. Comm'n 1981). The issue here is who bears the cost of inappropriate utility construction initiated under a validly issued certificate of public convenience and necessity. Generally, certificates of public convenience and necessity provide contemporaneous regulatory judgments that there is a need for the utility project and that the construction plan is reasonable. Such a regulatory judgment provides utilities with regulatory justification for recovery of construction costs even though the finished construction project proves to be suboptimal. *Id.* at 442-46.

See also In re Consolidated Edison Co., 73 P.U.R.3d 417, 429-42 (N.Y. Pub. Serv. Comm'n 1968) (inclusion of nuclear power plant in electric company's rate base deemed reasonable even though subsequent experience proved that original selection of fuel was uneconomical); Waukesha Gas & Elec. Co. v. Railroad Comm'n, 181 Wis. 281, 301, 194 N.W. 846, 854 (1923) (whether investment is prudent must be determined as of time it was made).

6. Examples of state regulatory measures that tend to discourage utility company diver-

building blocks depends upon predictable economic growth and stable energy prices for its social utility.

A. *Average Cost Pricing*

In any given year, a utility company operates with a capital asset base that was acquired over a significant period of time and pur-

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sification include:

(1) Limiting the costs of purchases from affiliated companies that a utility can recover in its rates to below market value levels. *See, e.g., In re* Montana-Dakota Utils. Co., 278 N.W.2d 189, 192-93 (S.D. 1979).

(2) Lowering the rate of return an affiliated company is entitled to earn, by double leveraging calculations that take into account the capital structure of the affiliate's parent company in determining the affiliate's cost of equity capital. This double leveraging lowers the affiliate's rate of return, by limiting the affiliate's cost of equity capital to the parent's weighted cost of capital. *See, e.g.*, New England Tel. & Tel. Co. v. Public Utils. Comm'n, 390 A.2d 8, 39-43 & n.24 (Me. 1978); Potomac Edison Co. v. Public Serv. Comm'n, 369 A.2d 1035, 1040 (Md. 1977); Copeland, *Double Leverage One More Time*, PUB. UTIL. FORT., Aug. 18, 1977, at 19, 20.

(3) Including the returns of nonutility investments (dividends or profits) in utility income for ratemaking purposes. By including nonutility returns in the utilities' ratemaking income calculations, regulators inflate the utilities' jurisdictional revenues and thereby reduce the jurisdictional rates. United Transit Co. v. Nunes, 99 R.I. 501, 505-11, 209 A.2d 215, 218-21 (1965); *In re* Southbridge Water Supply Co., 57 P.U.R.3d 488, 491 (Mass. Dep't Pub. Utils. 1965).

(4) Attributing equal profitability to jurisdictional and nonjurisdictional operations for purposes of calculating jurisdictional revenue needs, when nonjurisdictional operations earn actual returns less than the allowable return on jurisdictional operations. This practice reduces the estimation of revenues needed to finance jurisdictional operations, a reduction that results in lower jurisdictional rates that compensate jurisdictional customers for their forced subsidization of the less profitable nonjurisdictional operations. Pennsylvania Pub. Util. Comm'n v. Philadelphia Elec. Co., 37 P.U.R.4th 381, 398-99 (Pa. P.U.C. 1980).

(5) Regulating affiliated companies on the same cost of service basis as their parents when it is determined that the parent and the affiliate are substantially integrated. *See* Interstate Natural Gas Co. v. Federal Power Comm'n, 331 U.S. 682, 684-93 (1947); Colorado Interstate Gas Co. v. Federal Power Comm'n, 324 U.S. 581, 595-604 (1945); Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 607-15 (1944).

(6) Removing unprofitable nonutility functions from the rate base, especially when they involve industries that are not regulated. Pennsylvania Pub. Util. Comm'n v. Duquesne Light Co., 43 P.U.R.4th 27, 87-93 (Pa. P.U.C. 1981).

The Public Utility Holding Company Act of 1935, 15 U.S.C. §§ 79 to 79z-6 (1984), imposes significant restrictions on utility diversifications to the extent that they will be accomplished through the holding company mechanism. As defined by the Act, holding companies have control over 10% or more of the voting securities of a public utility or another holding company, or controlling influence over a utility company or a holding company. 15 U.S.C. § 79b(a)(7). Because of the intricacies and complexities of the Act, it is beyond the scope of this Article. Further discussion of utility diversification will focus solely on state regulation.

chased at prices varying significantly from year to year.[7] A company also acquires rights to services and resources needed to operate its facilities. It finances its acquisitions of assets, services and resources by acquiring funds at various times and under various terms from a wide variety of sources.[8]

Traditional utility regulation limits the total revenues a utility company is entitled to receive from its customers to the reasonably contemporaneous costs of doing business.[9] These reasonably contemporaneous costs represent an averaging of historic costs incurred by the company over many time periods.[10] Under this rate methodology, the company is entitled to a return only on the ratemaking value of its capital assets, a calculation that relies in varying degrees on the book value or historic cost of the company's plant-in-service.[11] Depreciation as an operating expense is usually calculated on the basis of the original costs of depreciating assets.[12] Operating expenses reflect the blending of different technologies available for performing identical tasks, since technology advances over time and the utility gradually replaces old technology with the new. Finally, the rate of return a company is deemed entitled to is a weighted average of the

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7. M. FARRIS & R. SAMPSON, PUBLIC UTILITIES: REGULATION, MANAGEMENT AND OWNERSHIP 82-83 (1973).

8. K. HOWE & E. RASMUSSEN, PUBLIC UTILITY ECONOMICS AND FINANCE 5 (1982).

9. *See generally* P. GARFIELD & W. LOVEJOY, PUBLIC UTILITY ECONOMICS 12-13, 44-46 (1964) (discussing the rates charged by a utility company as a function of the company's total cost of service); K. HOWE & E. RASMUSSEN, *supra* note 8, at 70-71. *See also* Ohio Edison Co. v. Public Utils. Comm'n, 173 Ohio St. 478, 485, 184 N.E.2d 70, 76 (1962) (public utility rate base should be calculated on the basis of reproduction cost less depreciation).

10. Utilities are required to justify their rate requests on the basis of their revenue and cost experience over a test year that usually includes the 12 months preceding the utility rate request. *See* W. JONES, CASES AND MATERIALS ON REGULATED INDUSTRIES 128 (1976) Recently, some jurisdictions have adopted future test year ratemaking. *See* K. HOWE & E. RASMUSSEN, *supra* note 8, at 71.

11. Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944), provides the basis for using book values or historical costs as the measure of the company's rate base. Jurisdictions using this methodology calculate the company's rate base by subtracting accumulated depreciation from the original costs of the plant in service. *See, e.g., In re* California-Pacific Utils. Co., 91 P.U.R.3d 171, 176-77 (Or. P.U.C. 1971). Most states refuse to include in the rate base capitalized costs relating to equipment that is not providing adequate service, *see, e.g., In re* Bell Tel. Co., 75 P.U.R.3d 92, 98-99 (Nev. Pub. Serv. Comm'n 1968), or costs of equipment in excess of amounts the public utility commission deems reasonable. *See, e.g., In re* Detroit Edison Co., 24 P.U.R.4th 362, 368-70 (Mich. Pub. Serv. Comm'n 1978).

12. Ohio Edison Co. v. Public Utils. Comm'n, 173 Ohio St. 478, 490-92, 184 N.E.2d 70, 79-80 (1962). *Contra* Iowa-Illinois Gas & Elec. Co. v. City of Ft. Dodge, 248 Iowa 1201, 1243, 85 N.W.2d 28, 52 (1957) (allowance of depreciation as an operating expense should be based on present value, rather than on original costs, where the company's rate base is valued on a fair value basis).

terms under which the company has acquired funds over time, with the return to common stockholders usually the only current cost of money figure used.[13]

Asset prices tend to vary significantly from year to year.[14] Technological advances permit the company to perform the same task with less cost.[15] Interest rates and investor expectations also change significantly over time.[16] As a consequence, the traditional rate methodology rarely leads to rates which equal the company's costs of providing marginal units of service (marginal costs of service).[17] Under historic average cost ratemaking, as the company's output expands it will receive returns in excess of those allowable when marginal costs are falling, but will experience revenue shortfalls when marginal costs are rising. From the perspective of consumers, the price of utility services is higher than it should be when marginal costs are falling, but underpriced when marginal costs are rising.[18] In short, depending upon the relationship of the company's average costs and marginal costs, in any given year the utility will supply less than or more than a competitive output level of service, at prices above or below a competitive market price.

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13. *See supra* note 2.

14. *See generally* E. MCKEAGE, PUBLIC UTILITY REGULATORY LAW 63-80 (1956) (the uncertainty that exists in valuing public utility property makes the courts' task of passing upon reasonable rates very difficult).

15. K. HOWE & E. RASMUSSEN, *supra* note 8, at 18-19. *See also* Schwartz, *Impact of Technological Change on Pricing in the Energy Industries and the Regulatory Response*, in ESSAYS ON PUBLIC UTILITY PRICING AND REGULATION 255-57 (H. Trebing ed. 1971).

16. K. HOWE & E. RASMUSSEN, *supra* note 8, at 114-19.

17. *In re* Consolidated Edison Co., 8 P.U.R.4th 475, 480 (N.Y. Pub. Serv. Comm'n 1975). Marginal costs of service are the costs associated with providing the next unit of service. *Id.* If utility rates are set in accordance with marginal costs of service, the overall revenues allowable will be meaningless as a restraint on utility rates. However, traditional utility ratemaking practices give their highest priority to setting rates that will generate revenues no greater than those set by test year calculations. Each rate, theoretically, will provide the same rate of return as the overall allowed rate of return. Departures from this standard occur as socio-economic-political conditions pressure commissions to collect less than the allowed rate of return from some customers, and more than the allowed rate of return from others.

18. *See* Baumol, *Rate Making: Incremental Costing and Equity Considerations*, in ESSAYS ON PUBLIC UTILITY PRICING AND REGULATION 141-44 (H. Trebing ed. 1971). *See also* K. HOWE & E. RASMUSSEN, *supra* note 8, at 186-91 (if regulators were able to monitor and adjust rates, they would select a price equal to average costs); Wilder, *Marginal Cost-Pricing: Theory and Practice*, in CURRENT ISSUES IN PUBLIC-UTILITY ECONOMICS 169-76 (A. Danielsen & D. Kamerschen eds. 1983) (consumer welfare will increase by expanding output when price exceeds marginal cost).

B. *Public Finance Returns*

The energy industry, like the transportation and communications industries, is generally regarded as providing services which are public in nature.[19] These infrastructure industries comprise the foundation of the nation's economic development, and furnish households with essential services. Society demands that these essential services be made widely available on a stable, nondiscriminatory basis.[20] Historically, however, these industries experienced monopolistic market structures, cartel activities, or alleged discriminatory behavior.[21] The private sector may be perceived by consumers as unable or unwilling to provide an adequate supply of these essential services.[22] Government regulation is the traditional response to such perceptions.

The goal of government regulation of public utilities is to provide society with utility services in larger amounts, at lower costs, and under more stable conditions than would result from operation of these industries in the free market.[23] Therefore, investors in most regulated companies are limited to the returns they could receive from such low risk investments as government debt instruments or the debt instruments and common stock of mature and stable companies.[24] This is especially true in industries where regulation has

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19. *See* Phillips, *The Changing Environment of Public Utility Regulation: An Overview*, in CURRENT ISSUES IN PUBLIC-UTILITY ECONOMICS 25-34 (A. Danielsen & D. Kamerschen eds. 1983). *See also* K. HOWE & E. RASMUSSEN, *supra* note 8, at 3 (important difference betwen gas and electric utilities and telephone utilities is that former are basically one product industries, while latter is multiproduct, and, therefore, different regulatory and economic issues bear on each).

