

Essay[†]

Efficiency and Competition in the Electric-Power Industry*

Historians may remember the 1970s as the decade in which lawmakers first recognized the limits of regulation as an instrument for the promotion of social and economic policies. In a major address on March 25, 1979, President Carter declared that his administration would strive "to reduce, to rationalize and to streamline the regulatory burden throughout American life."¹ Efforts toward that end in the 95th Congress prompted the partial deregulation of airlines² and natural gas producers.³ This year, the President has exercised his unilateral authority to deregulate domestic crude oil prices,⁴ and Congress is considering proposals to reduce or eliminate federal regulation of railroads,⁵ the trucking industry,⁶ and certain segments of the telecommunications industry.⁷

If deregulation is an idea whose time has come, Congress should not overlook the electric-power industry. The Federal Energy Regulatory Commission (FERC)⁸ and its state counterparts together administer a comprehensive regulatory scheme that includes control over market entry, rate schedules, location of facilities, and standards of service. This pervasive market intervention may be justified, in part, by the

† This essay was selected for publication from among a number submitted by non-editor members of the Yale Law School third-year class.

* The author gratefully acknowledges the valuable assistance and comments of Daniel I. Davidson, James F. Fairman, Paul W. MacAvoy, Phillip Nicholson, and Gordon T.C. Taylor.

1. N.Y. Times, Mar. 26, 1979, at 1, col. 1.

2. Airline Deregulation Act of 1978, Pub. L. No. 95-504, 92 Stat. 1705 (1978).

3. Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3350 (1978).

4. See Wash. Post, Apr. 6, 1979, § A, at 1, col. 3.

5. See *id.*, Mar. 8, 1979, § F, at 4, col. 2.

6. See S.710, 96th Cong., 1st Sess. (1979) (would repeal antitrust exemption that enables trucking companies to set freight tariffs collectively).

7. See H.R. 3333, 96th Cong., 1st Sess. (1979) (would deregulate radio broadcasting immediately, television broadcasting in 10 years, abolish Federal Communications Commission and Fairness Doctrine).

8. Until 1977 federal authority to regulate electric utilities was vested primarily, but not exclusively, in the Federal Power Commission (FPC). The Department of Energy Organization Act, Pub. L. No. 95-91, 91 Stat. 565 (1977), abolished the FPC and transferred most of its responsibilities to the newly created FERC, effective October 1, 1977.

fact that the retail distribution of electric power is a natural monopoly.⁹ But the existing regulatory regime functions as if electric utilities performed only one service, and as if the market for that service were a natural monopoly. In fact, the structure of the industry is not that simple.

All but a handful of the 100 largest utilities are vertically integrated suppliers. They perform three distinct services: the production, transmission, and distribution of electricity.¹⁰ Although transmission and distribution are natural monopolies within the relevant geographic markets,¹¹ production is not. The more densely populated regions of the country consume more electricity than could be produced by any one generating plant.¹² These regions could support extensive competition among bulk-power suppliers, if the plants were under separate ownership and each had equal access to local distribution systems.¹³

9. A natural monopoly is a business characterized by decreasing unit costs as volume increases, throughout the entire range of probable output levels. 2 A. KAHN, *THE ECONOMICS OF REGULATION* 119 (1971). Competition in a natural monopoly market is inefficient because one supplier can meet the demand more economically than two or more firms that divide the market. *Id.* at 125. The retail distribution of electricity in any one community is a natural monopoly because substantial economies of scale result from increasing the density of the load. "The more customers there are per square mile the fewer miles of distribution lines that are needed per customer." Florida Power & Light Co., Nos. ER78-19 (Phase I) & ER78-81, at 24 (FERC 1978) (statement of Dr. Gordon T.C. Taylor, staff economist, FERC) [hereinafter cited as Taylor with page citations to prepared statement].

10. Production or generation is the act of transforming heat, falling water, or other forms of energy into electricity. Transmission has been defined as "the transportation of electrical energy at high voltage from generating plants to bulk delivery points." 1 FEDERAL POWER COMMISSION, *NATIONAL POWER SURVEY 12* (1964) [part one hereinafter cited as 1964 POWER SURVEY]. Distribution entails the delivery of power, at much lower voltage, from a substation to retail customers. The generation and transmission stages together constitute the bulk-power supply system.

11. The cheapest way to transmit a given volume of electricity between two points is to carry the entire load on one line. Doubling the voltage of a transmission line increases the carrying capacity by the square of the change in voltage. Since the cost of the line increases roughly in direct proportion to the change in voltage, the cost per unit of carrying capacity falls as design voltage is increased. Taylor, *supra* note 9, at 24. Moreover, increasing the capacity of a line reduces the environmental and aesthetic impact, per unit of electricity transmitted. *Id.* at 25. For these reasons utilities transmitting power along the same corridor should share the cost of a single line, rather than build two or more lines of lower voltage. *Id.*

12. Weiss, *Antitrust in the Electric Power Industry*, in *PROMOTING COMPETITION IN REGULATED MARKETS* 136 (A. Phillips ed. 1975).

13. *Id.* The number of producers who could compete to sell bulk power to any one distributor depends, to a considerable extent, on the cost of transmission. In the last several decades, utilities have installed thousands of miles of high-voltage transmission lines. See Nagel, *The National Grid: A Misconception*, *PUB. UTIL. FORT.*, Jan. 6, 1972, at 35 figure 4. These lines have reduced the cost of long-distance transmission, thereby expanding the size of bulk-power sales markets. Weiss, *supra* note 12, at 136. During the Arab oil embargo petroleum-dependent New England utilities saved fuel by purchasing electricity from coal-fired plants in the midwestern states. See Richmond Power & Light

Electric Power

The primary policy objection to competition at the production stage is that the ownership by one firm of many generating plants, and transmission lines connecting them, facilitates the capture of scale economies associated with the size of the bulk-power supply system. By coordinating the operation of two or more generating plants,¹⁴ in ways discussed below, utilities can produce power more efficiently than if each plant operates in isolation. The hard question is whether the need for coordination among generating plants precludes competition among utilities in the production and distribution of electricity.

The answer, if based upon experience to date, would be that the goals of coordination and competition are mutually exclusive. Early in the 1960s the Federal Power Commission (FPC) recognized the benefits of coordination and became an enthusiastic booster of voluntary power pooling.¹⁵ The industry responded by organizing a number of large power pools and less formal coordinating groups¹⁶ that have contributed substantially to the efficiency of the bulk-power supply. Unfortunately, these efficiency gains have often occurred at the expense of competition. Many pooling agreements limit membership to a handful of the largest utilities in the region.¹⁷ Restrictions on membership deny

v. FERC, 574 F.2d 610, 613 (D.C. Cir. 1978). Since 1978 the Consolidated Edison Company of New York has been importing economical hydropower from Quebec on a new 155-mile, 765,000-volt line. N.Y. Times, Feb. 18, 1979, § 1, at 56, col. 1.

14. The FPC defined coordination as "joint planning and operation of bulk power facilities by two or more electric systems for improved reliability and increased efficiency which would not be attainable if each system acted independently." 1 FEDERAL POWER COMMISSION, THE 1970 NATIONAL POWER SURVEY 17-1 (1971) [hereinafter cited as 1970 POWER SURVEY]. The term embraces a large number of cooperative arrangements that enable utilities of suboptimal size to gain the efficiency benefits of large-scale operation, while maintaining their corporate autonomy.

15. A power pool is a group of physically interconnected utilities that have made a contractual commitment to practice certain types of coordination. Coordination may impose substantial burdens on participating firms. The pooling agreement sets out in writing the scope of the transaction and the obligations of each party. Since at least 1964 the FPC has encouraged utilities to organize power pools. See, e.g., 1964 POWER SURVEY, *supra* note 10, at 3.

16. In their seminal study of the FPC, Breyer and MacAvoy included an inventory, by now somewhat obsolete, of power pools that were operating in 1970. See S. BREYER & P. MACAVOY, ENERGY REGULATION BY THE FEDERAL POWER COMMISSION 100-04 (1974). Recognizing the need for current information on the extent of coordination among utilities, Congress in 1978 ordered the FERC to study the opportunities for energy conservation, improved efficiency, and increased reliability through pooling. The report is due in May 1980. Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, § 205(b), 92 Stat. 3117 (1978) (codified at 16 U.S.C.A. § 824a-1(b) (West Supp. 1979)).

17. See Fairman & Scott, *Transmission, Power Pools, and Competition in the Electric Utility Industry*, 28 HASTINGS L.J. 1159, 1195 (1977). A coalition of small utilities excluded from the Mid-Continent Area Power Pool (MAPP) recently appealed a decision by the FERC that the MAPP Agreement's restrictive membership provisions do not violate the antitrust laws or the Federal Power Act. Mid-Continent Area Power Pool Agreement, [1977] UTIL. L. REP. (CCH) ¶ 11,958 (FPC 1977), *appeal docketed sub nom. Alexandria Bd. of Pub. Works v. FERC*, No. 77-1916 (D.C. Cir. Oct. 7, 1977).

small utilities access to scale economies. As a result, both competition and efficiency suffer. Small utilities competing against much larger firms struggle to survive,¹⁸ while both factions forego opportunities to reduce operating costs through coordination.

This essay proposes a scheme of reorganization for the electric-power industry that would minimize the conflict between coordination and competition. It argues that Congress should divide the nation, for purposes of electric-power production, into regional dispatching corporations (RDCs), each of which would acquire the entire high-voltage grid within its jurisdiction. RDCs would lease production capacity from private contractors, much as a tenant leases office space. An RDC would dispatch all of the generating equipment in its region, and would sell bulk power to local distributors. Power-plant owners would compete to lease capacity to the RDCs for a limited term of years. Bidding among producers would enable the RDCs to meet their capacity requirements at the lowest possible cost, while stimulating the development of new generating technologies. The plan would also promote competition at the distribution stage, by insuring that all distributors enjoy equal access to the exclusive source of bulk power in their region. Assigning enough load to each RDC so that it managed a bulk-power supply system of technologically optimal size would achieve the best of both worlds: maximum feasible efficiency in a competitive environment.

I. The Coordination Problem

A. *Economies of Scale in Bulk-Power Supply*

Several observers have described in detail the economies of scale that can be achieved by the interconnection and coordinated operation of two or more generating plants.¹⁹ The types of coordination most frequently employed include reserve sharing, economy exchange, diversity exchange, central economic dispatch, and coordinated system planning.

Electric utilities must maintain generating capacity in reserve to cover contingencies such as equipment failure, scheduled maintenance shutdowns, and unexpected peak-power demands. At minimum, a

18. See note 65 *infra*.

19. See, e.g., *Public Utility Rate Proposals of President Carter's Energy Program: Hearings Before the Subcomm. on Energy Conservation and Regulation of the Senate Comm. on Energy and Natural Resources*, 95th Cong., 1st Sess., pt. 2, at 396-403 (1977) (statement of Abraham Gerber and Joe D. Pace) [hereinafter cited as *Public Utility Hearings*]; S. BREYER & P. MACAVOY, *supra* note 16, at 91-93; Meeks, *Concentration in the Electric Power Industry: The Impact of Antitrust Policy*, 72 COLUM. L. REV. 64, 101-07 (1972).

Electric Power

utility must maintain sufficient reserves to meet some target level of reliability—*e.g.*, one generating outage in ten years.²⁰ Reserve capacity may not be needed very often, but its capital cost is a major item in the rate base of most utilities.²¹ Interconnection of generating plants reduces the cost of meeting reserve requirements. A utility that operates two generators during the period of peak demand must maintain a third unit of equal size on line and ready to pick up load immediately, should a primary generator fail. The reserve unit could cover for five plants rather than two, with only a slight loss of reliability.²² The greater the number of interconnected plants, the lower the percentage of total capacity that must be maintained in reserve to meet a given standard of reliability.

An economy exchange exploits the difference in marginal production cost between two generating units. One plant may be cheaper to run than the other, due to such factors as the price of fuel.²³ If one utility owns both plants, the more economical unit will obviously be dispatched first. If the two plants belong to different utilities, the

20. Most utilities aim for a high standard of reliability, in part because the consequences of a power outage are severe:

Inability to meet customer demands is probably the primary fear of all systems' executives since repeated failure to do so is perhaps the most likely ground for revocation of a company's franchise, upon which its very existence depends. Thus, unlike most business enterprises, the electric power system must equate supply with demand on an instantaneous basis. In view of the modern reliance upon electricity, any sustained failure to do so would be a social and economic catastrophe.

Meeks, *supra* note 19, at 69 (footnotes omitted).

21. American utilities plan their systems on the assumption that only one generating outage in 10 years is acceptable. *National Energy Act: Hearings Before the Subcomm. on Energy and Power of the House Comm. on Interstate and Foreign Commerce*, 95th Cong., 1st Sess., pt. 3, at 658 (1977) (statement of Dr. Alvin Kaufman, Congressional Research Service) [hereinafter cited as *National Energy Act Hearings*]. To meet this reliability standard, large systems maintain a production capacity about 20% larger than the amount needed to meet annual peak demand. *Id.* Due to the capital-intensive nature of the electric-power industry, consumers pay a premium for this high level of reliability. A study prepared in 1975 for the New York interconnected system assessed the cost of meeting the "one day in 10 years" standard at \$1.6 billion. *Id.* at 651.