20. P. GARFIELD & W. LOVEJOY, PUBLIC UTILITY ECONOMICS 2-3, 12-13 (1964).

21. *See* Boyer, *Testing the Applicability of the Natural Monopoly Concept*, in APPLICATIONS OF ECONOMIC PRINCIPLES IN PUBLIC UTILITY INDUSTRIES 1-13 (W. Sichel & T. Gies eds. 1981); P. GARFIELD & W. LOVEJOY, *supra* note 20, at 15-27; K. HOWE & E. RASMUSSEN, *supra* note 8, at 1-3, 42-50. One economic rationale for the monopolization of public utilities is that a single supplier can achieve lower unit costs than several competitive firms serving the market. *Id.* at 19.

22. K. HOWE & E. RASMUSSEN, *supra* note 8, at 2. Commentators have noted that "[c]ompelling economic and physical factors rule out all but the monopolistic form of market organization in the supply of local public utility services." P. GARFIELD & W. LOVEJOY, *supra* note 20, at 15.

23. *See generally* Posner, *Taxation by Regulation*, 2 BELL J. ECON. & MGMT. SCI. 22 (1971); Mushkin & Bird, *Public Prices: An Overview*, in PUBLIC PRICES FOR PUBLIC PRODUCTS 3-25 (S. Mushkin ed. 1972); Milliman, *Beneficiary Charges — Toward a Unified Theory*, in PUBLIC PRICES FOR PUBLIC PRODUCTS 27-51 (S. Mushkin ed. 1972); Vickrey, *Economic Efficiency and Pricing*, in PUBLIC PRICES FOR PUBLIC PRODUCTS 53-72 (S. Mushkin ed. 1972).

24. *See* Pennsylvania Pub. Util. Comm'n v. Philadelphia Elec. Co., 31 P.U.R.4th 15, 50-64 (Pa. P.U.C. 1978).

been justified on the grounds of preventing monopolization or protecting producers from destructive competition. Such regulation is premised on a government-producer contract that provides the producer with protection from competition and provides the public with essential services at the lowest possible rates.[25]

C. *Exclusive Service Area Franchises*

To insure stability, traditional utility regulation affords regulated companies considerable freedom from intraindustry competition. In some regulated industries, most notably surface transportation, regulation was extended to competing forms of service in order to protect companies from vigorous interindustry competition as well.[26] State and local governments often grant electric power companies and natural gas companies exclusive service area franchises that insulate them from intraindustry competition over significant time periods.[27] Public utility commissions have sometimes adopted ratemaking policies designed to discourage price competition between electric power and natural gas service.[28]

D. *Service to All*

The requirement that utility companies provide service to the public on demand was derived from the early common law rules forbidding discrimination by persons engaged in providing common services such as innkeeping, carriage service, and warehousing.[29] This nondiscrimination requirement was imposed on common trades not only because they solicited business from the general public, but also because they provided services considered essential to economic life and, in some cases, to life itself.[30]

The nondiscriminatory service requirement imposed on utilities

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25. *See* Dickinson v. Maine Pub. Serv. Co., 223 A.2d 435, 437-38 (Me. 1966); E. CLEMENS, ECONOMICS AND PUBLIC UTILITIES 25-28 (1950).

26. *See* 2 A.E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS 178-93 (1970).

27. *See supra* note 3.

28. *See In re* Southern Cal. Edison Co., 90 P.U.R.3d 1, 21-23 (Cal. P.U.C. 1971). The California Commission rejected an electric company's request that customers for whom natural gas was a reasonable energy option receive rate increases less than the company-wide increases, to avoid customer losses. The Commission was concerned that beneficial rates for favored customers would result in competing utilities demanding the right to offer comparable rates, so that lower rates to the competitive customers would impose higher rates on the captive customers of each system. *Id.*

29. *See* Munn v. Illinois, 94 U.S. 113, 124-30 (1876).

30. *Id.*

a duty to serve on equal terms all who were willing and able to pay a fair price.[31] Even when prices were attacked as unfairly high, no one was permitted to receive service at a price below the costs of service, or significantly below the price paid by others.[32]

During the twentieth century, public utility policymakers expanded the universal requirement beyond its original nondiscrimination purpose. Regulators enlisted public utilities in the cause of stimulating economic growth.[33] In pursuit of the goal of serving all who demanded service, regulators required utility companies to expand their facilities to accommodate the higher demands for utility services that usually accompany economic expansion.[34] If the new facilities constructed to serve new demands were more costly than the facilities used to service historic demands, the utility companies were permitted to spread the higher costs of new facilities over their entire customer base.[35] Through such rolled-in-cost decisions, historic cus-

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31. *See* Cedar Island Improvement Ass'n v. Clinton Elec. Light & Power Co., 4 P.U.R.3d 65, 70 (Conn. P.U.C. 1954).

32. *Id.* at 71-72.

33. *See, e.g., In re* Tampa Elec. Co., 37 P.U.R.3d 65 (Fla. R.R. & P.U.C. 1960). Concern over economic development was a major factor in the Florida Commission's decision to lower the electric power rates of large industrial customers. *Id.* at 69-72, 78-79. Registering its concern, the Commission noted:

> The general manager of Greater Tampa Chamber of Commerce testified that the first question asked of the chamber of commerce by a prospective new industry, after the new industry has analyzed the market for its product, is the cost of utility rates; that it is the position of the chamber of commerce that industrial development is absolutely essential to the economic growth and welfare of the Tampa bay area, that the commission should take that into consideration in reaching a decision in this matter; and that in inducing industry to come into the area, the community must provide adequate utilities at rates which are favorably comparative with other areas of the state, the region, and the nation as a whole. *It is clear that there is keen competition between Florida and all other sections of the country for industry of all kinds, and the role of Tampa Electric in that competition is readily apparent.*

Id. at 71 (emphasis added).

34. *See* South Cent. Bell Tel. Co. v. Louisiana Pub. Serv. Comm'n, 352 So. 2d 999, 1005-06 (La. 1977); *Ex parte* South Cent. Bell Tel. Co., 41 P.U.R.4th 298, 300-04 (La. Pub. Serv. Comm'n 1981).

35. In *In re* Southern Cal. Edison Co., 90 P.U.R.3d 1 (Cal. P.U.C. 1971), the agricultural intervenors contended that they should not have to contribute to the financing of new facilities since they would not use them. In response, the Commission stated that "[p]ersons taking service under the agricultural and pumping schedule are getting good service because Edison has a system that is up-to-date and being constantly improved. Everybody must pay for this improvement." *Id.* at 24-25. *See also* South Cent. Bell Tel. Co. v. Louisiana Pub. Serv. Comm'n, 352 So. 2d 999 (La. 1977). The court stated: "[S]hould the expenditure necessary to implement this [full service] order adversely affect its earnings (return on equity), the appropriate proceeding by which the company may seek relief is the institution of a rate proceed-

tomers were forced to subsidize new economic growth. Utilities and their historic customers were forced to assume a large part of the risks associated with providing electric service to new business enterprises. Short-term economic expansions may not have long-term staying power. If short-term surges in demand for utility services terminate before the end of the useful lives of the facilities built to serve them, the utility companies and their remaining customers may be left with the financial burden of supporting redundant utility facilities.

Despite the risks of redundancy inherent in expanding utility services to serve new business customers, utility companies have been given little discretion by regulatory commissions to decide whether new service demands are sufficiently stable to warrant an investment in new utility facilities. Rather, when new demands have overextended existing utility facilities, regulators, for the most part, have required utility expansion without questioning whether the new demand levels would be sustained over the life of the new facilities.[36]

In fact, regulators established ratemaking guidelines that permitted utilities to pass on to their remaining customers the costs of utility facilities that became redundant because of declining demand.[37] Backed by this cost coverage regulatory policy, utilities had little incentive to question the stability of new demands for utility service. Instead, utilities responded almost automatically to short-term increases in demands for utility services with new utility con-

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ing." *Id.* at 1006 (footnote omitted). *Accord* Hogan v. Hampden Tel. Co., 36 P.U.R.4th 480, 485 (Me. P.U.C. 1980); Pollis v. New England Tel. Co., 25 P.U.R.4th 529, 534 (Me. P.U.C. 1978).

36. *See* Wisconsin State Rural Electrification Coordination Comm. v. Wisconsin Gas & Elec. Co., 17 P.U.R. 31, 36 (Wis. Pub. Serv. Comm'n 1936). The case of *In re* Tampa Elec. Co., 37 P.U.R.3d 65 (Fla. R.R. & P.U.C. 1960), is particularly revealing with regard to utility reflex reaction to contemporaneous growth. In *Tampa*, the Commission noted that between 1954 and 1960, 123 new industries moved into the Tampa area; in addition, existing industries made 125 major expansions. *Id.* at 70. These new locations and expansions resulted in about $204.7 million in new investment, $26.5 million in new annual payrolls, and 4,600 new industrial jobs. *Id.* In response to projected industrial growth, Tampa Electric added six new generating units between 1945 and 1957. *Id.* at 77. Yet, by 1960, several major industries were resisting electric rate increases on grounds that competitive pressures from firms located outside the Tampa area, and in some cases outside the United States, were affecting their abilities to either expand or maintain their facilities. *Id.* at 71 (steel industry); *id.* at 71-72 (phosphate industry); *id.* at 74 (cement industry). The problem Tampa Electric faced was that, absent rate concessions, many industrial customers were threatening to leave its system. This would have resulted in revenue shortfalls that could only be remedied by passing rate increases on to its remaining customers. *Id.* at 78-80.

37. *See, e.g., In re* Tampa Elec. Co., 37 P.U.R.3d 65, 78-80 (Fla. R.R. & P.U.C. 1960).

struction projects.[38]

Government often interfered in the marketplace to stimulate economic development in sparsely settled, undeveloped areas of the country. Regulators have used public utility companies to further such development goals by defining utility service areas broadly enough to include areas where utilities would not have voluntarily offered services if left to exercise their own business judgments.[39] To buttress these development tactics, regulators commanded utilities to provide service to undeveloped areas at rates that produced little or no return on the utility investments involved.[40] The utilities were permitted, however, to charge customers in developed areas rates with abnormally high profit margins, as compensation for the low rate of return received from serving the undeveloped areas.[41]

In addition to subsidizing development, burdened classes of ratepayers have had to cross-subsidize customers allegedly unable to pay a fully-allocated rate for utility services. Financially distressed business customers were successful in acquiring reduced rates, sometimes for years.[42] More recently, the concept of lifeline rates was developed as a means of securing affordable utility service for low income households.[43] Many lifeline rate proposals involve cross-subsidies favoring low income households and burdening businesses and

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38. *See, e.g., In re* Rochester Gas & Elec. Corp., 41 P.U.R.4th 438, 441-46 (N.Y. Pub. Serv. Comm'n 1981) (utility incurred substantial costs in planning for a new facility despite serious questions concerning the true need for the facility).

39. *See* Crowell v. Hackensack Water Co., 73 P.U.R.3d 406, 408-09 (N.J. Bd. Pub. Util. Comm'rs 1968) (water company ordered to provide service to customers where unserviced property was within a reasonable distance of existing facilities, the expansion was financially feasible, it would generate enough business to justify itself, and public convenience and necessity demanded it); *In re* Nucla-Naturita Tel. Co., 33 P.U.R.3d 278, 282 (Colo. P.U.C. 1960) (utility can be required to expand if services are needed and costs are reasonable).

40. *In re* Public Serv. Elec. & Gas Co., 28 P.U.R.3d 155, 155-56 (N.J. Bd. Pub. Util. Comm'rs 1959). *See supra* note 39.

41. *See supra* note 39. *See also* General Tel. Co. v. Wisconsin Pub. Serv. Comm'n, 54 P.U.R.3d 210, 212-13 (Wis. Cir. Ct. 1964) (holding that commissioner's policy of extending service to all rural subscribers justifies increase in rates to original subscribers).

42. *See In re* Utah Power & Light Co., 22 P.U.R.4th 351, 373-74 (Idaho P.U.C. 1977); *In re* Alabama Power Co., 83 P.U.R.3d 321, 351-52 (Ala. Pub. Serv. Comm'n 1969); *In re* Tampa Elec. Co., 37 P.U.R.3d 65, 71-72, 74, 78-80 (Fla. R.R. & P.U.C. 1960).

43. *See, e.g.*, Public Utility Regulatory Policies Act of 1978, § 114, 16 U.S.C. § 2624(b) (1982) (commanding state utility commissions and unregulated utility systems to consider whether lifeline rates should be adopted within a two year period commencing Nov. 9, 1978). For a succinct overview of lifeline rates, their purposes, implementation methods, and regulatory issues, see NATIONAL ENERGY LAW & POLICY INSTITUTE, IMPLEMENTING THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978 IN OKLAHOMA §§ IV(1)-IV(11) (1980).

affluent individuals.[44]

Thus, a regulatory concept intended to prevent discrimination in the provision of essential services developed into a system of complex cross-subsidies designed to further governmental objectives of economic development and social welfare. These cross-subsidy systems are protected by exclusive service area franchises which insulate utilities from competition for the business of their burdened ratepayers.

E. *New Construction Approvals*

Consistent with public utility regulators' development and welfare goals, certificates of public convenience and necessity for new utility construction projects were generally granted without much controversy when construction plans were finalized.[45] Once plans were approved, the issues of the need for new facilities, the appropriateness of the utilities' choices of technology, and the economic feasibility of completing the construction projects successfully, were deemed resolved.[46] If a project later proved to be undesirable, states generally regarded themselves as estopped from challenging the utility's right to put the new construction into operation and its costs into the utility's rate base. The theory of estoppel was based on the states' previous rulings, in certification proceedings, that the decision to initiate the construction project was reasonable.[47]

Obviously, this regulatory policy places most of the risk that changing conditions will render new construction projects unnecessary or uneconomic on the utility's ratepayers. This risk increases geometrically as the time span between the start of a utility construction project and its introduction into service lengthens.[48]

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44. Indeed, § 114 of the Public Utility Regulatory Policies Act of 1978, 16 U.S.C. § 2624(a) (1982), states explicitly that lifeline rates below utility costs of service do not violate federal rate design standards. *See generally In re* Gas & Elec. Util. Rate Structure, 24 P.U.R.4th 332 (Cal. P.U.C. 1978) (determining whether various lifeline rates are reasonable). Note especially the dissenting opinion of Commissioners Symons and Sturgeon, *id.* at 347-48.

45. For a general discussion of certificates of public convenience and necessity, see K. HOWE & E. RASMUSSEN, *supra* note 8, at 271-75. The regulatory commission has reasonable latitude in granting these certificates, and absolute or indispensible public need is not a prerequisite. The utility need only show public expedience, reasonable benefit, or the prevention of detriment to the public. *Id.* at 274.

46. *Id.* at 271-75. *Contra In re* Rochester Gas & Elec. Corp., 41 P.U.R.4th 438, 441-42 (N.Y. Pub. Serv. Comm'n 1981) (commission initially granted approval, but upon reconsidering the need for the proposed facilities, vacated its approval).

47. *See supra* note 5.

48. This increase in risks is caused by the difficulty of forecasting future events. As the forecasting horizon expands, chances of an inaccurate forecast increase significantly, since economic, political and technological conditions are changing rapidly. Koreisha & Stobaugh, *Ap-*

F. *Diversification Disincentives*

The stability goals of public utility policymakers are important factors in the formation of regulatory policies that discouraged utility companies from engaging in diverse business operations. Historically, nonutility businesses involved greater risks than utility businesses.[49] Therefore, successful utility company investments in nonutility businesses generated higher rates of return than investments in utility operation. Regulators feared that this opportunity to earn higher rates of return through nonutility investments might divert utility companies' capital from desirable reinvestments in their utility operations.[50]

Given the higher risks associated with them, nonutility investments were more likely to lead to capital losses than were utility investments. When losses occurred, capital was lost that otherwise would have been available for reinvestment in the utility sector. In addition, when utilities that diversified suffered significant losses through poor nonutility investments, they experienced greater difficulty acquiring capital on favorable terms for their utility operations, and the capital costs borne by their ratepayers increased. These adverse results led regulators to regard utility company investments in nonutility businesses as ventures that involuntarily forced ratepayers to assume greater risks of either receiving inadequate service or paying higher than normal utility rates.[51] As a consequence, regulators imposed constructive trust-type policies on utility companies' nonutility investments, so that ratepayers were credited with nonutility profits while stockholders were inflicted with nonutility losses.[52] This "heads I win, tails you lose" approach gradually became an effective disincentive to utility company diversification.

Often, utilities chose to diversify by affiliating with companies that produce coal, oil, or natural gas. These affiliated companies provide utilities with fuel resources critical to their operations.[53] Such investments present utilities with incentives to purchase services and

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pendix: *Limits of Models*, in ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 234-65 (R. Stobaugh & D. Yergin eds. 1979).

49. *See, e.g.*, Pennsylvania Pub. Util. Comm'n v. Duquesne Light Co., 43 P.U.R.4th 27, 87-89 (Pa. P.U.C. 1981) (describing the high risks encountered in the coal mining industry).

50. *See* D. HAWES, UTILITY HOLDING COMPANIES §§ 4.02[3], 6.03 (1984).

51. *Id.* at 3.05[2], 4.02[3], and 6.03.

52. *See* United Transit Co. v. Nunes, 99 R.I. 501, 209 A.2d 215 (1965); Pennsylvania Pub. Util. Comm'n v. Duquesne Light Co., 43 P.U.R.4th 27 (Pa. P.U.C. 1981); *In re* Southbridge Water Supply Co., 57 P.U.R.3d 488 (Mass. Dep't Pub. Utils. 1965).

53. This practice is known as backward integration.

supplies from their affiliated companies which could be acquired on better terms from unaffiliated suppliers. To protect ratepayers and the competitors of utility company affiliates from the abuses inherent in sweetheart arrangements between utilities and their affiliates, regulators subject utility-affiliate transactions to stricter scrutiny than other utility business transactions.[54] In many cases, regulators also subject the affiliated suppliers to utility type profit controls.[55] Since the industries in which affiliates operate generally involve greater risks than the utility sector, limiting affiliated suppliers to utility profit levels is an effective way of discouraging utilities from investing in these industries. In addition, utilities making these investments frequently are prohibited from passing on to their customers, in the form of higher rates, the entire cost of the supplies they purchase from their affiliates. In all cases, utility-affiliate supply transactions are subjected to greater regulatory scrutiny than are other utility supply arrangements.[56]

II. CHANGING TIMES FOR THE PUBLIC UTILITY INDUSTRY — AN HISTORICAL OVERVIEW

The six regulatory building blocks outlined above form the framework for the dominant public utility policy used in the United States in this century. This policy was developed in response to economic and technological conditions that once existed, but changed substantially over the past two decades. A brief overview of these changing conditions reveals that the public utility policy now employed in this country is no longer appropriate.

A. *The Golden Age*

Current public utility policy is premised on conditions which existed during what might be called the "golden age" of public utilities. This "golden age" lasted roughly from the end of World War II until 1973, when the Arab Oil Embargo changed the pattern of energy use world-wide. During these years, utilities enjoyed declining cost structures, increasing demands, and the goodwill of investors, ratepayers and politicians.

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54. D. HAWES, *supra* note 50, at §§ 10.01-10.03.

55. *See* Interstate Natural Gas Co. v. Federal Power Comm'n, 331 U.S. 682, 684-93 (1947); Colorado Interstate Gas Co. v. Federal Power Comm'n, 324 U.S. 581, 595-604 (1945); Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 607-15 (1944).

56. *See In re* Montana-Dakota Utils. Co., 278 N.W.2d 189, 192-93 (S.D. 1979); D. HAWES, *supra* note 50 at §§ 10.01-10.03.

Utility cost structures declined during the postwar era, primarily because technological advances permitted utilities to achieve greater economies of scale by building larger power plants.[57] These economies of scale exerted downward pressures on utilities' operating costs. Operating costs were further minimized by such factors as low interest rates, low inflation, and low oil and gas prices.[58]

High and stable rates of growth in the general United States economy stimulated increased demands for electricity.[59] By accommodating these higher demands for electricity through the construction of large, high technology power plants, utilities not only fulfilled their duty to serve all demands, they also realized important cost savings.[60] This combination of factors — declining cost structures and increasing demands for service — made utilities an attractive investment.[61] Established electric rates, based on historic costs that were higher than the actual costs of operating new plants, were more than adequate to finance both current operations and the construction of new power plants, while simultaneously providing investors with attractive returns on their investments.[62] Rate cases were rarely filed, and when they were, they often resulted in rate decreases.[63]

It is not surprising that utilities enjoyed immense goodwill from investors, ratepayers, and politicians. Increased electrical demands were met quickly by the utilities with newer and larger power plants; the newer and larger power plants produced cost savings enabling the utilities to provide attractive returns to investors; and the ratepayers enjoyed increased service at constant or declining rates.

Utilities had reason to believe that this idyll would last indefinitely. Throughout the expansionary postwar era, demands for energy, especially electricity, grew at a rate substantially equal to the nation's overall economic growth rates.[64] Some commentators suggested that this direct one-to-one relationship was an ironclad eco-

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57. *See* A. CARRON & P. MACAVOY, THE DECLINE OF SERVICE IN THE REGULATED INDUSTRIES 15-17 (1981).

58. *Id.* at 15, 33-34.

59. *Id.* at 15-17.

60. *Id.* at 23-26.

61. *Id.* at 25.

62. *Id.* at 21-22.

63. *Id.* at 19-20. *See* Joskow, *Electric Utility Rate Structures in the United States: Some Recent Developments*, in PUBLIC UTILITY RATE MAKING IN AN ENERGY-CONSCIOUS ENVIRONMENT 1, 2-3 (W. Sichel ed. 1979).

64. *See* Dohner, *The Bedeviled American Economy*, in GLOBAL INSECURITY: A STRATEGY FOR ENERGY & ECONOMIC RENEWAL 58, 69 (D. Yergin & M. Hillenbrand eds. 1982).

nomic law.[65] According to this view, energy demands, especially electricity demands, were so inelastic that they were practically non-responsive to changes in price.[66] Based on this hypothesis, econometric models were constructed which predicted that high rates of growth in electricity production were essential to high rates of economic growth, which would in turn create significant increases in electricity demands.[67]

Buttressed by these econometric models and by the industry's recent history, utilities initiated ambitious power plant construction programs that state public utility commissioners were only too happy to approve.[68] After all, for years new utility construction brought nothing but increased economic growth and stable electricity rates for every community. There was little reason to believe the future would bring different results. Once the new power plant construction plans were approved, everyone assumed that the utility-regulator-ratepayer consensus for their completion would remain intact throughout the construction period. But these assumptions were proven inaccurate by the economic events of the early 1970's, and the public utilities' "golden age" came to an abrupt end.

B. *The Age of Uncertainty*

Unfortunately, the past was not an accurate reflection of the future where electric power was concerned. In the early 1970's, a number of factors reversed the public utility industry's history of declining costs, increasing demand, and goodwill. An era of turbulence began which resulted in increased costs, decreased demand and, at times, outright hostility on the part of the public, investors and politicians.

In the postwar era, electric utilities had become increasingly reliant on natural gas and fuel oil as their primary fuel sources.[69] The

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65. *See* R. VIETOR, ENERGY POLICY IN AMERICA SINCE 1945: A STUDY OF BUSINESS-GOVERNMENT RELATIONS 317 (1984).

66. *Id.*

67. *See, e.g.*, Koreisha & Stobaugh, *Appendix: Limits to Models*, in ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 305-37 (R. Stobaugh & D. Yergin eds. 1979) (examples of econometric models). *See generally* A. LOVINS, SOFT ENERGY PATHS: TOWARD A DURABLE PEACE 63-72 (1977) (discussion on the use of models in predicting energy future).

68. *See* K. ARROW, F. BATOR, K. DAM, R. FRI, E. FRIED, R. GARWIN, S. GOUSE, W. HOGAN, H. LANDSBERG, H. PERRY, G. RATHJENS, L. RUFF, J. SAWHILL, T. SCHELLING, R. STOBAUGH, T. TAYLOR, G. THOMPSON, J. WHITTENBERGER & M. WOLMAN, ENERGY: THE NEXT TWENTY YEARS 421 (1979) [hereinafter cited as TWENTY YEARS].