22. If the reserve unit is equal in capacity to the largest plant in use, and the reserve unit is maintained on instant call, there can be no loss of load unless two generating plants fail simultaneously. Assigning one reserve unit to cover for five operating plants rather than two increases the risk of an outage by the increased probability of a simultaneous failure by two or more plants. In return for this modest reduction in reliability, the reserve margin for the entire system would be reduced from 50 to 20% of peak capacity—a substantial saving for the consumer. For a more realistic and slightly more complicated hypothetical, see *Gainesville Utils. Dep't v. Florida Power Corp.*, 402 U.S. 515, 519 n.3 (1971).

23. For example, the fuel used to produce one kilowatt-hour (kWh) of electricity by coal-fired generating plants in the Midwest costs less than half as much, in 1977, as the oil needed to produce a kWh in New England. *National Energy Act Hearings*, *supra* note 21, pt. 3, at 549 (statement of George Spiegel). The cost differential has undoubtedly increased since then.

parties may enter into an economy energy exchange, whereby the firm with the lower-cost unit sells power to the other utility at a price somewhere between its incremental generating cost and the cost at which the purchaser could produce the power. The larger the number of interconnected plants, the more efficiently the generating resources of the pool can be utilized.²⁴

Central economic dispatch is a sophisticated application of this principle. In a centrally dispatched power pool the participating utilities delegate operating control over their generating plants to a computer programmed with incremental production-cost data for each plant in the pool. When demand increases the computer meets load with the most economical generator that still has excess capacity. As demand falls the least economical unit is shut down first. In this way central dispatch minimizes the total operating cost of all the units in the pool.²⁵

A diversity exchange exploits differences in the time at which two or more utilities encounter peak demand. Since electricity cannot be stored, the generating capacity of the utility must be sufficient to meet annual peak demand, a condition that may occur only once a year. At all other times, the firm has excess capacity. Different utilities experience peak demand during different parts of the day or year. Firms that experience nonsimultaneous peaks can enter into a diversity exchange, whereby the utility with idle generators sells power to its neighbor during the latter's peak period. Normally the arrangement is reciprocal.²⁶ The transaction enables both firms to meet their peak

24. Economy energy transactions have been employed since the 1973 OPEC embargo to reduce the demand for imported petroleum. A 1976 study found that by 1980, 125,000 barrels of oil per day could be saved by transmitting coal-based electricity from mid-western generators to east coast utilities. *Public Utility Hearings, supra* note 19, pt. 3, at 159 (statement of David J. Bardin, Deputy Administrator, Federal Energy Administration (FEA)) (citing National Electric Reliability Council, *A Study of Interregional Energy Transfers for the Year 1980* (May 1976)).

25. *Id.* The Pennsylvania-Jersey-Maryland Interconnection, one of the nation's most sophisticated power pools, estimated that central dispatching saved \$157 million in 1975 and 17 million barrels of oil in 1974. *Id.*

26. Washington state utilities, for instance, encounter peak demand in the winter, while southern California firms experience peak demand during the air conditioning season. West coast utilities in collaboration with the federal government built an extra-high-voltage transmission line linking Los Angeles with hydropower facilities on the Columbia River to facilitate seasonal capacity exchanges between the regions. Foote, Larsen & Maddox, *Bonneville Power Administration: Northwest Power Broker*, 6 ENV'T L. 831, 838 (1976). Daily load diversity between firms results, in part, from time-zone differentials. In 1977, an imaginative entrepreneur approached various federal officials with a proposal to build a 10,000-mile, high-voltage line from Japan to London, across the Atlantic and Pacific Oceans, by means of submarine cable. The line would enable American utilities to exchange peaking capacity with Japanese and British counterparts. Westinghouse Corporation expressed interest in the idea. *See Public Utility Hearings, supra* note 19, pt. 3, at 216-32.

Electric Power

period requirements with less installed production capacity than would otherwise be necessary. Given the enormous capital cost of a new generating plant,²⁷ customers stand to benefit from any arrangement that reduces the required investment without sacrificing reliability. The larger the geographic area served by an interconnected supply system, the more opportunity there will be for the exchange of peaking power.

System size also influences investment decisions. Generally speaking, utilities purchase the largest generating units they can use, for there are economies of scale in generator size.²⁸ In order to capture these economies the firm may build a plant too large for its immediate needs, with the expectation that future growth in demand will absorb the new capacity.²⁹ The growth rate sets a ceiling on the size of new plants. If a plant operates for too long at less than full capacity, the capital charges on an idle investment exceed the benefits from building a larger plant. This tradeoff favors a large system, for the more customers served by one system, the more rapidly it can absorb the capacity from a new generating unit. Utilities recognize this principle by pooling their resources to build and jointly own plants of a larger scale than any one firm could afford.³⁰

Most of the nation's generating plants are already interconnected with other plants operating in the same region.³¹ Within each of the

27. The electric-power industry is the most capital-intensive industry in the United States. Electric utilities must invest \$4.18 for every dollar of sales. By comparison railroads spend \$2.54, steel companies \$.86, and the automobile industry only \$.57. Investment by utilities in property, plant, and equipment represented 16.5% of all U.S. business investment in 1974. P. McCracken, W. Rosenberg & G. Decker, Energy Industrial Center Study (June 1975) (unpublished report prepared for the Office of Energy R & D Policy, National Science Foundation), *reprinted in Public Utility Hearings, supra* note 19, pt. 2, at 218. In 1977 generating plants accounted for 70% of construction expenditures by private utilities. EDISON ELECTRIC INSTITUTE, STATISTICAL YEARBOOK OF THE ELECTRIC UTILITY INDUSTRY FOR 1977, at 59 (1978).

28. See S. BREYER & P. MACAVOY, *supra* note 16, at 93 ("[T]he most efficient way to make electricity usually is to install the largest generator that technology permits . . .")

29. L. WEISS, CASE STUDIES IN AMERICAN INDUSTRY 95 (2d ed. 1971).

30. Seventy-eight large generating units scheduled to come on line between 1977 and 1986 will be jointly owned by two or more utilities. ELECTRICAL WORLD, Mar. 15, 1978, at 93-94. Another common strategy is for utilities to take turns building new plants. Each participant adds new capacity in increments large enough to meet the needs of the entire group, and sells power to the other firms until its customers absorb the entire capacity of the new unit. See *Public Utility Hearings, supra* note 19, pt. 2, at 402-03 (statement of Abraham Gerber and Joe D. Pace).

31. In the wake of the 1965 Northeast power failure the industry voluntarily organized regional councils to promote reliability through coordinated system planning. See 1970 POWER SURVEY, *supra* note 14, at 17-14. Today there are nine regional reliability councils, the membership of which includes almost all of the electric-power systems in the lower 48 states and several Canadian provinces. *National Energy Act Hearings, supra* note 21, pt. 3, at 695 (statement of Walter J. Matthews, President, National Electric Reliability

nine regional reliability councils there is enough generating capacity to form power pools of close to the optimal size for the full realization of coordination economies.³² But mere physical interconnection does not require firms to take advantage of the opportunities presented. Several observers have noted that the industry is not exploiting all feasible coordination opportunities.³³ Centrally dispatched pools control only about one-third of the nation's generating capacity,³⁴ and many of these pools are not large enough to take full advantage of scale economies.³⁵ The modest progress toward closer coordination reported in the last five years does not warrant substantial revision of the conclusions reached by Breyer and MacAvoy in 1974: "The evidence . . . suggests that there should be considerably more coordination *at this time* than now exists."³⁶

B. *Obstacles to Coordination*

Despite the economies of scale in system size, many utilities have concluded that the burdens of membership in a tightly coordinated power pool outweigh the benefits. The impediments to coordination include: (1) conflicts of interest among participating utilities; (2) dis-

Council). Most of the bulk-power systems within each reliability council are interconnected. East of the Continental Divide the network of interconnections reaches across reliability council "boundaries":

The electric power supply systems in the eastern, southern and midwestern regions of the United States normally operate together in a synchronous manner to form a series of large interconnected electric power grids. Geographically, these interconnected systems extend from Maine to Florida and inland as far as Oklahoma, Nebraska and the Dakotas and include most power facilities in seven of the nine electric reliability councils. The far western states tend to operate as a separate series of power grids with weaker ties to the East. The interconnected systems in most of Texas operate as an electrically isolated power grid.

New England Power Pool Participants (Coal-By-Wire), 52 F.P.C. 410, 420 (1974), *aff'd sub nom.* Richmond Power & Light v. FERC, 574 F.2d 610 (D.C. Cir. 1978).

32. Studies have estimated that most coordination savings could be realized by systems in the 30-50,000-megawatt (MW) range. See S. BREYER & P. MACAVOY, *supra* note 16, at 106-07. By the end of 1976, utilities in all but one of the nine regional reliability councils had an aggregate installed capacity in excess of 30,000 MW. NATIONAL ELECTRIC RELIABILITY COUNCIL, 7TH ANNUAL REVIEW OF OVERALL RELIABILITY AND ADEQUACY OF THE NORTH AMERICAN BULK POWER SYSTEMS (1977), reprinted in *Public Utility Hearings*, *supra* note 19, pt. 2, at 346.

33. See, e.g., *Public Utility Hearings*, *supra* note 19, pt. 3, at 151 (statement of David J. Bardin, Deputy Administrator, FEA); FEDERAL ENERGY ADMINISTRATION, STRUCTURAL REFORM IN THE ELECTRIC POWER INDUSTRY 30 (1976) [hereinafter cited as STRUCTURAL REFORM]; 2 A. KAHN, *supra* note 9, at 76.

34. FEDERAL POWER COMMISSION, FACTORS AFFECTING THE ELECTRIC POWER SUPPLY 1980-85: EXECUTIVE SUMMARY AND RECOMMENDATIONS 28 (1976).

35. In December 1976 the FPC published a report that included an inventory of centrally dispatched power pools. Only one of the entities on the FPC list controlled as much as 30,000 MW of generating capacity. One system on the list had a net capability of 236 MW. See *id.*

36. S. BREYER & P. MACAVOY, *supra* note 16, at 97 (emphasis in original).

Electric Power

incentives built into the regulatory regime; and (3) intentional efforts by vertically integrated firms to deny potential retail competitors access to the economies of scale.

Conflicts of interest arise because a coordination project rarely benefits all participating utilities equally.³⁷ Parties to the venture often disagree over how the costs should be apportioned.³⁸ Yet utility managers are reluctant to endow a central committee with the power to impose financial burdens on dissenting members. In some pools proposed actions require the unanimous consent of every participant.³⁹ Coordinating groups have broken up over the inability of members to reach a consensus on basic decisions.⁴⁰ When that occurs, the utilities and their customers lose the efficiency benefits that could have resulted from collective action.⁴¹

37. The problem of differential benefits arises whenever a project involves utilities of greatly differing size. Small firms stand to gain more from coordination than large ones, because the small utility in isolation is further from the most efficient operating size. *Id.* at 109.

38. See, e.g., *Gainesville Utils. Dep't v. Florida Power Corp.*, 402 U.S. 515 (1971). The small municipal utility of Gainesville, Florida sought to interconnect its grid with that of the much larger Florida Power Corporation, in order to share reserves. The arrangement would have enabled Gainesville to postpone construction of a generating plant. *Id.* at 520. However, the small reserve capacity of the municipal system had little value to Florida Power. The FPC required Gainesville to pay the entire capital cost of the interconnection, to maintain the same reserve margin as Florida Power (15% of peak load), and to compensate the investor-owned system for actual energy transfers across the interconnection. *Id.* at 522. But the Commission denied Florida Power permission to charge an annual fee, over and above any costs incurred, that the large firm attempted to justify in terms of the value of the service to Gainesville. *Id.* at 522-23. On this point Florida Power appealed to the Supreme Court, which affirmed the decision of the Commission. *Id.* at 517. Gainesville had recourse to the FPC because the Commission has authority to order the interconnection of transmission facilities; it can also require one utility to sell energy to another and can regulate the rates charged for these services. 16 U.S.C. §§ 824a(b), 824d(a) (1976). Many disputes, however, do not fall within the jurisdiction of the Commission. If, for instance, a coordinating group cannot decide how to compensate a participant for the donation of a choice site for a jointly owned generating plant, the plant will not be built.

39. [C]entral dispatch often means operation by committee with no one really in charge. In fact, some pool agreements provide that no major policy decision can be taken unless there is unanimous agreement. This then results in much pulling & hauling to assure that decisions are satisfactory to all members of the Pool, but not necessarily to the public.

National Energy Act Hearings, *supra* note 21, pt. 3, at 655 (statement of Alvin Kaufman, Congressional Research Service).

40. Cost-apportionment problems and the absence of effective leadership led to the breakup of the Carolinas-Virginia Pool and the Illinois-Missouri Pool. STRUCTURAL REFORM, *supra* note 33, at 32. The Kentucky-Indiana Pool abandoned the cooperative development of new generating plants because pool members could not agree on terms for the addition of two proposed nuclear units to the pool. *Public Utility Hearings*, *supra* note 19, pt. 3, at 160 (statement of David J. Bardin, Deputy Administrator, FEA).