69. *See* A. CARRON & P. MACAVOY, *supra* note 57, at 40-42. *See also* Lawrence &

Arab Oil Embargo resulted in dramatic increases in the price of fuel oil, coupled with shortages of fuel oil and natural gas supplies.[70] The fuel costs of electric power plants skyrocketed.[71] These escalated fuel costs often had to be absorbed by utility company shareholders because they occurred too quickly to be passed on through traditional rate hearings.[72] As fuel costs continued to escalate, utilities were permitted to eventually pass them on directly to ratepayers through fuel adjustment charges.[73] This created new problems. Unaccustomed to rate increases as rapid and as high as those produced by fuel adjustment charges, utility ratepayers became more resistant to rate increase proposals and more active in elections involving public utility commissions. They also utilized conservation programs designed to reduce their demand for energy. Thus, the oil shortages of the early 1970's had a marked effect on utilities' costs, public image, and demand.

Inflation also contributed to the problems experienced by the public utility industry.[74] In this high inflation period, even when pub-

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Daneke, *Issues Affecting the Decentralization of Energy Supply*, in ENERGY POLICY AND PUBLIC ADMINISTRATION 63-65 (G. Daneke & G. Lagassa eds. 1980) (noting continued United States reliance on nonrenewable energy sources and the role of oil and natural gas in formulating a decentralization policy).

70. Stobaugh, *After the Peak: The Threat of Imported Oil*, in ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 16, 28 (R. Stobaugh & D. Yergin eds. 1979). In the wake of the 1973 Arab-Israeli war, the OPEC nations imposed a short but disruptive oil embargo on the western nations and followed the embargo by raising their "take" on oil from $1.77 to $7.00 per barrel. *Id.*

71. *See* A. CARRON & P. MACAVOY, *supra* note 57, at 41-42.

72. For a discussion of the concept of regulatory lag, see K. HOWE & E. RASMUSSEN, *supra* note 8, at 120.

73. For a discussion of the historical development of automatic adjustment clauses, see M. SCHMIDT, AUTOMATIC ADJUSTMENT CLAUSES: THEORY & APPLICATION 15-40 (1980). Fuel adjustment clauses were in existence for many decades but generally were triggered only during highly inflationary periods. In the postwar era, fuel adjustment clauses were applied mainly to industrial users, but were rarely triggered because productivity gains generally neutralized fuel cost increases, causing public utility commissions to be reluctant to allow the clauses to be activated. *Id.* In the 1970's, fuel cost increases seriously eroded electric utility earnings. Fuel adjustments were not only approved; they were activated as to all ratepayers by most utility commissions. *Id.* at 59.

In the last decade, levels of inflation and fluctuations in the costs of capital caused some commissions to experiment with service-at-cost adjustment clauses. These clauses permit utilities to adjust rates automatically whenever returns on equity fall outside a certain range. The purpose of such clauses is to improve the ability of utilities to recover their legitimate costs so that their quality of earnings will keep their capital costs as low as possible. *See In re* Public Serv. Co., 50 P.U.R.4th 416, 418-20 (N.M. Pub. Serv. Comm'n 1982). For a summary of the service-at-cost experiment in New Mexico, see *id.* at 418-30, 451.

74. *See* K. HOWE & E. RASMUSSEN, *supra* note 8, at 113-19; A. CARRON & P. MACAVOY, *supra* note 57, at 39-42.

lic utility commissions permitted rates to be set by reference to current costs rather than historic average costs, the new rates became obsolete as they went into effect.[75] With their cost increases outstripping their rate increases, utilities rarely earned the allowed rate of return on their investments.[76] This erosion in their rates of return made utilities less attractive to investors and caused capital acquisitions to become more difficult and expensive.[77] High inflation also caused dramatic escalation in utility construction costs. Labor contracts were usually indexed to provide workers with cost of living increases equal to increases in inflation rates.[78] The prices of materials needed for power plant construction projects escalated sharply as well.[79]

Faced with operating costs rising more rapidly than allowed revenues, and with drastic increases in construction costs, utilities' cash flow circumstances became desperate. Utility rates calculated on an historic rate base were no longer sufficient to finance current operations and construction costs, and still provide the high returns necessary to attract sufficient capital investment. Utilities began to ask regulators to allow them to include costs of construction work in progress (CWIP) in their rate bases as a means of recovering at least the interest expenses associated with funds used during the construction period.[80]

This requested cost pass-through sharply deviated from past regulatory practices. Historically, utilities were not allowed to include projects in their rate bases until they were put into service, because sufficient revenue was generated by plants already in service.[81] Sensing that they were being asked to pay something for

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75. *See* D. DEVAUL, REGIONAL ENERGY ECONOMICS: THE IMPACT OF THE PRICE INCREASES OF THE 1970's 25-27 (1982).

76. A. CARRON & P. MACAVOY, *supra* note 57, at 39-45.

77. *Id.* at 42-48.

78. *See* Cook, *Nuclear Follies*, FORBES, Feb. 11, 1985, at 82.

79. *Id.*

80. For a typical case involving a utility company's CWIP request, and for a detailed explanation of how CWIP works relative to traditional ratemaking practices, see *In re* Utah Power & Light Co., 30 P.U.R.4th 197, 202-10 (Utah Pub. Serv. Comm'n 1979). When granted, construction cost expenses are added to the utility company's rate base for rate making purposes. The effect is to compute the utility company's allowed rate of return as if the plant under construction is partially in service. Inflating the rate base by adding construction costs will often result in the utility company's receiving a higher rate increase than it otherwise would receive. If construction costs of a plant under construction are included in the rate base throughout the construction period, ratepayers will pay the entire capital cost associated with the construction project, before it is put into service. *Id.* at 203-04.

81. *See id.* at 202-10.

nothing, ratepayers deeply resented CWIP and fiercely fought its implementation.[82] Resistance to CWIP often turned into resistance to new utility construction projects, as ratepayers began to question not only the right of utilities to charge them for the costs of equipment not in service, but also the need for new construction. Even when the need for new construction could be demonstrated, the costs of some projects, especially nuclear power plant construction, were so high that they could not be covered even if the utilities were granted maximum CWIP treatment of their construction costs.[83]

Utility company construction of new power plants also created problems. Nuclear and coal power plants presented huge environmental and safety risks. The resulting legislation and litigation stretched out the time frames for securing permission to construct new power plants, and for the actual construction, to lengths far beyond those historically experienced.[84] When combined with rising capital, labor, and materials costs, the elongated construction time frames caused overall utility construction costs to increase geometrically as each year passed.[85] The combination of rising utility construction costs and much slower growth in electricity demand fractured the utility-regulator-ratepayer consensus that utility construction projects should be completed once they had been approved. Gradually, the inevitable break with the precedent of one time approvals of proposed utility construction projects came, and many utility projects were subjected to multiple reevaluations of their desirability.[86]

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82. CWIP became so controversial in New Hampshire that it was a major issue in the Governor's campaign of 1978. The incumbent vetoed a bill that would have prohibited the capital costs of constructing the controversial Seabrook nuclear power plant from inclusion in the constructing utility's rate base. The challenger, who ultimately prevailed, made CWIP an issue after the utility began collecting $18 million in CWIP surcharges. *See CWIPpled*, NEWSWEEK, Oct. 23, 1978, at 48.

83. *See* Cook, *supra* note 78, at 96.

84. *See* TWENTY YEARS, *supra* note 68, at 416, Table 12-1. Construction and licensing time periods range from 10 to 12 years for nuclear power plants and from 6 to 10 years for coal-fired power plants. *Id.*

85. *See* Cook, *supra* note 78, at 84-88, 92, 94, 96.

86. The reevaluations occurred in four major forms. First, commissions intervened in certificated construction projects already underway to reassess whether changes in demand rendered the power plant under construction unnecessary. *See In re* Rochester Gas & Elec. Corp., 41 P.U.R.4th 438, 441-42 (N.Y. Pub. Serv. Comm'n 1981). Second, commissions reconsidered the question of need under the "used and useful" principle, and rejected inclusion into the rate base of all or part of the construction costs of completed power plants, even where the commission found that the utility company's decision to build the power plant was prudent. *See* Philadelphia Elec. Co. v. Pennsylvania Pub. Util. Comm'n, 433 A.2d 620, 623-24 (Pa.

Over a period of a few years, conditions in the public utilities industry shifted from ideal to turbulent. Gradually, in response to these problems, the industry moved toward a third stage, the age of competition.

C. *The Age of Competition*

Beginning in 1978, United States energy policy shifted away from the redistribution of energy rents and toward adjusting the general economy to high price, high risk energy realities. This change in energy policy chiefly involved phasing out price controls on oil and natural gas, and subsidizing the development of renewable energy resources.[87]

The adjustment emphasis in current United States energy policy was instrumental in bringing competitive conditions back to world petroleum markets. Higher energy prices that resulted initially from decontrol of oil and gas prices made energy efficiency a necessary goal and encouraged the development of alternative energy resources.[88] Higher prices for traditional energy sources encouraged the early development of these alternate sources. As a result, worldwide gluts in petroleum products and natural gas asserted downward pressures on world energy prices in ways that replaced OPEC price fixing with lower real energy prices set by competitive market forces.[89] It is now estimated that oil prices may continue to decline

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Commw. Ct. 1981); Pennsylvania Pub. Util. Comm'n v. Pennsylvania Power & Light Co., 55 P.U.R.4th 185, 198-202 (Pa. P.U.C. 1983). Third, in situations where utilities cancelled power plants that were commenced with prior regulatory consent, commissions examined whether the decision to cancel should have been made earlier, for purposes of determining whether part of the costs of the cancelled power plant should be removed from the rate base. *See In re* Houston Lighting & Power Co., 50 P.U.R.4th 157, 197-202 (Tex. P.U.C. 1982); *In re* Rochester Gas & Elec. Corp., 41 P.U.R.4th 438, 446-49 (N.Y. Pub. Serv. Comm'n 1981). Finally, commissions and courts rejected any recovery of costs of abandoned or cancelled power plants, even though the utility company's construction decisions were deemed prudent, on grounds that ratepayers can be charged only for expenses associated with plants that are actually used and useful. *See* Office of Consumers' Counsel v. Public Utils. Comm'n, 67 Ohio St. 2d 153, 162-68, 423 N.E.2d 820, 826-29 (1981); *In re* Pacific Power & Light Co., 53 P.U.R.4th 24, 27-31 (Mont. Pub. Serv. Comm'n 1983).

87. *See* Allison, *Energy Sectionalism: Economic Origins and Legal Responses*, 38 S.W.L.J. 703, 720-25 (1984).

88. *See* Yergin, *Crisis and Adjustment: An Overview*, in GLOBAL INSECURITY: A STRATEGY FOR ENERGY & ECONOMIC RENEWAL 8 (D. Yergin & M. Hillenbrand eds. 1982).

89. The OPEC market price for crude oil has been under constant pressure for the past year. *See Markets Reject OPEC Price Efforts*, OIL & GAS J., Jan. 7, 1985, at 62. Effective Feb. 1, 1985, OPEC reduced the price on its marker — 34° Arab Light — to $28 per barrel, down from the marker price of $29. This was only the second price cut in OPEC's 25-year history. *OPEC Price Cuts Draw Mixed Market Response*, OIL & GAS J., Feb. 4, 1985, at 31.

or to remain stable until 1990.[90]

Within the United States, lower energy prices are contributing to strong economic growth and low rates of inflation.[91] Energy demands are rising, but not in the historical one-to-one ratio with economic growth.[92] Lower real prices of petroleum and natural gas are also retarding the development of alternative energy sources.[93] While current economic and energy conditions are favorable to consumers, some fear that rising energy demands will combine with the delayed development of alternative energy sources to produce another energy

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The first, in March of 1983, cut the marker price from $34 to $29 per barrel. N.Y. Times, Mar. 15, 1983, at A1, col. 6. *See The Unrigging of Oil Prices*, NEWSWEEK, Mar. 7, 1983, at 62-65; *Oil Price to Hold, Merrill Lynch Says, But Fall to $15 Per Barrel Not Impossible*, 11 ENERGY USERS REP. (BNA) 426 (April 21, 1983).

90. *See Lichtblau: Market Won't Justify Higher Oil Prices*, 81 OIL & GAS J., Jan. 31, 1983, at 42. John Lichtblau, the president of the Petroleum Industry Research Foundation, Inc., stated:

> World demand for OPEC oil won't be close to the organization's productive capacity because of structural changes brought about by two previous OPEC price shocks and the shift away from energy intensive industry.
>
> It is therefore time to revise the view, still widely held, that the present situation is but a brief hiatus in the trend of rapidly rising real oil prices which began in 1973. . . .
>
> The 1980's are likely to be quite different from the 1970's.

Id.

91. For example, in 1984, the real gross national product grew at a rate of 5.6%, while the inflation rate was only 3.5%. DAILY TAX REP. (BNA) Special Supp., Feb. 6, 1985, at S-2, S-7.

92. Total energy consumption for 12 years ending in 1984 was as follows:

Year	Energy Consumption (Quads)
1973	74.282
1974	72.543
1975	70.546
1976	74.362
1977	76.289
1978	78.088
1979	78.898
1980	75.952
1981	73.989
1982	70.840
1983	70.495
1984	74.132

ENERGY INFORMATION ADMIN., MONTHLY ENERGY REV., Sept., 1985, at 25. *See* ENERGY INFORMATION ADMIN., 1983 ANNUAL REPORT, in MONTHLY ENERGY REV., Nov. 1984, at i (reporting a 10-year decline in per capita energy use).

93. *See, e.g., Reagan's Major Budget Proposals for Fiscal 1984*, Wall St. J., Jan. 31, 1983, at 5, col. 6 (discussing President Reagan's 1984 budget proposals, including a proposed 60% cut in funding for solar, fossil, and other alternative energy research); *Slow Growth Seen for Synthetic Fuels*, 81 OIL & GAS J., May 2, 1983, at 80 (discussing decreases in synthetic fuel development).

supply crisis by the mid-1990's.[94]

Current competitive conditions within world energy markets are contributing to the emergence of four major trends in the electric utility sector. First, some utility systems are being rendered uncompetitive by the high construction costs of the past.[95] Second, many utility companies are eschewing new utility construction in favor of sponsoring energy conservation and efficiency programs and implementing competitive new rate designs that are structured to encourage full use of existing electric power facilities.[96] Third, utilities and their regulators are struggling to develop policies that will permit alternatives to central station electric power generation to be introduced as rapidly as possible with a minimum of dislocation.[97] Finally, competitive pressures unleashed by decontrol of petroleum and natural gas are creating intense interfuel competition that is rendering the costs of using fuel oil and natural gas very competitive with the cost of electricity for many heating tasks.[98] In a competitive environment, electric utilities may be handicapped by the slow response of public utility regulatory systems to the dynamics of energy

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94. For example, in March, 1984, Merrill Lynch issued a report predicting that natural gas shortages could occur as early as this year, as a result of rising gas demands, lower drilling rates, and overestimates of deliverability from existing sources. *Merrill Lynch Cites Possibility of Shortages; Hodel Concerned*, 12 ENERGY USERS REP. (BNA) 224 (Mar. 15, 1984). *See Panelists Differ on Possibility of Gas Shortages in Mid, Late 1980's*, 12 ENERGY USERS REP. (BNA) 311, 312 (Apr. 12, 1984) (natural gas shortages inevitable within 3 years). *But see Senator Says Efforts on Gas Pricing Should Aim at Improving House's Compromise*, 12 ENERGY USERS REP. (BNA) 407 (May 10, 1984) (shortages in gas supply are unlikely); Tussing & Barlow, *A Survival Strategy for Gas Companies in the Post-OPEC Era*, PUB. UTIL. FORT., Feb. 3, 1983, at 13-14 (the current gas glut is a demand-side phenomenon that has ended gas shortages for good). *See also* Foley, *Electric Utility Financing — Let's Ease Off the Panic Button*, PUB. UTIL. FORT., Jan. 6, 1983, at 21, 24-27 (summarizing and critiquing contemporary predictions of electric power shortages).

95. *See* Cook, *supra* note 78, at 83.

96. *See* CALIFORNIA ENERGY COMM'N, ENERGY TOMORROW: CHALLENGES & OPPORTUNITIES FOR CALIFORNIA 107-09 (1981) [hereinafter cited as CAL. ENERGY COMM'N]; Thompson, *The Strategic Dilemma of Electric Utilities-Part II*, PUB. UTIL. FORT., Apr. 1, 1982, at 25-27; Morgenstern & Dubinsky, *A Utility-financed Weatherization Program in the Mid-Atlantic Region: The Economics*, PUB. UTIL. FORT., Jan. 20, 1983, at 11.

97. *See* CAL. ENERGY COMM'N, *supra* note 96, at 85-109; J. LAITOS, ECONOMIC & REGULATORY ISSUES RAISED BY UTILITY INVOLVEMENT IN CENTRAL & DECENTRALIZED SOLAR APPLICATIONS 9-32 (1981).

98. *See* Sawhill & Silverman, *Do Utilities Have Strategic Options? Ask the Customer*, PUB. UTIL. FORT., Mar. 31, 1983, at 13, 16-17; O'Keefe, *Evaluating Utility-sponsored Conservation Programs: An Integrated Approach*, PUB. UTIL. FORT., Jan. 20, 1983, at 23-24; London, *The Prospects for a Decade of Falling Energy Prices & Their Implications*, PUB. UTIL. FORT., Oct. 27, 1983, at 21.

markets.[99]

Given the reluctance of many electric utilities to engage in new construction projects in the face of intense interfuel competition, and the significant uncertainty as to future energy developments, the electric power industry may be the focal point of any future energy crisis. Current wisdom suggests that, by 1995, petroleum products and natural gas may be unable to play their historic role in meeting the energy needs of consumers, and that conservation and alternative energy sources will not be able to take up the slack.[100] Electricity generated from coal or nuclear power is widely assumed to be the only viable option for filling any energy demand-supply gap.[101] If the economic recovery is sustained, the new regulatory and legislative preoccupation may be to find ways to goad reluctant utility companies into undertaking new construction projects.

III. PUBLIC UTILITY POLICY FOR THE TWENTY-FIRST CENTURY: REVISING THE FRAMEWORK

The overriding task for public utility policy as the industry moves towards the next century is to revise the traditional public utility framework to coincide with current economic conditions, while retaining features of the framework that continue to operate effectively. This task may be extremely difficult to undertake due to the uncertainty inherent in making long term forecasts regarding energy prices, energy demands, and the availability of traditional energy sources, and by the possibility of technological breakthroughs that could render current central power station technologies obsolete before the end of their normal operating lives. What is certain is that the six regulatory building blocks[102] are ill-suited for shepherding the electric power industry and its customers through the instability involved in the transformation of the United States into a post-industrial twenty-first century economy.

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99. The concern here is the response of regulators to utility initiatives for adopting rate programs designed to make their services more cost competitive through the integration of traditional utility services with alternative conservation and energy production technologies. *See* Johnson, *How Competitive Marketing Can Rebuild Electricity Growth*, PUB. UTIL. FORT., July 7, 1983, at 11; Joskow, *supra* note 63, at 1, 7-17; J. LAITOS, *supra* note 97, at 20-22, 26-28; CAL. ENERGY COMM'N, *supra* note 96, at 103-04; Scranton, *Reforming & Improving Electric Utility Regulation*, PUB. UTIL. FORT., Aug. 4, 1983, at 19; London, *supra* note 98, at 24.

100. *See* NATIONAL RESEARCH COUNCIL, ENERGY IN TRANSITION 1985-2010: FINAL REPORT OF THE COMMITTEE ON NUCLEAR AND ALTERNATIVE ENERGY SYSTEMS 68-72 (1979).

101. *See id.* at 70; TECHNOLOGY FUTURES, INC. AND SCIENTIFIC FORESIGHT, INC., PRINCIPLES FOR ELECTRIC POWER POLICY 12 (1984).

102. *See supra* text accompanying notes 1-54.

A. *Rate Reform — Marginal Opportunity Costs*

In an uncertain and competitive energy market, a utility's historic average costs are an inappropriate standard for determining utility rates. Currently, costs of production for public utilities generally increase as new facilities are added to existing systems.[103] Rates based on a utility's historic average costs thus tend to understate the cost of supplying additional energy and send inaccurate consumption signals to energy users.[104] Faced with understated prices, demands for electricity are greater than they would be if consumers had to pay a full rate for the power supplied from new facilities. As a consequence, pressures for new utility construction develop on the basis of false demand signals.[105] If new plant construction is actually undertaken, utility costs, and therefore utility rates, will rise, often to levels that inhibit demands from reaching any level close to that previously predicted. Undesirable excess capacity is the result.

Besides increasing the likelihood of constructing redundant utility facilities, historic average cost rates impede energy innovation. Emerging energy technologies may be able to supply additional energy services at costs which are lower than those that would be incurred if the additional energy services were supplied by new utility facilities. Yet, if offered the lower historic average cost rates, consumers will continue to register false demands for additional utility service, thereby stripping the emerging technologies of any advantage they may have.[106]

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103. *See* Cooke, *supra* note 78, at 83.

104. *See supra* text accompanying notes 17-18.

105. *See* Joskow, *supra* note 63, at 5-7, 17-18; *In re* Madison Gas & Elec. Co., 5 P.U.R.4th 28, 43-49 (Wis. Pub. Serv. Comm'n 1974) (Eich, Comm'r, concurring) (discussing need to revise rate structures to reflect true demands and costs).

106. *See* 1 SOLAR ENERGY RESEARCH INSTITUTE, HOUSE COMM. ON ENERGY & COMMERCE, 97TH CONG., 1ST SESS., REPORT ON BUILDING A SUSTAINABLE FUTURE at 157-61 (Comm. Print 1981). Consumers using alternative energy systems often continue to depend on public power to some degree. For example, solar and wind systems do not operate at all times. When they are not in operation, their owners require a back-up source of energy. If that back-up source is electricity, and if that electricity is priced above the utility's cost of supplying it, the use of alternative energy will not achieve economic levels. On the other hand, if the utility sells back-up power at rates that fail to cover its costs of service, the use of alternative energy systems is subsidized. *See* J. LAITOS, *supra* note 97, at 12-17; S. FELDMAN & R. WIRTSHAFTER, ON THE ECONOMICS OF SOLAR ENERGY: THE PUBLIC-UTILITY INTERFACE 151-52 (1980). Finally, some alternative energy systems, especially wind and cogeneration systems, at times generate more electricity than their owners can use. The potential for selling the excess electricity at a reasonable rate obviously will affect the economics of such alternative energy systems. The Public Utility Regulatory Policy Act (PURPA), 16 U.S.C. § 824a-3(b) (1982) requires utilities to purchase power from qualifying cogenerators and small power producers at

Establishing utility rates by reference to the utilities' marginal or long run incremental costs only partially corrects the problem. Such an introspective approach presumes that whatever their level, the utilities' marginal production costs can be passed on to consumers without affecting demands for electricity. This presumption was thoroughly discredited by the events of the 1970's.[107] In competitive energy markets, consumers on the margin have energy consumption and conservation technology choices involving a variety of price-reliability-quantity tradeoffs.[108] The percentage of marginal energy demands that any specific technology can capture is affected greatly by the relationship of its price-reliability-quantity package to those available through competing technologies.[109] Therefore, the marginal costs from which electric rates should be derived are the marginal opportunity costs associated with energy consumption and conservation activities of truly marginal electricity consumers.

To derive a marginal opportunity electric rate, the truly marginal electricity consumers must be identified. Three types of energy consumers can be considered truly marginal: (1) persons seeking new, expansion or replacement energy services through the purchase of energy consuming equipment they will operate themselves;[110] (2) persons with opportunities to lower the costs of current energy consuming activities through the use of energy conservation technologies; and (3) persons for whom the benefits of their current energy consuming activities are less than the lowest non-electric opportunity costs of continuing that activity.[111]

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a rate not to exceed "the incremental cost to the electric utility of alternative electric energy." *But see* McElwain, *A Regulatory Negation of Efficient Use and Just Rates*, PUB. UTIL. FORT., June 9, 1983, at 119 (contending that PURPA requires utilities and their customers to subsidize inefficient electricity generating facilities by requiring that they buy electricity from cogenerators and small power producers even when they have no need for power).