41. The problem is endemic to pooling. A consultant studying the then-proposed New England Power Pool in 1970 warned:

Each utility must view proposals from the viewpoint of the interests of its own customers and stockholders which are not necessarily the same as the interests of New

Problems of committee decisionmaking and cost allocation appear to be inherent in the operation of a power pool. By contrast, some obstacles to full coordination stem from the structure of the regulatory regime imposed by federal and state laws, especially the latter. State public utility commissions regulate many aspects of electric utility operations, including retail tariffs, power plant siting, standards of service, and environmental protection.⁴² Some states discourage utilities from taking a regional perspective in planning bulk-power facilities.⁴³ Others restrict the authority of their publicly chartered utilities to undertake joint ventures with investor-owned systems.⁴⁴ Another obstacle to joint ventures is the fact that a project may require the approval of commissions in three or four states, each of which has different rules on cost recovery and environmental protection. The lack of coordination among state regulators inhibits interstate ventures by the firms they regulate.⁴⁵

Both state commissions and the FERC employ a system of rate regulation that arguably discourages coordination initiatives. Cost-of-service regulation permits the utility to recover from customers a fixed percentage of its rate base: the capital cost of plant and equipment. According to an influential theory, this method of price supervision induces a distortion in the investment pattern of regulated firms. Averch and Johnson hypothesize that a monopolist earning a per-

England. There is thus no assurance in this concept that the fundamental objective of a single system approach to regional power planning—based on regional interests being paramount—will be achieved.

H. Zinder & Associates, Inc., *A Study of the Electric Power Situation in New England 63* (1970) (study prepared for New England Regional Comm'n) [hereinafter cited as Zinder].

42. For an overview of the areas regulated by state public utility commissions, see R. Marritz & G. Culp, *Governmental Impediments to Electric System Efficiency Through Integration 32-51* (Feb. 28, 1979) (report prepared for Department of Energy).

43. For instance, a state may not permit its regulated utilities to invest capital in another state. The original plans for the now infamous Seabrook nuclear power plant in New Hampshire called for a joint venture by three utilities, including Central Maine Power Company. Central Maine later withdrew, citing as one of its reasons a state rule excluding out-of-state property from the rate base. Zinder, *supra* note 41, at 64.

44. See R. Marritz & G. Culp, *supra* note 42, at 39-42. Congress addressed this problem in 1978 by giving the FERC the authority to exempt electric utilities from any provision of state law that prevents voluntary coordination, "if the Commission determines that such voluntary coordination is designed to obtain economical utilization of facilities and resources in any area." Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, § 205(a), 92 Stat. 3, 117 (1978) (codified at 16 U.S.C.A. § 824a-1(a) (West Supp. 1979)). No exemption may be granted, however, from a state law that:

(1) is required by any authority of Federal law, or

(2) is designed to protect public health, safety, or welfare, or the environment or conserve energy or is designed to mitigate the effects of emergencies resulting from fuel shortages.

Id.

45. See *STRUCTURAL REFORM*, *supra* note 33, at 32-33.

Electric Power

centage return on its invested capital will utilize excessively capital-intensive methods of production, whenever the allowed rate of return exceeds the cost of capital.⁴⁶ The Averch-Johnson effect would discourage the adoption of coordination techniques, many of which reduce or postpone the need for capital investment.⁴⁷

Economists debate the impact of the Averch-Johnson effect on electric-utility decisionmaking,⁴⁸ but one need not accept the theory in toto to acknowledge that a regulated monopolist feels less pressure than firms in competitive industries to minimize capital outlays and to pursue cost-cutting innovations.⁴⁹ The substitution of regulation for competition at the production stage partially explains the survival of inefficiently small bulk-power supply systems.

The limited competition that does occur between utilities also tends to impede the realization of scale economies. One important form of rivalry in the industry today is competition for the franchise to distribute retail electricity. Given the natural monopoly character of local distribution, most states impose territorial restrictions that prevent direct competition between two or more retailers in the same community.⁵⁰ Legal restrictions may also prevent one investor-owned utility from competing for the distribution franchise of a neighboring private company.⁵¹ In many states, however, citizens dissatisfied with

46. Averch & Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AM. ECON. REV. 1052 (1962).

47. 2 A. KAHN, *supra* note 9, at 50-51. Kahn also noted that the Averch-Johnson effect might bias a utility against purchasing power or leasing facilities from others, because "when a distribution company purchases power [or leases capacity] from one of its partners, it receives nothing more than reimbursement for those actual expenses, whereas if it generates the power itself it has an expanded rate base on which it is entitled to a return," *id.* at 51.

48. Breyer and MacAvoy point out that empirical evidence does not entirely support the Averch-Johnson theory. Utilities regularly resist certain types of rate-base expansion, e.g., pollution control expenditures. S. BREYER & P. MACAVOY, *supra* note 16, at 108. However, this may indicate the role of other factors in firm decisionmaking, rather than any fault in the basic hypothesis.

49. See Meeks, *supra* note 19, at 85 (footnotes omitted) ("When rates are set on a cost-plus-fair-profit basis, there is little incentive to reduce costs since profits will not thereby be increased. At the same time, the company's monopoly position insulates it from substantial injury by competitors' cost-reducing innovations.")

50. Fewer than 30 communities in the United States support two or more competing distribution systems. *Public Utility Hearings*, *supra* note 19, pt. 2, at 424 (statement of Abraham Gerber and Joe D. Pace). For an outline of the devices by which states and municipalities control entry at the distribution stage, see Meeks, *supra* note 19, at 95-99.

51. See, e.g., Electric Supplier Act, §§ 3.5, 5, ILL. ANN. STAT. ch. 111 2/3, §§ 403.5, 405 (Smith-Hurd 1966) (no electric supplier may serve customer of another supplier without consent of previous supplier and of Commission; "electric supplier" includes investor-owned firms and rural electric coops but not municipal systems); OHIO REV. CODE ANN. §§ 4933.83, .87 (Page Supp. 1978) ("each electric supplier shall have the exclusive right to furnish electric service . . . within its certified territory," but provision does not apply to municipal corporations).

the performance of a franchise holder may vote to establish a municipal distribution company.⁵² The existence of this option puts pressure on investor-owned firms to hold down rates and to provide high-quality service.⁵³

The average municipal system, serving only one town, sells much less power than its investor-owned competitor.⁵⁴ Small distributors, public or private, face a formidable challenge in trying to find an economical source of bulk power. The economies of scale in generator size make 100% ownership of a new generating unit impractical for all but a handful of the largest municipal utilities.⁵⁵ Most publicly owned systems meet the growing demand for electricity either by purchasing it at wholesale⁵⁶ or by purchasing a small share of a new generating plant.

In this context, vertically integrated systems use their control over the regional transmission network to isolate competing distributors from potential pooling partners or outside vendors of bulk power. Many small distributors operate as islands in the territorial sea of a large vertically integrated system. The integrated firm can prevent an isolated distributor from importing power, simply by refusing to "wheel" it over the transmission grid.⁵⁷ Isolation of the distributor

52. At the distribution stage economies of scale are a function of load density, rather than the absolute size of the distribution system. Weiss, *supra* note 12, at 145. In other words, it would be very inefficient to have two sets of distribution lines on the same street, but efficiency does not require horizontal integration over many load centers. A municipal distributor operating in only one community can provide service that is comparable in cost and quality to that provided by a much larger firm serving many load centers. 1964 POWER SURVEY, *supra* note 10, at 28.

53. As one spokesman for local publicly owned systems stated, the mere existence of such systems "is a continuing reminder that a public abused may exercise its inherent right to operate directly their public business." *National Energy Act Hearings*, *supra* note 21, pt. 3, at 544 (statement of George Spiegel). In 1975 the United States contained 2,224 local publicly owned utilities and 982 rural electric cooperatives. PUB. POWER, Jan.-Feb. 1978, at 36. In recent years, however, investor-owned companies have been absorbing municipal systems faster than they are being formed. Between 1960 and 1969, 23 new municipal systems were formed and 72 were taken over by investor-owned companies. Fairman & Scott, *supra* note 17, at 1163 n.20.

54. In 1975 the 256 private power companies sold 77.3% of the electric power purchased at retail, while 2,224 local publicly owned systems, 982 rural coops, and 8 federal power marketing agencies divided the remaining 22.7%. PUB. POWER, Jan.-Feb. 1978, at 36.

55. Fairman & Scott, *supra* note 17, at 1196 ("[T]echnological advances increasing both the size and relative efficiency of larger generators, coupled with unprecedented fuel price increases, have pushed the minimum feasible investment in generation well beyond the reach of the smaller systems.")

56. About 1,000 local public power systems purchase some or all of their bulk-power requirements at wholesale. *Public Utility Hearings*, *supra* note 19, pt. 1, at 735 (statement of Alex Radin, American Public Power Association).

57. *Id.* at 736-37. "Wheeling" is the transmission of bulk power by one utility for another. Contractually, the service may be viewed as the transportation of a stipulated

Electric Power

from external suppliers forces it either to purchase its wholesale requirements from the integrated firm, or to build an inefficiently small generator, in which case the distributor becomes vulnerable at franchise renewal time.⁵⁸

In *Otter Tail Power Co. v. United States*,⁵⁹ the Supreme Court condemned, as a violation of the Sherman Act, the use by an integrated firm of its transmission monopoly to destroy a municipal competitor. In so holding the Court recognized that the firm that controls the transmission network in a given area controls the bulk-power market in that area.⁶⁰ Unfortunately, the antitrust remedy has not proven to be a very effective deterrent.⁶¹ Integrated firms still practice many

volume of electricity from the point at which power is pumped onto the grid to the point at which it is removed. Physically, however, power does not actually flow from point to point. Electricity in a transmission line acts like water under pressure. The introduction of energy at point *A* changes the pressure at all other points on the grid. Load centers move and the direction of flow may reverse in some lines. Wheeling transactions require planning, because the introduction of new load at point *A* changes the level of stress on every interconnected line. *Id.*, pt. 2, at 411-12 (statement of Abraham Gerber and Joe D. Pace).

58. See Taylor, *supra* note 9, at 50:

If . . . the municipals [*sic*] costs of service are higher than those of the private utilities, then the customers of the municipals would be forced to pay unnecessarily high rates, and the municipals might be forced to sell out to the private utilities or restrict their operations to fewer and smaller retail markets.

59. 410 U.S. 366 (1973). Otter Tail is a vertically integrated private utility serving a large territory in Minnesota, North Dakota, and South Dakota. In the 1960s the Company distributed electricity at retail to 465 towns in the tri-state area under municipally granted franchises that varied in length between 10 and 20 years. *United States v. Otter Tail Power Co.*, 331 F. Supp. 54, 57 (D. Minn. 1971), *aff'd*, 410 U.S. 366 (1973). The citizens of Elbow Lake, Minnesota and Hankinson, North Dakota decided not to renew the Company's franchise. They planned instead to purchase subsidized bulk power from the Bureau of Reclamation and to distribute it themselves. *Id.* at 60. The viability of this plan depended on the purchase of wheeling service from Otter Tail, for the private system owned the only transmission link between the Bureau's trunk line and the two towns. *Id.* at 60-61.

In an attempt to keep its former retail customers within the fold, Otter Tail refused to wheel power or sell wholesale power to the towns. *Id.* at 61. Hankinson eventually capitulated and renewed Otter Tail's franchise. *Id.* Elbow Lake built a small, inefficient generating plant. *Id.* at 60. The Justice Department brought a successful antitrust action against the private firm, and alleged that the refusal to wheel or sell power to municipalities formerly served at retail constituted the use of monopoly power to destroy threatened competition in violation of § 2 of the Sherman Act, 15 U.S.C. § 2 (1976). See 410 U.S. at 368-72.

60. The Supreme Court relied upon the finding below that "Otter Tail has 'a strategic dominance in the transmission of power in most of its service area' and that it used this dominance to foreclose potential entrants into the retail area from obtaining electric power from outside sources of supply." 410 U.S. at 377 (quoting *United States v. Otter Tail Power Co.*, 331 F. Supp. 54, 60 (D. Minn. 1971)). *Otter Tail* has been analyzed as a "bottleneck monopoly" case: one in which a vertically integrated monopolist controls entry at a second level by virtue of his monopoly at the first level. Note, *Refusals to Deal by Vertically Integrated Monopolists*, 87 HARV. L. REV. 1720, 1722-24 (1974).

61. See p. 1531 *infra*.

forms of anticompetitive conduct, including refusals to wheel power,⁶² price discrimination between their own distribution subsidiaries and wholesale customers,⁶³ and the exclusion of retail competitors from the benefits of pooling.⁶⁴

These anticompetitive tactics have short- and long-term consequences. In the short term, they represent a conscious decision to forego coordination opportunities in order to maintain a competitive advantage. Of course, the advantage accrues only to stockholders of the integrated firm, not to its customers or to those of the isolated small distributor. The long-term consequence of refusals to coordinate is that small utilities face a bleak future,⁶⁵ even at the distribution stage where efficiency does not require large-scale operation.⁶⁶

The reduction of competition at the distribution stage might be acceptable if vertical integration made utilities more efficient. That, however, is not the case. Utilities strive to integrate forward to obtain the security of a guaranteed outlet for their product and backward for a dependable supply of bulk power. But vertical integration does not significantly reduce the cost of operation at any stage of the industry.⁶⁷

62. Many cases document the existence of a general policy among integrated firms not to wheel for retail competitors. *E.g.*, *Gulf States Utils. Co. v. FPC*, 411 U.S. 747, 752 (1973); *Otter Tail Power Co. v. United States*, 410 U.S. 366, 368 (1973); *Niagara Mohawk Power Corp. v. FPC*, 538 F.2d 966 (2d Cir. 1976); see *National Energy Act Hearings*, *supra* note 21, pt. 3, at 553 (statement of George Spiegel); STANFORD ENVIRONMENTAL LAW SOCIETY, *GEOTHERMAL ENERGY: LEGAL PROBLEMS OF RESOURCE DEVELOPMENT* 129 (1975) (refusal of Pacific Gas & Electric Co. to wheel power for municipal systems in its service area).