107. *See supra* notes 69-86 and accompanying text.

108. *See generally* Wildes, *Marginal-Cost Pricing: Theory and Practice*, in CURRENT ISSUES IN PUBLIC-UTILITY ECONOMICS 169 (A. Danielsen & D. Kamerschen eds. 1983).

109. *Id.*

110. It is important that reference be made to persons who will operate the energy using equipment themselves, because otherwise certain distortions might appear. For example, a home developer may select heating equipment on the basis of its installation price rather than its operating cost, in order to keep the purchase price of each house as low as possible. Such a person is not a truly marginal energy consumer.

111. To a certain extent, this inquiry requires consideration of the abilities to pay of ratepayers for whom electricity is the most desirable or only feasible energy source. Great care must be taken to focus on class ability to pay, rather than individual ability to pay; otherwise, inefficient operations will be subsidized at the expense of their more efficient competitors. *See generally* McElwain, *supra* note 106.

Once the truly marginal customers are identified, the marginal opportunity rates for each rate class will be the price just low enough to keep the marginal customer from turning to alternatives.[112] However, the utility should be forbidden to charge rates below its out-of-pocket cost of service.[113] Nor should any customer class be charged an excessively high rate, simply because it does not have feasible alternatives to the use of electric power.[114]

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112. *See* E. DOLAN, BASIC MICRO ECONOMICS 25-26 (3rd ed. 1983).

113. *See* 1 A.E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES & INSTITUTIONS 163-64 n.8 (1970) ("Normally, the proper level of cost by which to judge a rate is the long-term out-of-pocket cost . . . .") (citation omitted).

114. Perhaps the ceiling should be the rate, or some politically determined multiple thereof, at which the customer class contributes its competitive share of either the company's joint/common long run marginal costs or its joint/common current average cost, whichever is greater. The company's joint long run marginal costs are the long run costs associated with producing a composite output of services that can only be produced through methods involving joint costs. Joint long run marginal costs include long run costs, capacity and variable costs involved in joint production activities, and long run variable costs associated with each separate service. *See* 1 A.E. KAHN, *supra* note 113, at 80-83, 92-93. Each service's competitive share of the company's joint long run marginal costs is derived from the intersection of its long run demand curve and its long run competitive supply curve. The competitive supply curve for each service is determined by calculating, at each output level, the total contributions toward the company's joint long run marginal costs that will be made by purchasers of other services, and by determining how much additional revenue will be needed from the purchasers of the remaining service to fully cover the company's joint long run marginal cost of service. The long run demand curves for each service will in part be determined by the availability and price of alternative services. *Id.* at 80-86.

This method requires utilities to establish rate classes comprised of customers whose end uses impose substantially identical demands on the system. For example, space heating for moderate size homes has characteristics very similar to space heating for small commercial establishments and, therefore, should be subject to the same rates. Under the rate classes established in most utility systems, these similar uses would be subject to different rates. Time of use is another important consumption characteristic that must be considered. Where metering is economically feasible, time-of-day rates should be employed. *See* Cady, *Everything You Always Wanted to Hear About Rate Making But Were Afraid to Ask!*, PUB. UTIL. FORT., Aug. 4, 1983, at 24 (calling for the adoption of voltage level-two part demand energy rates that are time differentiated); Caves & Christensen, *Time-of-Use Rates for Residential Electric Service: Results from the Wisconsin Experiment*, PUB. UTIL. FORT., Mar. 17, 1983, at 30 (reporting results indicating that residential time-of-use rates can result in substantial declines in electricity consumption during peak periods).

Rates based on current joint average costs would assign revenue responsibilities on the basis of demand elasticities, with those services with the least elastic demands bearing the greatest responsibilities. In this manner, the company's current revenue needs will be met with minimal departures from the company's optimal output level. *See* 1 A.E. KAHN *supra* note 113, at 141-46, 155.

A third departure from marginal opportunity cost pricing might be justified in the case where a utility company faces prolonged periods when its capacity level is below the long run equilibrium level. Under such conditions, the long run marginal opportunity cost rate will be below the market clearing price (the price where the amount of service capacity supplied equals the amount of service demanded). To avoid shortages, the rates for each service pro-

The major advantage flowing from the adoption of marginal opportunity cost rates will be the full integration of the electric utility industry into the nation's energy markets. With electric power rates set at the consumers' marginal opportunity costs, new utility construction projects will be undertaken only when the opportunity cost rates are high enough to finance them.[115] When marginal opportunity cost rates are too low to support new utility construction projects, any demands for energy that cannot be met by existing utility services will be met by alternative energy production and conservation technologies, and marginally desirable energy consuming activities will be curtailed.[116] By allowing electric utility rates to rise when the marginal opportunity costs are greater than the utilities' historic average cost, the consumers' long-term demands for electricity can be determined before new utility construction is undertaken.[117]

Marginal opportunity cost rates will prevent the "captured customer-death spiral syndrome." The syndrome occurs during periods of intense interfuel competition, and when rates are set primarily to cover the utilities' total operating costs. At such times regulators tend to permit utilities which experience losses of customers to alternative energy or conservation technologies, to increase the rates of their remaining customers in order to recover the fixed costs associated with serving the lost customers.[118] This shifting of fixed cost burdens can result in the surviving customers paying rates in excess of the utilities' costs of serving them and, in some cases, in excess of the marginal opportunity costs of the marginal customer within the rate class. The short-term consequence of this cost shifting is that the remaining customers begin taking political action because they perceive that they are being unfairly treated as captured customers.[119] The long-term consequence may be that the utilities involved will enter into a death spiral, as customer losses trigger rate in-

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vided should be raised to the market clearing level. While this rate adjustment would avoid shortages in the economic sense, it would also provide the company with excess profits and price some, if not many, historic customers out of the market. *Id.* at 91-92. As a consequence, this rationing by price might be too controversial to be politically feasible.

115. *See* 1 A.E. KAHN, *supra* note 113, at 65-67.

116. *See id.* at 77-83.

117. *See supra* notes 110-14 and accompanying text.

118. *See, e.g., In re* Tampa Elec. Co., 37 P.U.R.3d 65, 78-80 (Fla. R.R. & P.U.C. 1960).

119. *See* 1 A.E. KAHN, *supra* note 113, at 140-58.

creases that cause further customer losses.[120]

By contrast, since marginal opportunity cost rates represent the true competitive value of electric service to the marginal consumer, they establish a rate level for each service that cannot be exceeded no matter how much customer loss a utility is experiencing.[121] There will be no captured customer. The rates for each service will be set by reference to the price responsiveness of customers who have alternative energy opportunities rather than by calculation of how much revenue can be exacted without bankrupting customers who are locked into their current energy technologies.[122] Utilities will encounter a death spiral only when they are mismanaged or encounter competition from superior energy and conservation technologies.[123] Death spirals attributable to mismanagement should be remedied through changes in management rather than by overcharging captured customers. Death spirals resulting from superior competition simply should not be prevented. Instead, competitively induced death spirals should be managed so that society gets maximum efficient use of existing electric generating and distributing facilities. This can occur only when electric utility rates are set no higher than the electric power customers' costs of using alternative energy or conservation technologies.[124]

B. *Competitive Rates of Return*

Rates based on marginal opportunity costs of marginal electric power customers will produce rates of return limited only by competition. Competitive rates of return may be higher or lower than those that have been permitted under the public finance standards incorporated into traditional utility ratemaking practices.[125] While rates of return in excess of the public finance standard will be politically controversial, clarity about public utility policy goals should prevent such controversy from overwhelming needed rate reforms. The number one public utility policy goal must be to take measures that will induce utilities to provide an appropriate level of utility service, using the most appropriate technology available. Rates based on mar-

120. *Id.*
121. *Id.* at 66-70.
122. *Id.* at 175-81.
123. *Id.*
124. *Id.*
125. *See supra* notes 23-25, 49-52 and accompanying text; *In re* Madison Gas & Elec. Co., 5 P.U.R.4th 28, 50-52 (Wis. Pub. Serv. Comm'n 1974) (Cudahy, Comm'r, concurring).

ginal opportunity costs achieve this goal. The marginal opportunity cost rate standard will help utilities make more appropriate construction decisions because it sends a price signal that accurately reflects electric power customers' true demands for electricity.[126] Rates set at a level where the utilities' rates of return will conform to the public finance standard will perpetuate the undervaluing of electricity that led to excessive electricity demands and the retardation in the development of alternative energy and conservation during the 1970's.

. Marginal opportunity cost rates, set in accordance with the true value to consumers of the electricity they are currently using, will not require current utility customers to subsidize future utility customers; rather, current customers will pay the competitive value of the electricity they use.[127] If customers continue to demand electricity in the wake of rates above historic average cost standards, a demand for electricity exists that warrants the expansion of electric power facilities through new construction projects. Furthermore, the cash flow generated by marginal opportunity cost rates may reduce the risks that new construction of needed facilities will be aborted due to financial difficulties.

In contrast, limiting utilities' rates of return to levels below the marginal opportunity cost rates may deter utilities from constructing new facilities where genuine demand exists. Cash flow problems have bedeviled recent utility construction projects.[128] Attempts to cure the utility cash flow problems through rate manipulations such as construction work in progress (CWIP) have failed largely because they suggest that utilities can raise rates in an effort to support construction decisions whether or not long-term demand for the facilities exists.[129] CWIP is especially offensive to ratepayers because it appears

126. *See* Joskow, *supra* note 63, at 17-18. At minimum, if utilities are to be held to a public finance rate of return, the limitation should be imposed by excess profits taxes rather than by reducing rates below the marginal opportunity cost level. Profit control by taxation at least preserves the price signal consumers must confront if they are to register accurately their demands for electricity. *See also* Allison, *supra* note 87, at 732-34 (discussing use of windfall profits).

127. *See* 1 A.E. KAHN, *supra* note 113, at 66-70.

128. *See* Cook, *supra* note 78, at 82-84.

129. *See In re* Washington Water Power Co., 48 P.U.R.4th 533, 541-43 (Idaho P.U.C. 1982). The Idaho Commission stated that:

> Stockholders provide capital for investment in new plant. In exchange for a return on that investment, the stockholders incur certain risks. Those risks have become painfully apparent in the Northwest in recent months with the collapse of one nuclear project after another. The full history of these projects has yet to be told, but

to charge them a price for something that is not providing service, and in fact may never provide service.[130]

In addition to providing a more accurate indication of when new utility construction is warranted, competitive returns are justified by the increased risks investors face in today's energy market. The public finance standard rate of return is appropriate for investments in low risk endeavors.[131] The risks associated with operating public utilities have increased significantly in recent years. Inflation, recession, high interest rates, wildly fluctuating oil prices, insecure oil supplies, and rapid advances in competing technologies have made the prediction of future electricity demands an extremely difficult task.[132] Certainly, the number of utilities which have experienced financial problems, as a result of misguided construction decisions, is a clear indication of the increased risks utility investors are currently facing.[133] These risks will only increase as future technological advances offer the potential for rendering central station electric power facilities uneconomical.[134] Therefore, if the rates of return generated by marginal opportunity cost rates are higher than those generated by the public finance standard, they reflect both a sustained demand for electricity and the higher risks a competitive energy market imposes on investors in central station electric power utilities. Correlating the investors' rates of returns with the risks they take is necessary in order to attract the external capital utilities need to engage in new utility construction projects for which there is a demonstrable

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> it is obvious that a great deal of the blame can be traced to lack of oversight and of diligent managerial supervision. It is entirely proper that shareholders bear the risks occasioned by corporate managerial decisions. Exclusion of CWIP from rate base is one means of providing an incentive to bring projects on line in a timely and budget conscious manner.

Id. at 542-43.

130. *Id.* at 541-43. *See supra* notes 76-77 and accompanying text. *See also In re* Washington Water Power Co., 44 P.U.R.4th 1, 9-11, *reh'g denied*, (on issue of disallowance of CWIP in rate base), 44 P.U.R.4th 27, 30 (Idaho P.U.C. 1981); *In re* Georgia Power Co., 33 P.U.R.4th 1, 2-5 (Ga. Pub. Serv. Comm'n 1979) (company's intention to sell assets prior to ratepayers' benefit from such assets, relevant to disallowance of CWIP in rate base).

131. *See supra* notes 23-25 and accompanying text.

132. *See supra* notes 70-99 and accompanying text; A. CARRON & P. MACAVOY, *supra* note 57, at 64-69; London, *supra* note 98, at 21; Thompson, *The Strategic Dilemma of Electric Utilities-Part I*, PUB. UTIL. FORT., Mar. 18, 1982, at 19; Dukes & Chandy, *Rate of Return & Risk for Public Utilities*, PUB. UTIL. FORT., Sept. 1, 1983, at 35.

133. *See* Cook, *supra* note 78, at 82-83.

134. *See* Lagassa, *Implementing the Soft Path in a Hard World: Decentralization and the Problem of Electric Power Grids*, in ENERGY POLICY AND PUBLIC ADMINISTRATION 167-87 (1982).

demand.[135]

Providing utilities with opportunities to earn returns in excess of the public finance standard may give utilities greater incentive to engage in effective cost control, or in research and development that will accelerate the introduction of better energy production and conservation technologies. Under the public finance standard return, any cost savings achieved by a utility company is passed through to ratepayers in the form of rate reductions during the utility company's next rate case. Since public finance returns are inadequate to support long-term research and development, utilities are reluctant to engage in such activity where specific grants for such purposes are not part of their approved operating costs.[136] With the company's revenues determined by competitive conditions, the company will have the power to increase or decrease its rate of return through effective cost control. Any returns in excess of the public finance standard can be used to expand customer services, engage in research and development, and reward investors and employees. Limits on the uses of these returns will be dictated by competitive necessity rather than by regulatory fiat.

Finally, we know that prior to the 1970's, utilities enjoyed cash flows sufficient for meeting current operating expenses, financing new construction projects, and providing stockholders with attractive returns on their investments.[137] This suggests that electric utility rates of return above the public finance standard represent the his-

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135. *See* A. CARRON & P. MACAVOY, *supra* note 57, at 67-68; Dukes & Chandy, *supra* note 132, at 35; Jordan, *Is America Pulling the Plug on the Future*, PUB. UTIL. FORT., Jan. 6, 1983, at 11 (calling for regulators to assure utilities of rates of return adequate to attract investments needed for future growth).

136. *See generally* Carlson & Rider, *Incentives for Research by Utilities*, PUB. UTIL. FORT., Mar. 3, 1983, at 15-20 (discussing importance of research to the utility industry). Commissions strictly scrutinize research, development and demonstration (R.D.&D.) expenses and will not include them in utility rates unless the research projects have direct value to the utility's jurisdictional service area and will produce products or services that will be used and useful to its ratepayers within a fairly short period of time. Generalized R.D.&D., and long-term R.D.&D. are the types of research projects commissions prefer the unregulated private sector to handle. *See In re* Southern Cal. Edison Co., 50 P.U.R.4th 317, 352-56 (Cal. P.U.C. 1982). Compare the treatment of long-term R.D. & D. expenses associated with coal gasification for a single project by the Indiana Public Service Commission, *In re* Public Serv. Co., 51 P.U.R.4th 6, 24-25 (Ind. Pub. Serv. Comm'n 1983) (expenses disallowed because "current ratepayers should not have to bear the burden for a project whose advantages to them are remote"), with that accorded the same project by the Ohio Public Utilities Commission, *In re* Ohio Edison Co., 55 P.U.R.4th 423, 461 (Ohio Pub. Utils. Comm'n 1983) (expenses allowed despite remoteness of benefits).

137. *See supra* notes 57-63 and accompanying text.

torical norm, while the public finance standard rates of return of the 1970's were aberrations. If this suggestion has merit, then any rates of return above the public finance standard generated by marginal opportunity cost rates will be compatible with historical notions of fairness and adequacy.

When utility rates of return generated by marginal opportunity cost rates fall below both the public finance standard and the levels needed to finance new utility construction projects, no attempts should be made to increase them through either rate increases or subsidies. Absent mismanagement, such circumstances will occur only when superior alternatives to central station electric power are developed.[138] Any attempts to increase the electric power rates of return will either cause captured customers to pay more than they should, or deprive emerging new technologies of their natural advantages. If the rescue attempts are extreme, they might even induce new utility construction of facilities that are obsolete the day the construction is initiated.[139]

C. *Nonexclusive Service Areas*

The possibility exists that utilities can earn high rates of return from marginal opportunity cost rates and still decline to initiate demand-justified utility construction projects.[140] To ensure that excessive timidity by incumbent utility companies does not deprive some service areas of the electric power they require, the traditional exclusive utility franchise should be discontinued. Abolishing the concept of exclusivity will open up new service areas to aggressive, well-managed electric utility companies. This intrafuel competition will protect consumers from inadequate service, especially if the rates offered by competing electric power companies are used in calculating electric power customers' marginal opportunity costs.

Intrafuel competition may also protect service areas from suboptimal utility construction choices by incumbent utility companies. It may be that for a given service area, nuclear power generation is the optimal technology choice for the next electric generating facility. Yet, the incumbent utility may lack the financial resources to

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138. See 1 A.E. KAHN, *supra* note 113 at 175-81.

139. *See* Joskow, *supra* note 63, at 2-3.

140. *See supra* notes 17-23 and accompanying text. *See also* R. SCHMALENSEE, THE CONTROL OF NATURAL MONOPOLIES 3-7 (1979). The original justification for regulating central station utilities was that, as natural monopolies, they had the power to produce sub-competitive levels of output at prices above the competive level. *Id.*

complete successfully the construction of a nuclear power plant. If intrafuel competition is permitted, a utility company with greater financial resources and the proven ability to manage the successful construction and operation of nuclear power plants could step in as the provider of the new power facility.[141]

Enhanced consumer protection could also arise from intrafuel competition if regulators use the negotiating process to bind the winning company to some performance guarantees. If the right to construct a new facility is granted under conditions conducive to intrafuel competition, the winner will have convinced the regulators that it can outperform its competitors.[142] Therefore, regulators should insist that their service area receives the benefits of the bargain made with the winning utility company.

In the past, the principal objection to permitting intrafuel competition was that the electric utility industry is a decreasing cost industry, and therefore the maximum demands of each service area can be met most efficiently by a single electric power company.[143] In contrast, most utility systems today have reached or exceeded their available economies of scale.[144] New utility facilities, whether for replacement or expansion purposes, are more costly to build and operate than existing utility facilities. In this increasing cost environment, no significant cost savings are achieved by simply granting the incumbent company the exclusive privilege of supplying new facilities for replacement or expansion purposes. To the contrary, permitting intrafuel competition for the right to serve demands that would otherwise require the incumbent company to build new facilities could produce enormous cost savings, especially in situations where the demands involved can be met by the use of excess capacity within the systems of nonincumbent utility companies.[145]

In many service areas, incumbent central station electric power companies are already facing strong intrafuel competition to the extent that selfgeneration and cogeneration facilities used by utility customers are considered intrafuel competition.[146] Regulators permit this competition to occur despite the arguments by incumbent utili-

141. *See* Thompson, *supra* note 96, at 29; London, *supra* note 98, at 23-24.

142. This competition could be on a bid-for-the-market basis, the virtues of which were well described in Demsetz, *Why Regulate Utilities?*, 11 J. LAW & ECON. 55 (1968).

143. R. SCHMALENSEE, *supra* note 140, at 3.

144. *See* A. Carron & P. MacAvoy, *supra* note 57, at 40; Thompson, *supra* note 132, at 22-23.

145. London, *supra* note 98, at 23-24.

146. *See* McElwain, *supra* note 106, at 119; Thompson, *supra* note 132, at 27-28.

ties that these customer-competitors are making cost savings through load management more difficult.[147]

If the load management argument is an insufficient justification for protecting utilities from the competition of selfgenerators and cogenerators, it should also be an insufficient justification for protecting incumbent utilities from the competition of other central station power companies. Indeed, through the power pooling devices now used extensively to interconnect the utility companies of several service areas for purposes of assuring greater reliability and efficiency of service, utility companies and regulators have already gained experience in securing electricity for single service areas from multiple central station sources.[148]

D. *Discretionary Service*

It is time to return the service-to-all requirement to its original purpose of preventing discrimination in the provision of essential services.[149] In a competitive energy environment fraught with uncertainties as to future economic and technological conditions,[150] it is increasingly difficult to maintain cross-subsidy systems designed to support economic development and to provide social welfare. It is also no longer appropriate to enlist historic utility customers as involuntary guarantors of investments in new electric power facilities built to stimulate or support projected economic growth.

Every cross-subsidy system requires regulators to designate certain customers for the "honor" of paying rates higher than the utility company's costs of service so that other customers can receive a rate subsidy.[151] As competition increases and technological advances enable competing energy producers to lower their prices, it becomes increasingly difficult for utility companies to retain the business of such burdened customers. Often, burdened ratepayers leave the electric power system because the utility company serving them cannot secure timely regulatory permission to lower its rates in response to the price competition offered by unregulated competitors.[152]

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147. *See* McElwain, *supra* note 106, at 119.

148. *See generally* FEDERAL ENERGY REGULATORY COMM'N, POWER POOLING IN THE UNITED STATES (1981); *id.* at 9 (showing a table of the major formal power pools in the United States, which as of 1980 accounted for 546,662 megawatts, or about 44% of the nation's generating capacity).

149. *See supra* note 31 and accompanying text.

150. *See supra* note 132 and accompanying text.

151. *See supra* notes 33-44 and accompanying text.

152. *Id. See supra* note 99 and accompanying text.

As burdened ratepayers leave electric power systems, the per customer cost of maintaining the cross-subsidy system increases, and the remaining customers become more vulnerable to the enticements of competing energy services. In the end, either the cross-subsidy system has to be abandoned or the electric utility company and its service area will suffer the economic stagnation that usually accompanies the inefficient allocation of important resources.[153] Either result is inconsistent with the purposes that the cross-subsidies were designed to serve. Therefore, it is simply counterproductive to engage in cross-subsidization in an increasingly competitive market.

With the time frames involved in constructing and operating electric generation facilities stretching outward from thirty-five to forty years, and given the immense changes occurring within the world economy, the risks involved in constructing new electric power generating facilities are escalating rapidly.[154] These risks are now so great that steps must be taken to insure that no electric power construction projects are undertaken without the benefit of exacting analyses of future energy demands and economic conditions. These analyses are unlikely to be made if regulators continue to require utilities to meet any contemporary demands for service and to permit utilities to pass on the risks of constructing uneconomical facilities to their ratepayers.

Utility companies should be given the discretion to refuse to expand their facilities when they believe current demands will not last long enough to justify construction. This discretion would put the risk of making suboptimal utility construction decisions squarely on the shoulders of utility managers. Implicit in this policy change is the idea that the marginal opportunity cost rate will, in part, be determined by what it would have cost the power company to produce electricity had it made an optimal construction decision.

Once utilities are denied the opportunity of using their ratepayers as guarantors of new electric power construction projects, they should be permitted the latitude to secure other guarantor arrangements. For example, if a new company wishes to relocate within a utility company's service area, and that relocation will increase demands for electricity to a level that cannot be accommodated with-

153. *See In re* Gas & Elec. Util. Rate Structure, 24 P.U.R.4th 332, 347-48 (Cal. P.U.C. 1978) (Symons and Sturgeon, Comm'rs, dissenting).