63. Small distributors lacking generation facilities often are forced to purchase their bulk-power requirements from the competing private system. In this setting the integrated firm may institute a price squeeze that raises the price of wholesale power to the point at which the distributor cannot compete at retail. As of June 1976, 49 price-squeeze cases involving utilities in 27 states were pending before the FPC. Fairman & Scott, *supra* note 17, at 1173 n.55 (citing *Hearings on H.R. 15544, Emergency Federal Power Act, Before the Subcomm. on Energy and Power of the House Comm. on Interstate and Foreign Commerce*, 94th Cong., 2d Sess. 3 (1976) (statement of Rep. McFall)). Price-squeeze allegations have also been raised in the courts. See *Conway Corp. v. FPC*, 510 F.2d 1264, 1266-67 (D.C., Cir. 1975), *aff'd*, 426 U.S. 271 (1976); *City of Mishawaka v. Indiana & Mich. Elec. Co.*, 560 F.2d 1314, 1316 (7th Cir. 1977), *cert. denied*, 436 U.S. 922 (1978).

64. See note 17 *supra*.

65. See S. REP. No. 1394, 94th Cong., 2d Sess. 4 (1976) ("The national trend is toward consolidation of utility systems, particularly the acquisition by investor owned utilities of small publicly owned systems through what sometimes amounts to a forced sale.") [hereinafter cited as S. REP. 1394]. The 1950s and 1960s saw the number of private utilities reduced, by merger, from 581 in 1955, to 472 in 1965. In the same interval about 150 municipal systems were acquired. Weiss, *supra* note 12, at 165. More recently, the Justice Department has intervened before the SEC to oppose two planned acquisitions by large investor-owned utilities. *Id.* at 165-66.

66. See note 52 *supra*.

67. See Meeks, *supra* note 19, at 76 ("[T]he necessity of monopoly at one level of the industry does not require the vertical extension of monopoly to other levels. Such vertical integration by ownership of generation, transmission, and distribution is neither technologically nor economically necessary."); accord, Taylor, *supra* note 9, at 34; Weiss, *supra* note 12, at 156-57.

Electric Power

No by-product of the struggle between integrated firms and isolated distributors compensates consumers for the hidden costs attributable to lost coordination opportunities.

C. *Coordination as a Goal of Federal Regulatory Policy*

1. *The Federal Power Act*

Congressional initiatives to improve the efficiency of the nation's bulk-power supply began with Title II of the Public Utility Act of 1935,⁶⁸ now codified as part of the Federal Power Act.⁶⁹ The Act directed the FPC to "promote and encourage . . . interconnection and coordination."⁷⁰ This ringing mandate concealed an ambivalent congressional intent. The statute empowered the Commission to promote only the *voluntary* interconnection and coordination of electric-power facilities.⁷¹ The Senate Commerce Committee deleted language from the bill that would have imposed common-carrier obligations on transmission-line owners.⁷² As enacted, the statute authorized the FPC to order a utility selling power in interstate commerce to interconnect with another firm, and to sell or exchange power with another utility.⁷³ But the Commission could not order one utility to wheel for another,⁷⁴ nor could it compel utilities to join a power pool. The Commission's jurisdiction over voluntarily organized pools was, and is, limited to determining whether rate schedules contained in the pooling agreement are unjust, unreasonable, or unduly discriminatory.⁷⁵

68. Ch. 687, 49 Stat. 838 (1935).

69. 16 U.S.C. §§ 791a-825r (1976). The Federal Power Act has three parts. Subchapter I, which empowers the FPC (now FERC) to license hydroelectric projects on navigable waters, originally was enacted as the Federal Water Power Act of 1920, ch. 285, 41 Stat. 1063. The Public Utility Act of 1935 added Subchapters II and III, and renamed the entire statute the Federal Power Act.

70. 16 U.S.C. § 824a (1976).

71. *See id.* ("[T]he Commission is empowered and directed to divide the country into regional districts for the voluntary interconnection and coordination of facilities for the generation, transmission and sale of electric energy . . .")

72. *See Otter Tail Power Co. v. United States*, 410 U.S. 366, 384-85 (1973) (Stewart, J., concurring in part and dissenting in part) (discussion of legislative history of Public Utility Act of 1935). The relevant language of the bill provided that "It shall be the duty of every public utility to . . . transmit energy for any person upon reasonable request therefore." *Id.* at 384 (quoting S.1725, 74th Cong., 1st Sess. § 213 (1935)). Had this language been enacted, utilities owning transmission lines would have been obligated to serve as common carriers of bulk power.

73. 16 U.S.C. § 824a(b) (1976).

74. *See Otter Tail Power Co. v. United States*, 410 U.S. 366, 375 (1973) (footnote omitted) ("So far as wheeling is concerned, there is no authority granted the Commission under Part II of the Federal Power Act to order it, for the bills originally introduced contained common carrier provisions which were deleted.")

75. [T]he scope of a power pool is in the first instance a matter for the utilities involved. The mere fact that a particular pool does not offer the same range of

For forty years the FPC operated under this narrow grant of authority. The publicly owned sector of the industry found the law most unsatisfactory, for it gave isolated distributors no leverage with which to obtain the benefits of coordination. Over the years, proponents of mandatory coordination introduced numerous bills to confer increased powers on the FPC,⁷⁶ but without success. Not until 1978 was Congress persuaded to authorize an incremental expansion of the Commission's jurisdiction over coordination practices.

The Public Utility Regulatory Policies Act of 1978⁷⁷ contains a weak version of the common-carrier scheme that Congress rejected in 1935. The Federal Power Act, as amended in 1978, now authorizes the FERC, upon the application of any electric utility or federal marketing agency, to order any other utility to provide transmission services to the applicant.⁷⁸ If necessary, the Commission may order the enlargement of transmission capacity to meet the needs of a wheeling customer, at that customer's expense.⁷⁹ The Act does not authorize the FERC to organize power pools, or to require open admission to power pools,⁸⁰ although the legislation that President Carter sent to Congress would have given the Commission this authority.⁸¹

In principle, common-carrier regulation should promote both coordination and competition. As the *Otter Tail* case illustrates, small distributors are isolated because they lack access to coordinating partners and suppliers of bulk power, other than the utility that surrounds

services as another pool does not permit the Commission to direct expansion of the narrower pools' [sic] scope. Unless the limited scope of the MAPP Agreement is for some other reason unjust, unreasonable or unduly discriminatory, we are not authorized under Part II of the Federal Power Act to direct the pool to offer more services.

Mid-Continent Area Power Pool Agreement, [1977] UTIL. L. REP. (CCH) ¶ 11,958, at 12,295 (FPC 1977), *appeal docketed sub nom.* Alexandria Bd. of Pub. Works v. FERC, No. 77-1916 (D.C. Cir. Oct. 7, 1977).

76. The dissenting opinion in *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973), recites the legislative history of many unsuccessful attempts to amend the Federal Power Act, up to 1973, *id.* at 386 n.4. These efforts continued in subsequent sessions of Congress. *See, e.g.*, S. 3311, 94th Cong., 2d Sess. (1976); S. 3483, 93d Cong., 2d Sess. (1974).

77. Pub. L. No. 95-617, 92 Stat. 3117 (1978).

78. 16 U.S.C.A. § 824j(a) (West Supp. 1979). *But see* p. 1527 *infra* (discussing severe restrictions on scope of FERC's authority to require wheeling).

79. 16 U.S.C.A. § 824j(a) (West Supp. 1979).

80. The 1978 legislation did not enhance FERC's authority to promote pooling, except in one respect. It gave the Commission a limited power to exempt utilities from state rules that prevent voluntary coordination. *See id.* § 824a-(1)(a), *discussed in note 44 supra*. In addition, the Act directed the Commission to carry out a study of the opportunities to improve energy conservation, efficiency, and reliability through pooling. 16 U.S.C.A. § 824a-1(b) (West Supp. 1979).

81. S. 1469, 95th Cong., 1st Sess. § 521 (1977).

Electric Power

them.⁸² The availability of wheeling would enable any distributor to purchase power from any producer within transmission distance. It would facilitate reserve sharing, as well as the exchange of economy energy and peak capacity, between systems that are not directly interconnected.⁸³ No longer would transmission restrictions prevent small utilities from owning part of a generating plant. The refusal of integrated firms to wheel prevents small and large utilities from realizing these economies.

Unfortunately, the 1978 legislation is encumbered by a crop of caveats and conditions that gravely weaken the authority conferred. Most significantly, the Commission may issue no wheeling order that would disturb "existing competitive relationships."⁸⁴ Furthermore, an electric utility may not be compelled to wheel electricity that would replace power currently provided to the applicant by the transmission-line owner.⁸⁵ In other words, the Act ignored one major cause of lost coordination opportunities—the denial of transmission services to a distribution-stage competitor. By failing to address this issue it perpetuates the isolation of independent distributors and obstructs the development of a competitive market in bulk power.

Even if these dysfunctional provisions were removed, the objectives of the 1978 Act would be frustrated by fundamental flaws in the

82. See 410 U.S. at 370 (footnote omitted) ("Proposed municipal systems have great obstacles; they must purchase the electric power at wholesale. To do so they must have access to existing transmission lines. The only ones available belong to Otter Tail.")

83. There is already a significant volume of bulk-power sales between noncontiguous utilities. See, e.g., *New England Power Pool Participants (Coal-By-Wire)*, 52 F.P.C. 410 (1974), *aff'd sub nom. Richmond Power & Light v. FERC*, 574 F.2d 610 (D.C. Cir. 1978) (reviewing legality of rate schedules filed by eastern utilities for transmission of economy energy from midwestern generating plants to New England). Under standard industry practice, however, "each utility or pool pays its neighbor for the service provided; a particular coal-by-wire transmission can involve four or more individual charges." 574 F.2d at 618. Each utility along the route makes a separate charge for the service, and the cumulative wheeling charges may greatly exceed the incremental cost to the carriers of providing the transmission service. *National Energy Act Hearings*, *supra* note 21, pt. 3, at 638 (statement of George Spiegel). The "daisy-chain of separate transmission rate schedules" prevents interconnected utilities from dispatching their generating plants in the most efficient possible manner. *Id.* at 549.

84. 16 U.S.C.A. § 824j(c)(1) (West Supp. 1979). In addition, the FERC may issue a wheeling order only if it finds that such an order 1) is in the public interest, *id.* § 824j(a)(1); 2) will either conserve a significant amount of energy, significantly promote efficiency, or improve the reliability of the applicant, *id.* § 824j(a)(2); 3) is not likely to result in an uncompensated economic loss for any electric utility, qualifying cogenerator, or qualifying small power producer affected by the order, *id.* § 824k(a)(1); 4) will not place an undue burden on a utility, cogenerator, or small power producer affected by the order, *id.* § 824k(a)(2); 5) will not unreasonably impair the reliability of any electric utility affected by the order, *id.* § 824k(a)(3); and 6) will not impair the ability of any utility affected by the order to render adequate service to its customers, *id.* § 824k(a)(4).

85. *Id.* § 824j(c)(2)(B).

common-carrier scheme. Common-carrier regulation is all "stick" and no "carrot." It offers the transmission-line owner no incentive to wheel power, but rather imposes the obligation on a carrier that, for competitive or other reasons, does not welcome the business. Price supervision of a monopolist is difficult enough when the purveyor of the commodity is eager to sell it. For the firm that seeks to avoid dealing with a competitor, the regulatory process affords seemingly limitless opportunities for footdragging.

The FERC has jurisdiction over all rates for the transmission or sale of electricity at wholesale in interstate commerce.⁸⁶ When a utility files a wheeling tariff or any other rate schedule customers may apply immediately to receive the service. But the customer may not know, for a number of years, how much the service will cost, and what restrictions will apply. In 1973 the Otter Tail Power Company, following its loss in the Supreme Court,⁸⁷ filed a tariff to wheel power for the village of Elbow Lake, Minnesota.⁸⁸ The ensuing ratemaking case, interrupted by several appeals to the federal courts, has consumed six years,⁸⁹ and the company has yet to file a rate schedule that is acceptable to the Commission.⁹⁰ In all probability, final approval of a wheeling tariff is still several years away.⁹¹

86. *Id.* § 824(b)(1); 16 U.S.C. § 824d(a)-(c) (1976).

87. *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973), discussed in note 59 *supra*.

88. *Otter Tail Power Co.*, 50 F.P.C. 1341 (1973) (order accepting filing).

89. The most recent FERC opinion in the *Otter Tail* rate case contains a procedural history of what the administrative law judge referred to as "the long trail of litigation which marks the tortured course of dealings between Otter Tail and its municipal customers." *Otter Tail Power Co.*, Nos. ER77-5 & E-8152, Initial Decision at 3 (FERC Sept. 15, 1978).

90. On September 15, 1978 the administrative law judge rejected Otter Tail's proposed wheeling rates, and ordered the company to file revised rates taking into account certain findings as to cost of service. *Id.* at 33. Otter Tail and its municipal customers each have filed exceptions to the Initial Decision. Telephone interview with Wilbur C. Earley, industry economist, FERC (Mar. 27, 1979).

91. Otter Tail is a case of first impression, in that it involves the first "pure" wheeling tariff ever filed with the Commission. *Otter Tail Power Co.*, Nos. ER77-5 & E-8152, Initial Decision at 2 (FERC Sept. 15, 1978). Hence each important issue is appealed to the courts. But the cost-of-service issues that have already taken up more than a year are common to every wheeling rate case. The administrative law judge heard extensive testimony on the issue of what capital assets should be included in Otter Tail's transmission rate base. Wheeling customers should be required to share in the amortization only of equipment that serves a transmission function. Thus the first task of the regulator in setting a wheeling tariff is to "functionalize" the capital plant of the carrier into its production, transmission, and distribution components. The problem is that a transmission investment may serve a production function, and vice versa. For instance, an integrated firm may find it cheaper to build one large generating plant midway between two load centers than to build two smaller plants close to the load centers. By increasing its transmission investment the utility can spend less on generating equipment. The regulator must decide what percentage of the line should be included in the transmission rate base. *See id.* at 8.

Electric Power

In addition to cost-of-service issues, the FERC must weigh the legality of proposed restrictions on access to the transmission grid. Carriers may attempt to restrict the availability of the service, *e.g.*, by limiting points of entry to the grid.⁹² If upheld, these restrictions reduce the value of the service to the customer.

Regulatory delay and uncertainty about the cost and scope of service undermine coordination incentives in several ways. First, the feasibility of any bulk-power transaction naturally depends on its cost, a major component of which is transmission cost. If the applicant cannot obtain a firm price for wheeling until several years after the commencement of service, long-range planning may be critically impaired.⁹³ Secondly, the high transaction cost of participating in a rate case may in itself deter utilities, especially small ones, from seeking transmission services. Thirdly, many coordination opportunities last for only a few hours or days. Transmission service must be available on short notice, or the opportunity is lost. As FERC economist Gordon Taylor noted: "The attempt to transact short-term bulk power services can be blocked by . . . insisting in each case on separate negotiations for the use of a transmission line. . . . Stalling potential transactions until they are no longer available is as effective as a refusal to deal."⁹⁴

2. *The Antitrust Laws*

Utilities unable to obtain transmission services from a competitor have argued that the FERC should be required to enforce the antitrust laws against firms that refuse to coordinate in order to injure a competitor. In *Gulf States Utilities Co. v. FPC*,⁹⁵ the Supreme Court

92. In 1977, the Florida Power and Light Company filed a proposed tariff for the wheeling of power from the Crystal River nuclear plant to the municipal utility of New Smyrna Beach, Florida. The proposed tariff limits the city to its share of the power actually produced by the Crystal River Plant. Power may be wheeled across the grid in one direction only, and between specified points of entry and exit. FERC staff witnesses claim that the only rationale for these restrictions is to limit the city's access to other coordinating partners. Florida Power & Light Co., No. ER77-175, at 32 (FERC 1977) (statement of Dr. Gordon T.C. Taylor, staff economist, FERC) [hereinafter cited as Taylor II with page citations to prepared statement].

FERC staff also objected to the inclusion of unduly restrictive conditions in the Otter Tail wheeling tariff. See Otter Tail Power Co., Nos. ER77-5 & E-8152, at 9-13 (FERC 1977) (statement of John K. Sammon, electrical engineer, FERC) [page citations to prepared statement].

93. See Taylor II, *supra* note 92, at 20 ("FP&L's failure to promulgate a general wheeling rate prohibits parties from knowing before hand whether or not particular agreements would be prudent.")

94. Taylor, *supra* note 9, at 51.

95. 411 U.S. 747 (1973).

agreed that the FPC, like other regulatory agencies,⁹⁶ has a responsibility to consider "the fundamental national economic policy expressed in the antitrust laws."⁹⁷ However, subsequent cases suggest that the Commission remains somewhat insensitive to allegations of anticompetitive conduct by utilities.⁹⁸ Congressional proponents of closer coordination, aware of the agency's conservatism, introduced legislation in 1976 and 1977 that would have required the FPC to consider allegations of unfair competition in regulatory proceedings and to take corrective action when warranted.⁹⁹ None of these proposals was enacted. They might not have been necessary, in light of the holding in *Gulf States*, but the Senate Commerce Committee nevertheless saw a need to codify the Commission's antitrust responsibilities: "Since no two cases are exactly alike, the FPC could continue to interpret the Supreme Court decisions narrowly and thus continue its past practice of declining to consider such allegations."¹⁰⁰

96. See *Denver & R.G.W.R.R. v. United States*, 387 U.S. 485 (1967) (Interstate Commerce Commission, in reviewing applications to issue securities, must consider anticompetitive consequences of activities financed by issue).

97. 411 U.S. at 759. In 1970 *Gulf States Utilities* applied to the FPC for permission to float a bond issue. Section 204 of the Federal Power Act, 16 U.S.C. § 824c (1976), requires the approval of the FERC (then the FPC) before any regulated utility can issue securities. The cities of Lafayette and Plaquemine, Louisiana intervened, contending that the bonds would finance anticompetitive activities, including the refusal of *Gulf States* to wheel power for the Louisiana Electric Cooperative. The cities petitioned the FPC to condition authorization of the bonds on the cessation of this conduct. The Commission refused to consider the matters raised by the cities, and held that alleged antitrust violations are "irrelevant to the purposes of issuing bonds," *Gulf States Utils. Co.*, 44 F.P.C. 1524, 1526 (1970). The Court of Appeals remanded the case to the Commission for consideration of the cities' claims. *City of Lafayette v. SEC*, 454 F.2d 941 (D.C. Cir. 1971), *aff'd sub nom. Gulf States Utils. Co. v. FPC*, 411 U.S. 747 (1973).

98. In *FPC v. Conway Corp.*, 426 U.S. 271 (1976), the Commission argued unsuccessfully that it lacks authority to compare retail and wholesale rate schedules of an integrated vendor of electricity for evidence of a price squeeze against a wholesale customer. *Id.* at 277. In 1977 the Commission approved the Mid-Continent Area Power Pool Agreement (MAPP) over the protest of 80 small, publicly owned utilities that were excluded from the pool. Mid-Continent Area Power Pool Agreement, [1977] UTIL. L. REP. (CCH) ¶ 11,958 (FPC 1977), *appeal docketed sub nom. Alexandria Bd. of Pub. Works v. FERC*, No. 77-1916 (D.C. Cir. Oct. 7, 1977). The MAPP agreement includes, *inter alia*, rate schedules fixing prices for most bulk-power transactions between MAPP members and commitments by member firms not to purchase power from outside of MAPP until the surpluses of MAPP members are exhausted. Brief of Petitioners at 20-21, *Alexandria Bd. of Pub. Works v. FERC*, No. 77-1916 (D.C. Cir. Oct. 7, 1977). The Commission has been criticized for taking an exceedingly cautious view of its own authority to promote coordination: "The FPC has more authority than it is willing to exercise because many of the Commissioners have been cautious, conservative people, looking at any possible ambiguity in the statute as a reason not to act." *National Energy Act Hearings*, *supra* note 21, pt. 3, at 539 (statement of George Spiegel). See also S. BREYER & P. MACAVOY, *supra* note 16, at 115 (FPC overlooked possible sources of authority in Federal Power Act to compel wheeling).

99. S. 3311, 94th Cong., 2d Sess. § 205 (1976); H.R. 6660, 95th Cong., 1st Sess. § 105 (1977).

100. S. REP. 1394, *supra* note 65, at 7.

Electric Power

The reluctance of the FPC to require coordination forces isolated utilities to pursue other remedies. The *Otter Tail* decision conclusively determined that regulated electric utilities enjoy no immunity from the antitrust laws.¹⁰¹ Unfortunately for plaintiffs, proving that a bulk-power supplier illegally refused to coordinate or to wheel power is but the first of many rivers to cross. The successful plaintiff must then litigate ratemaking issues before the FERC, with all of the attendant delays and disincentives discussed above. It is instructive to note that the antitrust complaint that paved the way for the current *Otter Tail* rate case was filed by the Justice Department in 1969.¹⁰²

More generally, neither the antitrust remedy nor mandatory wheeling offer an adequate substitute for voluntary coordination. These remedies are designed to alter a pattern of conduct among bulk-power suppliers, but both remedies ignore the factors that cause firms to forego scale economies. In some industries it may be possible to accomplish policy objectives by the enforcement of performance standards. But performance standards cannot elicit the shared commitment to efficiency that is a necessary ingredient of any complex coordination scheme. Guidelines prescribing the development of coordination initiatives would have to be so broad as to be virtually unenforceable. Unless federal power planners are prepared to assume the day-to-day management of the nation's utilities, regulatory reform must be directed toward eliminating the disincentives to efficiency stemming from the regulatory process and the pressures of the marketplace. With one minor exception,¹⁰³ Congress has yet to address these problems.

3. *The Atomic Energy Act*

The antitrust bow has one more string. A 1970 amendment to the Atomic Energy Act of 1954¹⁰⁴ gave the Attorney General a role in licensing of nuclear power plants. Before granting a license, the Nuclear Regulatory Commission (NRC) must refer applications to the Justice Department for antitrust review.¹⁰⁵ If the Attorney General finds that activities conducted under the license would offend the antitrust laws he may recommend that the NRC hold a hearing on antitrust issues, as part of the licensing process. The scope of the pre-

101. 410 U.S. at 373-74.

102. 2 A. KAHN, *supra* note 9, at 68 n.60.

103. In 1978, Congress gave the FERC authority to exempt utilities from certain state rules that block voluntary coordination. *See* note 44 *supra*.

104. Atomic Energy Act Amendments of 1970, Pub. L. No. 91-560, § 6, 84 Stat. 1472, 1473 (codified at 42 U.S.C. § 2135(c) (1976)).

105. 42 U.S.C. § 2135(c)(1) (1976).

licensing review may encompass "the relationship of the specific nuclear facility to the applicant's total system or power pool."¹⁰⁶ The Commission must make a finding as to "whether the activities under the license would create or maintain a situation inconsistent with the antitrust laws."¹⁰⁷ If they would, the NRC has the authority to condition licenses upon the elimination of any potential anticompetitive effects.¹⁰⁸

In practice, utilities seeking construction permits chafe at the delays, expense, and publicity that attend antitrust hearings before NRC licensing boards.¹⁰⁹ Many applicants avoid hearings by negotiating license conditions with the Justice Department or with the NRC.¹¹⁰ The antitrust review process has given small utilities a powerful lever with which to obtain access to large-scale generating units.¹¹¹ By April 1978, prelicensing review had produced twenty-six commitments to offer local municipal systems an ownership interest in a nuclear plant, twenty-eight commitments to wheel power for other electric systems, and twenty-seven commitments to share reserves with other systems.¹¹²

106. Louisiana Power & Light Co., 6 A.E.C. 619, 621 (1973).

107. 42 U.S.C. § 2135(c)(5) (1976).

108. *Id.* § 2135(c)(6).

109. The President of the Alabama Power Company participated in one of the few full hearings conducted to date by the NRC. He characterized it as a "monstrous review proceeding," involving two years of prehearing discovery, and 169 hearing days that filled 28,000 transcript pages. *Public Utility Hearings, supra* note 19, pt. 2, at 99 (statement of Joseph M. Farley, President, Alabama Power Co.).

110. By the end of 1978, the Justice Department had conducted or was conducting antitrust review in connection with 91 nuclear plant construction permit applications. Of these 91, 17 were recommended for hearing; 24 were recommended for no hearing because applicants agreed to antitrust license conditions; 49 were recommended for no hearing without need for conditions, and one was pending. [1978] NRC ANN. REP. 54. By May 1978 only three cases had been litigated before NRC licensing boards. See *Department of Justice Budget Authorization: Hearings Before the Senate Comm. on the Judiciary*, 95th Cong., 2d Sess. 268 (1978) (statement of Assistant Attorney General John H. Shenefield). In two of those cases the board found that the licensing of the plant would create or maintain a situation inconsistent with the antitrust laws unless conditions were attached to the license guaranteeing that small, publicly owned systems would have access to power from the nuclear units. See Toledo Edison Co. (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), [1975-1978 Transfer Binder] NUCLEAR REG. REP. (CCH) ¶ 30,134, at 30,134.14 (1977); Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), [1975-1978 Transfer Binder] NUCLEAR REG. REP. (CCH) ¶ 30,210, at 30,210.02 (1977). In the third case an appeal board reached the same conclusion. Consumers Power Co. (Midland Plant, Units 1 and 2), [1975-1978 Transfer Binder] NUCLEAR REG. REP. (CCH) ¶ 30,263, at 30,263.22 (1977).

111. See Fairman & Scott, *supra* note 17, at 1200 (footnotes omitted) ("[The Atomic Energy Act Amendments] expanded and strengthened the nuclear plant licensing role of the attorney general . . . to such an extent that a general revision of the utilities' policies vis-a-vis small systems is being compelled by the government.")