154. *See* Sawhill & Silverman, *Build Flexibility — Not Power Plants*, PUB. UTIL. FORT., May 26, 1983, at 17; Jordon, *supra* note 135, at 13-14; Thompson, *supra* note 132, at 21, 26.

out new electric power generating facilities, the utility company and the relocating company should be allowed to enter into a contract service arrangement that makes the relocating company the guarantor of the new construction project. Such a contract might require the relocating company to purchase its energy from the utility company throughout the operating life of the new electric power facilities, or to pay damages that cover the utility's losses attributable to the relocating company leaving the system.[155]

E. *Multiple Review of Construction Decisions*

It might seem that ratepayers are adequately protected from the negative consequences of inappropriate utility construction decisions when utility companies are completely responsible for losses arising from unsuccessful utility construction projects. Indeed, as intrafuel competition increases and new technologies become readily available substitutes for electricity generated by central station utilities, regulation of electric power construction decisions will not be necessary. Once adequate substitutes are available, most electric power customers will not be drastically disadvantaged if their local central station electric power company is driven into bankruptcy or near bankruptcy by construction losses.[156]

Substitutes for central station electricity are not yet available in sufficient quantities, and intrafuel competition among central station electric power companies is minimal. Further, until utility rates are based on marginal opportunity costs, consumers will not be protected from rate increases resulting from imprudent utility construction projects.[157] With the advent of new competitive technologies on the horizon, utility construction decisions are now riskier than at any time during the modern history of the electric power industry. So, for now, utility company decisions to initiate new utility construction projects must remain under regulatory supervision.

The regulatory supervision of new utility construction projects must, in fact, be tightened. At a time when accurate long-term prediction of economic, technological, and political conditions is all but impossible, one-time approvals of utility construction projects with completion times between five and twelve years are invitations to dis-

155. *See* Plummer, *A Different Approach to Electricity Deregulation*, PUB. UTIL. FORT., July 7, 1983, at 16.

156. Indeed, the likely substitute is lower cost energy supplied by a more efficient electric utility than the local incumbent. *See* London, *supra* note 98, at 21.

157. *See supra* notes 103-05 and accompanying text.

aster. To keep abreast of changing conditions that might warrant the delay or cancellation of new projects, periodic reviews of electric power demands, and of the comparative abilities of various sources of services to meet them, must be made to insure that regulated utilities respond rationally to market signals with respect to their construction projects.[158]

The thrust of periodic utility construction reviews need not be restricted to adversarial examinations of specific utility construction projects. These periodic reviews should determine the energy needs of a state or region for a given period, and the competitive abilities of various sources of energy services available for meeting those needs.[159] The evidence received should not be confined merely to the economics of particular utility companies, but should include projections of general economic and technological trends as well as the stated development goals of the state and the economic entities involved.[160]

Only through this broader examination can utility company decisions be firmly interconnected with the needs of current and potential consumers of electric power. Only an advanced planning approach can break the past precedent of electric power users implementing plans requiring new electric power facilities on the

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158. Electricity demands and costs must be monitored closely to avoid saddling ratepayers with uncompetitive energy sources. *See supra* note 86.

159. The State of Wisconsin currently requires electric power utilities to engage in biennial advanced planning involving a 10-year planning horizon. In submitting advanced plans for approval, utilities must consider alternatives to proposed electric power construction projects, projected demands for electricity, and the company's relationship with other utilities, regional associations, power pools, and power networks. Utilities also are required to submit copies of their advanced plans to all affected regulatory agencies, regional planning commissions, counties and cities. Written comments from any affected county, city or person are solicited. *See* WIS. STAT. ANN. § 196.491 (West Supp. 1984). An advanced plan will be approved only if it:

1. Will provide for a reasonably adequate supply of electrical energy to meet the needs of the public during the planning period;
2. Is in the public interest when considering engineering, economic, health, safety, reliability, efficiency and environmental factors and alternate methods of generation or sources of supply; and
3. Is reasonably coordinated with long-range plans and policies of other agencies or that a reasonable effort has been made to coordinate with such plans and policies.
4. Provides for programs which discourage inefficient and excessive power use.

WIS. STAT. ANN. § 196.491(2)(i) (West Supp. 1984).

160. *Id.* For a discussion of factors state public utility commissioners should consider when determining proper conditions for utility construction, see Allison, *Judging the Prudence of Constructing Nuclear Power Plants: A Report to the Oklahoma Corporation Commission*, 15 TULSA L.J. 262 (1979).

presumption that the local electric power company can, and will, automatically provide the services they desire in a timely and efficient manner. Only through comparative analyses of the capabilities and characteristics of alternative sources of energy services will it be possible to insure that energy users, as well as energy providers, make fully informed choices when selecting an energy technology to meet their needs or responsibilities.

Although it might seem unfair to make electric power companies responsible for their construction losses while permitting the state to command delays or cancellations of their projects already in progress, this perceived unfairness would be mitigated by giving electric power companies the absolute right to refuse to engage in new construction projects. The opportunity to earn rates of return in excess of public finance standards, by charging market-valued marginal opportunity cost rates, would also mitigate any unfairness inherent in state retention of the power to terminate utility construction projects.

F. *Diversification Opportunities*

The combination of unstable economic and political conditions and the emergence of vigorous interfuel competition is eroding much of the rationale for restricting the diversification opportunities of electric power companies. The best efforts of regulators and electric power company managers failed to insulate the central station electric power industry from increases in the risks of doing business.[161] As a consequence, fears that a utility company faces greater risks of loss when it makes diversified investments may no longer be justified.

There is still reason to be concerned about sweetheart deals with affiliated suppliers.[162] If reforms in ratemaking lead to the adoption of marginal opportunity cost rates, however, electric utility companies' incentives to engage in sweetheart arrangements with affiliate suppliers will be significantly diminished. With rates limited by the competitive opportunities of marginal electric power consumers, a utility company's revenue levels will not be affected by its internal cost structure. The utility company's net income realizable from its allowed revenues will be directly affected by its cost structure. Therefore, electric power companies will have direct profit incentives to acquire their inputs from the lowest cost suppliers. Under these

161. *See supra* notes 131-35 and accompanying text.
162. *See supra* notes 53-56 and accompanying text.

circumstances, utility companies will make purchases from their affiliates only when their affiliates can offer the best terms of trade.[163]

It would be unfair to discourage diversification by utility companies during an era of intense interfuel competition and technological and structural changes. Competition and change could very well significantly diminish demands for central station electric power services. Limiting electric power companies to the provision of only one kind of service at a time of declining demands for that service would, in effect, condemn them to slow economic death.

A regulated company so condemned would have large incentives to erect barriers against the development and deployment of new energy production and conservation technologies.[164] In contrast, an electric power company with the freedom to diversify into related businesses might well choose to broaden its operations to provide other energy sources in addition to electricity. A general energy services company has incentives to develop and market alternative energy technologies, rather than impede their introduction.[165]

With their well developed customer base, service organizations, marketing systems, and long business lives, electric power companies may be regarded by consumers as safer and more reliable sources of alternative energy technologies than the new, small, and diffused firms currently dominating the thin alternative energy markets.[166] Therefore, alternative energy markets might expand at an accelerated rate if electric power companies are allowed to enter them.[167] Diversification might also facilitate better coordination between the establishment of mature alternative energy markets and the efficient management of central station electric power loads.[168]

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163. Any antitrust concern one might have about utility-affiliate supply arrangements can be adequately dealt with through enforcement of the nation's antitrust laws. Although business entities regulated by state action are immune from antitrust liability arising from acts they were required to engage in by affirmative command of the state, Parker v. Brown, 317 U.S. 341 (1943), this exemption does not extend to voluntary acts that are merely approved, rather than required, by state law or regulation. *See* City of Lafayette v. Louisiana Power & Light Co., 435 U.S. 389 (1978); Cantor v. Detroit Edison Co., 428 U.S. 579 (1976). The Reagan Administration has been very reluctant to challenge vertical business arrangements that were historically subject to strict antitrust scrutiny. See, for example, Monsanto Co. v. Spray-Rite Serv. Corp., 465 U.S. 752, 761 n.7 (1984), where the Court notes that the Solicitor General of the United States entered a brief requesting that the Court reverse its past custom of regarding vertical price fixing restraints as illegal *per se.*

164. *See supra* notes 97 & 106.

165. *Id.*

166. *Id.*

167. *Id.*

168. *Id.*

IV. CONCLUSION

As the twentieth century draws to a close, immense change is occurring within the United States economy generally, and within energy markets specifically. Competition and uncertainty are the prevailing market forces influencing the outcomes of investment decisions within unregulated markets, and increasingly within the regulated public utility sector as well. The traditional public utility policy framework, premised on economic stability and the ability of regulators to insulate utility companies from competition, continues to skew market signals that influence electric power companies' decisions to initiate construction of new electric power facilities. In the 1970's, these skewed market signals induced electric power companies to undertake construction projects that either produced redundant or uneconomic electric power facilities, or came to expensive, premature ends. In the 1980's, these inaccurate market signals may discourage electric power companies and investors in alternative energy production and conservation technologies from making the investments necessary to avert a shortage of energy services by the mid-1990's.

For the foreseeable future, regulators will be unable to insulate central station electric power companies from the increasingly vigorous competition of other energy production and conservation technologies. Any cross-subsidy scheme built into electric power rate designs will become geometrically more difficult to maintain. Moreover, unless they are given greater freedom to respond quickly to competition by adjusting rates or diversifying their operations, central station electric power companies may experience significant erosions in customer and financial bases. Electric power customers with financial flexibility sufficient for pursuing alternative energy services will do so, leaving behind a cadre of captured customers facing rising rates and deteriorating services.

Eventually, the competition facing central station electric power facilities may become so intense that regulation will not be needed to provide ratepayers with adequate energy services at reasonable prices. For now, regulators are contending with an interim situation where competition is strong enough to destroy the basis of traditional utility policies, but too weak to be an adequate regulator of utility markets. During this interim period, the regulators still have a role, but it cannot be performed successfully unless the traditional public utility policy framework is changed to integrate utility companies with, rather than insulate them from, competition.

To be integrated with its competition, central station electric power companies must be required to establish rates based on their marginal customers' opportunity costs of receiving alternative energy services. By charging marginal opportunity cost rates, central station electric power companies will be able to measure the true demand for electric power service. New electric power facilities will be built if the revenues derived from marginal opportunity cost rates are sufficient to support new construction projects. Otherwise, new electric power facilities will not be built, and any demands for energy services not covered by existing electric power facilities will be served by other energy production and conservation technologies.

Opening up each electric power company's service area to the competition of other electric power companies not only will help keep rates low, it will supply alternative providers of central station electric power services when incumbent electric power companies lack the desire or the resources to engage in the construction of new electric power facilities. Allowing competition among electric power companies may also insure that when new electric power facilities are built, they are built with the optimal central station technology. No service area will have to forgo the advantages of new technology simply because its incumbent utility lacks the financial and managerial resources required to put that technology to use.

To further protect ratepayers from inappropriate electric power construction projects, electric power companies should have absolute discretion to refuse to engage in new construction, but their decisions to initiate new construction should be monitored through periodic advanced planning proceedings. Giving utilities the right to refrain from new construction will reduce the number of cross-subsidy systems created by state command. Such cross-subsidy systems cannot survive in highly competitive markets unless counterproductive inefficiencies are tolerated. Therefore, utility companies and their customers should not be forced into providing facilities for inherently unstable demands that might disappear and leave remaining customers holding the bag.

Decisions to proceed with new utility construction projects must remain under regulatory scrutiny until competition supplies, in adequate volume, readily available substitutes for central station electric power. With economic and technological changes occurring with increasing frequency, accurate predictions as to future energy demands are becoming more difficult to make. Periodic reviews of the economic conditions and technological advances will keep regulators,

electric power companies, and electricity consumers abreast of all available energy options. Advanced planning proceedings will also ensure that electric power companies will not continue to proceed with construction projects when changed conditions have rendered them redundant or uneconomical.

Finally, electric power utilities must be permitted to diversify their operations. If they are not, they face slow economic death as new energy production and conservation technologies erode the demands for central station electric power. If they are permitted to diversify their operations, efficient, well managed electric power companies will be able to expand their services into areas presently served by poorly performing incumbents. More importantly, electric power companies will have incentives to promote, rather than impede, the use of new energy production and conservation technologies in ways that will allow society to gain maximum efficient use of existing central station electric power facilities and that may accelerate the development of new technology.