112. Telephone interview with Phillip Nicholson, antitrust economist, NRC (Apr. 19, 1979).

Electric Power

By the end of 1978, 72 of the 100 largest utilities had undergone anti-trust review in the course of the nuclear licensing process.¹¹³

Despite these impressive statistics, precicensing review is at best a partial solution to the coordination problem. One shortcoming is that the alleged victims of anticompetitive conduct can be excluded from negotiations between the applicant and the Justice Department. The agreements that emerge from bilateral negotiations sometimes bear the hallmarks of *ex parte* advocacy.¹¹⁴ Moreover, the scope of precicensing review extends only to activities conducted under a nuclear power plant license that "would create or maintain a situation inconsistent with the antitrust laws."¹¹⁵ The NRC has nothing to say about coordination between firms that are not direct competitors or about refusals to coordinate that do not raise antitrust problems. Finally, the precicensing review process shares the defects of the regulatory solutions discussed above, in that it seeks to extract services from a reluctant monopolist without changing the incentives that discourage voluntary coordination.¹¹⁶ The need for close cooperation between coordinating partners cannot easily be reconciled with a policy that attempts to impose coordination by fiat.

113. [1978] NRC ANN. REP. 54.

114. In 1976 the Antitrust Division reached agreement with the Pacific Gas & Electric Co. (PG&E) on a Statement of Commitments to be incorporated into the license for the Stanislaus nuclear power plant. The Antitrust Division recommended against holding a hearing, in the stated belief that the Commitments "will obviate the antitrust problems posed by PG&E's activities." Letter from Assistant Attorney General Thomas E. Kauper to Howard K. Shapar, Executive Legal Director, NRC (May 5, 1976) (on file with *Yale Law Journal*). The Northern California Power Agency (NCPA), a coalition of publicly owned distributors operating in the same area as PG&E, protested that the Stanislaus Commitments were inadequate. But the Justice Department excluded NCPA from negotiations with PG&E over the terms of the commitments. Letter from George Spiegel to Joseph J. Saunders, at 5 (Apr. 4, 1977), reprinted in *National Energy Act Hearings*, *supra* note 21, pt. 3, at 560. Subsequently the NRC licensing board agreed that the Stanislaus Commitments would not force PG&E to coordinate with municipal systems in its service area. The Licensing Board rejected the recommendation of the Justice Department and scheduled an antitrust hearing, which had reached the discovery stage at the end of 1978. [1978] NRC ANN. REP. 55.

115. 42 U.S.C. § 2135(c)(5) (1976). A House subcommittee held hearings in 1977 on several bills that would have created a precicensing antitrust review program, administered by the FPC, for new bulk-power facilities other than nuclear plants. See H.R. 6660, 95th Cong., 1st Sess. § 105 (1977); H.R. 6831, 95th Cong., 1st Sess. § 101 (1977). Assistant Attorney General John H. Shenefield testified in favor of this legislation, noting that "the relief available under section 105c [of the Atomic Energy Act] is inapplicable to electric systems that choose not to construct nuclear generating units." *National Energy Act Hearings*, *supra* note 21, pt. 3, at 591.

116. One manifestation of reluctance on the part of a carrier to coordinate with a captive distributor might be a refusal to negotiate in good faith. NCPA has made allegations of this nature against PG&E. See, e.g., Letter from George Spiegel to Joseph J. Saunders, *supra* note 114. On June 28, 1978 the NRC sent a Notice of Violation to Cleveland Electric Illuminating Co. that alleged noncompliance with antitrust conditions attached to the permits for several of its plants. [1978] NRC ANN. REP. 55.

II. The Need for Competition

A number of critics contend that the only way to obtain the full economies of scale in system size is to consolidate all of the bulk-power producers in a region, merging firms until each controls the optimum amount of generating capacity.¹¹⁷ Those who espouse this position point to the management problems that beset power pools as proof that concentration of ownership under one management is inherently more efficient than compacts between autonomous firms.¹¹⁸ Indeed both common sense and the available evidence tend to support this view.¹¹⁹ In a holding company such as the American Electric Power Company, the interests of subsidiaries must bow to the priorities of the entire system, and a decision affecting several operating companies needs to be approved by only one board of directors.

Nevertheless, the Justice Department and many private experts oppose consolidation of the industry.¹²⁰ The problem is that the control by one firm of all generating plants and transmission lines in a region would destroy any possibility of competition at the production stage.¹²¹ To the Justice Department and like-minded critics, that is too high a price to pay for the efficiency gains that could be secured through wholesale merger.

117. *E.g.*, FORBES, July 15, 1970, at 26 (quoting utility executive) ("[T]he truth is, you can't have the one system concept unless you have one system."); see Cook, *Coordination and the Small Electric Power System*, PUB. UTIL. FOR., Nov. 23, 1967, at 24 (recommending consolidation of nation's utilities into 12 to 15 vertically integrated firms); Miller, *A Needed Reform of the Organization and Regulation of the Interstate Electric Power Industry*, 38 FORDHAM L. REV. 635, 664 (1970) (proposing transfer of all bulk-power facilities to regional corporations); Zinder, *supra* note 41, at 16 (recommending operation of all bulk-power facilities in New England by one public agency).

118. *See, e.g.*, Zinder, *supra* note 41, at 62-67 (citing administrative obstacles to efficient operation of power pool involving all New England utilities).

119. Breyer and MacAvoy note a positive correlation between the degree of coordination in a given bulk-power supply system and the size of the generating plants that it installs. A fully integrated holding company is likely to build larger plants, with greater scale economies, than a power pool of the same size. S. BREYER & P. MACAVOY, *supra* note 16, at 105 n.32.

120. *See, e.g.*, *Competitive Aspects of the Energy Industry: Hearings Before the Subcommittee on Antitrust and Monopoly of the Senate Comm. on the Judiciary*, 91st Cong., 2d Sess., pt. 1, at 137 (1970) (statement of Walter B. Comegys, Deputy Assistant Attorney General) ("Our view of the matter is that the suggested economies of scale can be obtained by means other than merger."); Meeks, *supra* note 19, at 115. One study speculates that mixed ownership pools may be able to match the planning and operating efficiency of holding companies. R. MARRITZ & G. CULP, *supra* note 42, at 4. *But see* note 119 *supra*.

121. It would also reduce competition for the distribution franchise, if the monopoly bulk-power supplier were permitted to retain its distribution subsidiaries. If policymakers turn to consolidation as the best strategy to achieve scale economies, surviving bulk-power suppliers should be divested of their distribution subsidiaries. Divestiture would reduce the anticompetitive effects of consolidation by preserving the opportunity for rivalry between prospective distribution franchisees. Since vertical integration confers no significant efficiency benefits, *see* note 67 *supra*, its prohibition is preferable to the merger of all the utilities in a region into one vertically integrated holding company.

Electric Power

Traditional public-utility economics teaches that competition has no place in a fully regulated industry such as electric power.¹²² The more widely accepted view today is that public policy should promote competition in regulated industries, except where competition would seriously interfere with the realization of scale economies.¹²³ Those who want to protect competition in electric power observe that the goal of rate regulation in a monopolistic industry is to duplicate the results that would occur under competition, if that were feasible.¹²⁴ But regulation by the FERC and the states is a feeble surrogate for the cost-cutting, performance-maximizing functions of competition.¹²⁵

122. The exponents of this viewpoint include Justice Stewart, who dissented from the application of antitrust principles to an investor-owned utility in the *Otter Tail* case:

The very reason for the regulation of private utility rates—by state bodies and by the Commission—is the inevitability of a monopoly that requires price control to take the place of price competition. Antitrust principles applicable to other industries cannot be blindly applied to a unilateral refusal to deal on the part of a power company, operating in a regime of rate regulation and licensed monopolies.

Otter Tail Power Co. v. United States, 410 U.S. 366, 389 (1973) (Stewart, J., concurring in part and dissenting in part).

123. The idea that antitrust principles should complement regulation wherever feasible commands broad support in the courts, in the agencies, and in academia. The United States Court of Appeals for the District of Columbia in 1968 embraced a “theory of complementary regulation,” and noted that “if competition exists, albeit in a limited area, there would be incentives for innovation by the regulated companies themselves and for their coming forward with proposals for better services, lower prices, or both.” *Northern Natural Gas Co. v. FPC*, 399 F.2d 953, 959, 964-65 (D.C. Cir. 1968). The Supreme Court applied antitrust principles to regulated electric utilities in *FPC v. Conway Corp.*, 426 U.S. 271, 278-79 (1976), *Gulf States Utils. Co. v. FPC*, 411 U.S. 747, 757-59 (1973), and *Otter Tail Power Co. v. United States*, 410 U.S. 366, 372-74 (1973). In *Central Power & Light Co. v. FERC*, 575 F.2d 937 (D.C. Cir. 1978), the court suggested that the FERC should consider possible antitrust violations by an electric utility in deciding whether to exercise jurisdiction over that firm, when the exercise of jurisdiction is discretionary, *id.* at 938. Justice Department officials have testified in favor of legislation that would enhance competition between utilities. See *National Energy Act Hearings*, *supra* note 21, pt. 3, at 590 (statement of Assistant Attorney General John H. Shenefield). The Antitrust Division has also intervened in SEC proceedings to oppose horizontal mergers involving large utilities. See Weiss, *supra* note 12, at 165-66 (citing examples). The FERC has been criticized, see note 98 *supra*, for overlooking alleged antitrust violations by regulated firms, but at least in recent cases, FERC staff witnesses have emphasized the desirability of competition in the industry, see, e.g., Taylor, *supra* note 9, at 19-21.

124. E.g., 1 A. KAHN, *supra* note 9, at 17.

125. See Taylor, *supra* note 9, at 20:

[R]egulation does not create the positive pressures for good performance similar to those of competition. Regulation is essentially negative because it: sets maximum prices and does not put pressure downwards on prices; establishes minimum standards of service instead of encouraging better quality; and oversees expenditures rather than letting market returns cull out good from poor investments.

These problems trouble regulated industries, even when the quality of regulation is very high. Breyer and MacAvoy, in their study of the FPC, concluded that the Commission has not been a very effective or forceful proponent of coordination. Moreover, the ability of utilities to shift costs to retail sales (over which the Commission has no jurisdiction) makes federal ratemaking ineffective as well. See S. BREYER & P. MACAVOY, *supra* note 16, at 15, 118-19.

In a competitive market the price of a commodity responds quickly to changes in the cost of production. By contrast, it may take a public utility commission several years to authorize the "pass through" of production-cost increases into wholesale or retail rate schedules.¹²⁶ In times of rapid inflation, when rising costs cut into profit margins that were set on the basis of historic cost data, utility investors may not be able to earn the rate of return authorized by the commission.¹²⁷ Until rate relief is granted the utility may face great difficulty in raising the capital required to build new generating plants.¹²⁸ If earnings do not attract sufficient capital to meet increasing demand, the reliability of the power supply may suffer.¹²⁹ Firms in a competitive industry do not face this problem.

Competition also forces firms to pursue new technologies;¹³⁰ regulation, by contrast, sets minimum standards of performance. If one views the nation's bulk-power supply system as a static resource, this difference may not seem very significant, particularly when monopoly facilitates central dispatching and other coordination measures. But

126. According to the Edison Electric Institute, the "regulatory lag" between the date when a utility requested a rate increase and the date when a state regulatory commission put the new rates into effect averaged 10.8 months in early 1979. Dodash, *Electric Utilities, Hit By Cost of Money, Rate-Increase Delays*, See *Lackluster Year*, Wall St. J., Mar. 22, 1979, at 48, col. 1. Regulatory commissions set rates on the basis of the cost of doing business during a historic or projected "test year." See 1 A. KAHN, *supra* note 9, at 26. If the commission uses a historic cost standard, as many do, the new rates may be inadequate by the time they take effect. See Dodash, *supra*. Moreover, the commission may grant the utility much less than the requested increase. The political pressure to hold the line on rate increases is strongest, of course, during inflationary periods when the operating and capital costs of the utility are escalating.

127. In 1976, for instance, the nation's top 50 electric utilities earned roughly 11.7% on equity, compared with an average allowed rate of return of roughly 13.1%. *Public Utility Hearings*, *supra* note 19, pt. 2, at 8 (statement of Frederick B. Whittemore, Managing Director, Morgan Stanley & Co.).

128. The combination of rising interest rates and the effect of OPEC on fossil-fuel prices threw much of the electric-power industry into a financial tailspin. The 1974-75 period was characterized by "almost weekly announcements of cut construction programs." *Id.* In Michigan the two investor-owned utilities that served 90% of the state's electric-power needs suffered such a shrinkage in earnings that their bonds were derated and common stock prices fell below par value. Governor's Advisory Commission on Electric Power Alternatives, State of Michigan, Final Report 4 (1976) [hereinafter cited as Advisory Commission]. By 1974 the two biggest electric utilities in Michigan found themselves "virtually unable to finance further expansion." *Id.*

129. The adverse financial conditions of 1974-75 forced the two major utilities in Michigan to cancel or defer the construction of 12,002 MW of generating capacity. Advisory Commission, *supra* note 128, at 6. The Michigan Public Service Commission predicted that if demand for electric power grew at predicted rates, southeast Michigan would face "the near certainty of extensive power black-outs" by 1979. *Id.* Fortunately the black-outs did not materialize, in part because the rate of growth in demand for electric power since 1974 has fallen off the pre-OPEC pace. See note 131 *infra*.

130. Taylor, *supra* note 9, at 16 ("Competition applies continuous pressure on firms to achieve the lowest costs and prices and to improve the quality of their products. In order to compete successfully firms must pursue technological innovations.")

Electric Power

conditions in the electric-power industry are far from static. Bulk-power suppliers operate in an environment of constantly growing demand,¹³¹ incessant technological innovation, unstable input prices, and shifting regulatory requirements. In this environment the efficiency of any firm depends on the speed with which it responds to changing market conditions.

The lethargy with which leading utilities have moved to exploit new generating technologies clearly illustrates the stifling effect of regulation on the pace of innovation in the electric-power industry. A major aim of United States energy policy is to reduce our dependence on foreign oil by accelerating the development of promising new domestic energy sources.¹³² Cogeneration,¹³³ for instance, already contributes substantially to the energy budgets of many European countries.¹³⁴ Higher fossil-fuel prices abroad partially explain the greater success of the Europeans in harnessing this promising energy source. Another factor is the low prices that United States utilities have been willing to pay industrial generators for their surplus generation.¹³⁵ Regulated utilities show little interest in purchasing energy from an industrial

131. Between 1963 and 1973 the total sales of electricity by utilities more than doubled. EDISON ELECTRIC INSTITUTE, *supra* note 27, at 31. Growth in demand fell off sharply following the Arab Oil Embargo of 1973, but it has since resumed at the more modest rate of 3.5% annually. Wall St. J., Feb. 7, 1979, at 42, col. 1. At this rate demand would double every 20 years. The more likely scenario, however, is a gradual resurgence to an annual rate of 5-6% over the next decade. S. REP. NO. 442, 95th Cong., 1st Sess. 8 (1977).

132. See EXECUTIVE OFFICE OF THE PRESIDENT, THE NATIONAL ENERGY PLAN xiii (1977).

133. Cogeneration is the production of electricity from industrial-process steam, before or after it has performed its function in the factory. Industrial furnaces and boilers produce substantial quantities of unharnessed heat, which can be forced through a turbine rather than vented into the atmosphere. Because the heat performs a double function, cogeneration is an exceptionally fuel-efficient method of producing electricity. See generally *National Energy Act Hearings*, *supra* note 21, pt. 3, at 346-54 (statement of George N. Hatsopoulos).

134. Cogeneration produces about 29% of the electricity consumed in West Germany, compared with 4% in the United States. *States Rights, Moratoria, and NRC Licensing Reform: Hearings Before the Subcomm. on Energy and the Environment of the House Comm. on Interior and Insular Affairs*, 95th Cong., 1st Sess., pt. 1, at 246 (1977) (statement of Rep. Fish) [hereinafter cited as *States Rights Hearings*].

135. For example, until 1976 PG&E purchased economy energy from a Georgia-Pacific pulp mill in Fort Bragg, California at a price of 2.5 mills/kWh. Letter from George Spiegel to Joseph J. Saunders, *supra* note 114. In 1976 Georgia-Pacific negotiated with PG&E in an attempt to obtain a higher price. When these negotiations proved fruitless, Georgia-Pacific agreed to sell the energy to NCPA for a price of 7.5 mills. *Id.* The only problem was that the parties needed PG&E's wheeling services to transmit the electricity 35 miles from Fort Bragg to the NCPA member city of Ukiah. The investor-owned system declined to provide this service because it preferred to keep Ukiah as a captive wholesale customer. *Id.* Instead, under threat of antitrust action, PG&E raised its offering price for Georgia-Pacific power to between 14 and 20 mills. Letter from Terry J. Houlihan (PG&E counsel) to Joseph J. Saunders, at 4 (Apr. 21, 1977), reprinted in *National Energy Act Hearings*, *supra* note 21, pt. 3, at 565. This was still below the incremental cost of generation for the investor-owned system. *Id.*

cogenerator or any other producer, in part because purchased energy contributes nothing to the rate base on which the firm earns revenue.¹³⁶ Furthermore, the integrated producer may refuse to wheel power produced by an industrial cogenerator in order to prevent the marketing of that power in competition with its own output.¹³⁷

The dearth of effective competition at the production stage, enforced by transmission restrictions, depresses the price of "alternative" energy. As a result, incentives for industry to develop generating resources are reduced and potential sources of low-cost power remain undeveloped.¹³⁸ The consolidation of all regional bulk-power facilities would only exacerbate the problem, by further reducing the number of potential buyers in the bulk-power services market.

III. A Proposal for a More Efficient Electric-Power Industry

A. *Regional Dispatching Corporations*

The proponents of consolidation assume that the full exploitation of scale economies requires the ownership by one firm of all the gen-

136. In a letter to the Antitrust Division denying any anticompetitive motive for refusing to wheel Georgia-Pacific power to NCPA, *see* note 135 *supra*, counsel for PG&E pointed out: "PG and E as a corporation does not profit at all by the purchase of surplus energy from Georgia-Pacific. Such a transaction does not affect PG and E's invested capital and, therefore, does not increase the return allowed PG and E by the agencies regulating its rates." Letter from Terry J. Houlihan (PG&E counsel) to Joseph J. Saunders, *supra* note 135, at 3.

137. *See* note 135 *supra*. In 1978 Congress acted to prevent utilities from blocking the development of cogeneration by refusing to purchase or wheel electricity produced by industrial customers. The Public Utility Regulatory Policies Act of 1978 requires utilities to offer to purchase electricity from qualifying cogeneration facilities and small power producers, at rates that do not discriminate against such producers. Pub. L. No. 95-617, § 210, 92 Stat. 3117 (1978) (codified at 16 U.S.C.A. § 824a-3 (West Supp. 1979)). The Act also gives the FERC authority to order the interconnection of a cogeneration facility or small-power producer with any electric utility, subject to the same conditions that govern any interconnection order. 16 U.S.C.A. § 824i (West Supp. 1979). Presumably an electric utility may also petition the FERC to order another utility to wheel power from a cogeneration facility to the applicant. *Id.* § 824j(a). But many potential applicants (including NCPA) will not be able to take advantage of this provision, since the transaction would disturb "existing competitive relationships." *Id.* § 824j(c)(1); *see* note 84 *supra* (discussing other restrictions on FERC wheeling authority). The impact of the 1978 amendments on cogeneration development will depend in part on the rules that the FERC will issue to govern transactions between utilities and cogenerators. It is easy to imagine a situation in which the cost of securing a purchase or wheeling commitment from a reluctant utility would be prohibitive for a small industrial producer whose principal business is not the generation of electricity.

138. Georgia-Pacific told NCPA that at the rates PG&E was paying for economy energy, Georgia-Pacific could not even maintain its existing cogeneration facility. If, however, some purchaser offered a fair and reasonable price, more power could be produced. Brief of Intervenor Northern California Power Agency at 8, Pacific Gas & Elec. Co., No. 76-NOI-3 (Cal. Energy Resources Conservation & Dev. Comm'n, Oct. 21, 1977) (quoting testimony of Richard L. Hughes, Mayor, Lodi, Cal.).

Electric Power

erating capacity in a region.¹³⁹ If this premise were correct, the merger schemes mentioned above might be the best solution to the efficiency problem. But the assumption of an inherent conflict between the goals of competition and coordination appears to be wrong; the organizational structure of the industry creates the conflict. By reassigning certain functions currently performed by integrated utilities, Congress could simultaneously improve the efficiency of the bulk-power supply and create new opportunities for competition in production and distribution of electricity.

Congress should enact legislation to provide for the chartering of regional bulk-power dispatching corporations. Each such corporation would be directed to acquire all of the high-voltage transmission capacity within its region, to lease generating plants from producers, and to dispatch electricity for resale to independent distribution companies. Utilities would continue to own generating plants and/or distribution systems, but the authority to dispatch bulk-power facilities, to transmit electricity at high voltage, and to sell bulk power at wholesale would be vested exclusively in the Regional Dispatching Corporation (RDC).

RDCs would lease generating plants from the low bidders in the region. Leases would run for a limited term of years, with the maximum term to be specified in the statute.¹⁴⁰ RDCs would have full discretion in deciding what mix of bulk-power services would most efficiently meet the needs of the region,¹⁴¹ but the lease for a specified type of service would go, by law, to the low bidder. RDCs would not be permitted to include leased generating plants in their rate bases. Annual charges for the lease of production capacity would be passed through to consumers as operating expenses.¹⁴²

139. See p. 1534 *supra*.

140. Setting the maximum term for a lease of generating equipment involves a delicate act of legislative balancing. Too long a term would defeat a primary objective of competition, which is to encourage innovation and the replacement of obsolete equipment. But if the lease is too short, investors will view electric-power production as an exceedingly risky business, an assessment that will be reflected in the cost of capital for generating plants. The proposal advanced here seeks to shift part of the risk of technological obsolescence from the customers to the investors. The length of the lease would dictate the tradeoff between efficiency and investor protection.

141. Different types of generating units serve different functions. A plant that is used for only a few hours a day to meet peak-period demand will be less capital intensive and more expensive to operate than a "baseload" unit that runs 24 hours a day. See *National Energy Act Hearings*, *supra* note 21, pt. 3, at 86-87 (statement of David J. Bardin, Deputy Administrator, FEA). RDCs would solicit bids for a plant to operate X hours per day, depending on the load curve of the region. Producers would have the task of deciding what equipment would most efficiently provide the specified service.

142. This provision is included to insulate RDCs from any possible Averch-Johnson incentive to favor capital-intensive generating technologies. The exclusion of leased pro-

Having leased the units, the RDC would dispatch them in a fully coordinated manner. The enabling legislation would direct each RDC to function on central economic dispatching principles, except when strict adherence to the least-cost rule would be detrimental to public health or welfare.¹⁴³

The structure of the distribution stage would not change at all. Distribution companies would continue to compete at the state or local level for the franchise to serve a given area. However, they would purchase their full bulk-power requirements from the RDC, at a price that would cover the distributor's pro rata share of the capital and operating expenses of the RDC. In contrast to conditions under the present regulatory regime,¹⁴⁴ all distributors within a region would pay the same rates for bulk power.

Each RDC would be an investor-owned corporation, run by shareholders for their own benefit, subject to certain statutory restrictions. Diversification would be forbidden, and RDCs would be required to serve all distributors in the region. Stockholders would elect a majority of the board of directors. The rest would be appointed by the Secretary of Energy. Congress could model the corporate structure of an RDC after that of other federal-private hybrids, such as the Communications Satellite Corporation.¹⁴⁵

RDCs would face a formidable challenge in raising sufficient capital to purchase or condemn all high-voltage transmission equipment, to finance future improvements, and to lease generating equipment. One solution to this problem would be for the statute to provide that RDCs could issue their own securities in exchange for property purchased

duction equipment from the RDCs' rate base need not harm its investors. The return on each dollar invested is an arithmetic product of the rate base times the percentage rate of return. The latter figure can be adjusted to compensate for the exclusion of certain assets from the rate base. See I A. KAHN, *supra* note 9, at 36.

143. For instance, RDCs would minimize the use of coal-fired generating plants during a smog episode, even though coal might be the most economical fuel available. Similarly, an RDC could alter its dispatching criteria during a fuel shortage. The late Senator Lee Metcalf incorporated an escape clause of this kind into his proposal for a national power grid. The National Power Grid Corporation would have been authorized to sell electric power at rates "which shall be set at the lowest possible level consistent with sound business principles and . . . environmental protection requirements." S. 1208, 94th Cong., 1st Sess., § 102(c)(1) (1975).

144. See p. 1544 *infra* (large disparities in retail electric rates between neighboring communities).

145. The Communications Satellite Act of 1962, 47 U.S.C. §§ 701-744 (1970), created a private corporation to develop a global communications-satellite system. ComSat issues its own securities, *id.* § 734, and is chartered as a District of Columbia corporation, *id.* § 731. The President appoints three members of the board of directors, and the other 12 are elected by the stockholders. *Id.* § 733(a).

Electric Power

from utilities.¹⁴⁶ The securities of an RDC would be a low-risk investment, for the RDC would command a dependable source of earnings from the sale of bulk power. Utilities dissatisfied with the offering price for their property would have appraisal rights, as in any condemnation proceeding.

Each RDC would enjoy a monopoly over transmission in its region. The sacrifice of competition at the transmission stage is a necessary concession to the physical properties of electric power, which make transmission a natural monopoly.¹⁴⁷ Thus, that part of the industry would continue to require rate regulation, but the present allocation of ratemaking responsibility between the FERC and the states would be modified. Under the Federal Power Act, FERC ratemaking jurisdiction extends only to wholesale transactions in interstate commerce.¹⁴⁸ Thus, if a vertically integrated utility sells ninety percent of the electricity it produces to its own retail customers and the other ten percent to a utility in another state, at least two regulatory bodies will have jurisdiction over rates for the sale of power produced by one set of generating plants. All sales by RDCs, however, would fall within the exclusive domain of the FERC, as presently defined.¹⁴⁹ State commissions would retain jurisdiction over retail rates.¹⁵⁰

RDCs would assume the bulk-power marketing functions presently performed by the Tennessee Valley Authority (TVA), the Bonneville Power Administration (BPA), the Western Area Power Administration, the Southeastern Power Administration, the Southwestern Power Ad-

146. The plan proposed here would require less new capital than certain of the merger schemes mentioned in note 117 *supra*, which contemplate the takeover by one corporation of all bulk-power facilities in a region. John T. Miller, Jr., an advocate of the latter approach, suggested that regional bulk-power corporations could pay part of the cost of acquired facilities by the roll-over of the debt of the transferring firm. *See* Miller, *supra* note 117, at 664.

147. *See* note 11 *supra*.

148. 16 U.S.C.A. § 824(b)(1) (West Supp. 1979).

149. Each RDC would operate like a large interstate power pool, and would sell bulk power at wholesale to local distributors. Some of this energy might come from generating plants located in the same state as the purchasing distributor, but so long as plants in several states contributed to a fully integrated interstate system, the FERC would have ratemaking jurisdiction. *See* *Arkansas Power & Light Co. v. FPC*, 368 F.2d 376, 379 (8th Cir. 1966); *Indiana & Mich. Elec. Co. v. FPC*, 365 F.2d 180, 184 (7th Cir.), *cert. denied*, 385 U.S. 972 (1966). Federal jurisdiction over sales for resale precludes concurrent state jurisdiction. *See* *FPC v. Southern Cal. Edison Co.*, 376 U.S. 205, 215 (1964) (citing *United States v. Public Utils. Comm'n*, 345 U.S. 295, 311 (1953)).

150. State regulators would be expected to pass on to retail customers the wholesale rates approved by the FERC. Indeed, assuming that the FERC did a reasonably conscientious job in investigating the comparatively few RDC tariffs tendered for approval, there would be no point in allowing state commissions to relitigate wholesale rate issues, with a resultant increase in regulatory lag. Congress might consider requiring states automatically to pass through wholesale rates approved by the FERC.

ministration, and the Alaska Power Administration.¹⁵¹ These agencies presently sell bulk power¹⁵² to publicly owned distribution systems, private power companies, and large industrial customers.¹⁵³ Under the proposed plan, all federal generating capacity would be leased to the appropriate RDC, on the same terms as privately owned capacity. Federal transmission lines would be sold to the RDCs.

Econometric analysis would be required to determine how many dispatching regions should be created and where to draw boundaries. The FPC's 1964 National Power Survey estimated the savings from full coordination of all utilities in a region, for regions of differing sizes.¹⁵⁴ Specifically, it projected the additional benefits of moving from sixteen to eight regions and from eight to a single nationwide dispatching system. But the Survey made certain questionable assumptions about the benefits of increased coordination, and it overlooked some of the costs.¹⁵⁵ An intensive reexamination of the cost-benefit equation for systems of varying size would be needed to estimate the point at which incremental transmission and managerial costs exceed incremental gains from coordination—the key tradeoff in determining the optimum size for an RDC.¹⁵⁶

151. For capsule sketches of these agencies and their operations, see *PUB. POWER*, Jan.-Feb. 1978, at 102.

152. The power comes from hydroelectric projects constructed by the Army Corps of Engineers and the Bureau of Reclamation. *Id.* TVA also owns some thermal plants. *Id.* TVA is the only federal agency authorized to develop electric power from sources other than water power. Fairman & Scott, *supra* note 17, at 1183 n.108.

153. Publicly owned utilities, principally municipal distributors and rural electric cooperatives, enjoy a statutory preference to purchase the power sold by federal agencies. See Fairman & Scott, *supra* note 17, at 1183. As a result of this preference, more than 60% of TVA's 1977 output went to 110 municipal systems and 50 coops. *PUB. POWER*, Jan.-Feb. 1978, at 102. TVA and BPA also serve a few large industrial customers. They are the only federal entities that distribute any power to ultimate consumers. *Public Utility Hearings*, *supra* note 19, pt. 2, at 422 (statement of Abraham Gerber and Joe D. Pace).

154. The Survey stated that additional coordination would yield all of the benefits described at pp. 1514-17 *supra*. See 1964 *POWER SURVEY*, *supra* note 10, at 170-73. For two types of coordination, diversity exchange and reserve sharing, the Survey presented quantitative projections of the savings, in reduced capacity requirements, from full coordination of all the utilities in regions of varying size, including one national power system. See *id.* at 183 (Table 49); *id.* at 197 (Table 53).

155. See the critique in S. BREYER & P. MACAVOY, *supra* note 16, at 95-96.

156. See *Public Utility Hearings*, *supra* note 19, pt. 2, at 404 (statement of Abraham Gerber and Joe D. Pace):

Interconnections and pools are not costless. They involve large expenditures for physical facilities and these expenditures increase as the number and variety of functions expand, the number of participants increases and the complexity and sophistication of the coordination grows. In addition, the costs of administration, information exchange, engineering and other technical expertise dedicated to the interconnection arrangement also are substantial and increase as the degree of coordination increases. In each case, each participant must determine that the benefits in reliability and economy of power supply are sufficient to compensate it for the incurrence of these costs.

Electric Power

B. *Benefits of the Proposal*

The reorganization scheme outlined here compares favorably with both the status quo and the reform proposals discussed above. First, it creates regional bulk-power systems large enough to capture all feasible economies of scale. Unlike the management committee of a power pool, each RDC would exercise unfettered control over the dispatching of the bulk-power supply in its region. Operating decisions would no longer require the unanimous consent of ten divergent interests, or the accommodation of those interests at the expense of efficiency.¹⁵⁷ By virtue of their size, RDCs would also be able to install high-capacity transmission lines, and to contract for new generating capacity in increments large enough to stimulate the construction of large-scale plants.

In terms of access to scale economies, the proposed plan promises the same result as regional consolidation schemes discussed above,¹⁵⁸ but it achieves that result while preserving a measure of competition at the production stage of the industry. Like distributors under the present regime, producers would have to compete for the franchise to serve—in this case for the contract to lease generating capacity. Admittedly, this is an attenuated form of competition. It covers only the capital cost of production facilities, not the operating cost of running a generating plant. But, depending upon the length of the leases awarded to producers, the limited competition envisioned here could have several salutary effects.

First, it would act as a spur to innovation. As noted above,¹⁵⁹ regulation gives producers few incentives to develop new technologies, particularly when the energy comes from facilities that cannot be added to the rate base of the utility. Under the proposed scheme nothing would prevent the developer of a low-cost energy source from out-bidding the competition. An RDC, with a rate base consisting entirely of transmission and dispatching equipment, would earn no profit on the resale of bulk power. Therefore it would have no reason to discriminate against any producer; it would look only to the criterion embedded in the statute—the cost of the capacity. In particular, RDCs would have no bias against leasing capacity from outside the electric industry. This would stimulate the emergence of technologies, like cogeneration and wind power, for which integrated utilities have shown little enthusiasm.¹⁶⁰

157. Decisionmaking by committee and its adverse impact on efficiency are discussed at p. 1519 *supra*.

158. See note 117 *supra*.

159. See note 125 *supra*.

160. In 1977 the Consolidated Edison Company of New York flatly refused to purchase economy energy from a rooftop windmill in Manhattan. The utility said that power

Competition to produce power at the lowest cost would curb any tendency on the part of producers to undertake unnecessary capital investments. To the extent that the Averch-Johnson theory is correct, RDCs would still face an incentive to overinvest in the regional transmission grid, since cost-of-service regulation would continue at the transmission stage. But the distortion would no longer influence investment strategy at the production stage, which accounted for seventy percent of construction expenditures by utilities in 1977.¹⁶¹

In addition to promoting competition among producers, the plan advocated here would increase the vigor of competition at the distribution stage. Under present conditions competition for the distribution franchise in many areas is curtailed by the inability of potential entrants to secure a low-cost source of bulk power.¹⁶² Small firms cannot economically produce their own electricity, and vertically integrated rivals control access to external suppliers. Independent distributors facing anticompetitive refusals to wheel or coordinate lack an effective legal remedy.

RDCs, however, would deal with all distributors on an equal footing. Any firm holding a distribution franchise would have access to the only source of bulk power in the region, on the same terms as every other distributor in the region. Having no production or distribution affiliates, the RDC would face no temptation to protect incumbent franchisees from competition. The guarantee of equal treatment to all distributors would remove a formidable barrier to market entry at the distribution stage.

The equalization of bulk-power rates across each region would also eliminate one of the more glaring inequities in the existing regulatory regime. Throughout the United States retail rates for electricity vary from one community to another, simply because different distributors have access to more- or less-expensive sources of bulk power.¹⁶³ These local variations in wholesale rates disguise the relative efficiency of

surges from the two kWh windmill might damage its 10-million kWh system. Eventually the New York Public Service Commission ordered Con Ed to buy any excess energy produced by the windmill. *N.Y. Times*, May 6, 1977, § A, at 1, col. 1.

161. EDISON ELECTRIC INSTITUTE, *supra* note 27, at 59.

162. *See, e.g.*, *Otter Tail Power Co. v. United States*, 410 U.S. 366, 370-71 (1973).

163. A good example of this phenomenon is the disparity in retail rates paid by customers of public and private utilities in the Pacific Northwest. The publicly owned distribution system in Vancouver, Washington buys its bulk power from the Bonneville Power Authority, and charges retail customers \$10 for the first 1,000 kWh. Across the river in Portland, Oregon, homeowners pay \$27 for the same amount of electricity, which is produced by an investor-owned utility. *Pacific Northwest Electric Power Supply and Conservation: Hearings Before the Subcomm. on Water and Power Resources of the House Comm. on Interior and Insular Affairs*, 95th Cong., 1st Sess., pt. 3, at 4 (statement of Oregon Governor Robert Straub).

Electric Power

neighboring distributors by giving one firm a substantial head start over its neighbor. They may also lead energy-intensive industries to choose new plant sites for reasons that have nothing to do with the natural advantages of a particular location. RDCs would abolish these capricious disparities by charging the same rates for bulk power throughout the region.

The final benefit of the suggested reorganization is that it would impose a uniform set of ratemaking rules on all bulk-power transactions. Fifty years ago technological constraints on the long-distance transmission of electricity severely limited the size of the area that could be served by any one utility. Today systems like the American Electric Power Company and the New England Power Pool operate in five or six states. The size of the regulatory unit has not been adjusted to match this evolution in technology. As a result, interstate ventures are hindered by costly, redundant, and occasionally conflicting state rules.¹⁶⁴ Utilities may forego a coordination initiative that involves regulation by several commissions, each of which imposes different accounting and cost-recovery rules.¹⁶⁵

The regulatory crazy-quilt hampers coordination efforts, and the problem will grow in severity as bulk-power supply systems continue

164. The rules governing issues such as what items may be included in the rate base, methods of depreciation, and the treatment of operating expenses vary from state to state. See STRUCTURAL REFORM, *supra* note 33, at 68. When a bulk-power facility serves customers in more than one state the utility may have to present the same rate case in two different formats, at different times, and very possibly with differing results. "Although nearly half of all investor-owned utility generating capacity is owned by companies which operate in more than one state, commissions of adjoining states almost never meet jointly, and federal/state initiatives to seek improved regulation of interstate bulk power matters have been negligible." R. Marritz & G. Culp, *supra* note 42, at 37.

165. A 1972 FPC study concluded that interconnection of Texas utilities with those in surrounding states would save the Texas firms \$156 million at 1972 prices. Federal Power Commission, Study of proposed interconnection between Electric Reliability Council of Texas and Southwest Power Pool 18 (1972), cited in SENATE COMM. ON INTERIOR AND INSULAR AFFAIRS, 94TH CONG., 2D SESS., NATIONAL POWER GRID SYSTEM STUDY—AN OVERVIEW OF ECONOMICS, REGULATORY, AND ENGINEERING ASPECTS 121 (Comm. Print 1976). Despite the potential saving, Texas utilities refused to interconnect with firms in adjacent states. The explanation for this conduct is that the absence of interstate ties enabled Texas utilities to escape the jurisdiction of the FPC. *Public Utility Hearings*, *supra* note 19, pt. 3, at 40 (statement of S.B. Phillips, Jr.); *id.* at 140 (statement of David J. Bardin, Deputy Administrator, FEA). Finally, in 1978, Congress decided to permit Texas utilities to gain the benefits of interconnection without subjecting themselves to FERC ratemaking. The Federal Power Act now provides that an order to interconnect, sell, exchange, or wheel energy "shall not make an electric utility or other entity subject to the jurisdiction of the Commission for any purposes other than" compliance with an order to interconnect, sell, exchange, or wheel. 16 U.S.C.A. § 824(b)(2) (West Supp. 1979).

Immediately after the passage of the 1978 amendments the Texas utilities moved to interconnect with firms in neighboring states. Telephone interview with Dr. Gordon T.C. Taylor, Director, Division of Economics, Office of Regulatory Analysis, FERC (Apr. 18, 1979).

to expand. Congress addressed the issue in 1978 by permitting the FERC in certain circumstances to exempt utilities from state rules that frustrate voluntary coordination.¹⁶⁶ But the power to issue ad hoc exemptions in certain areas does not meet the need for regional supervision of regional enterprises. The proposed scheme would insure the desired uniformity by assigning jurisdiction over all bulk-power transactions to the FERC, while preserving state regulation of essentially local distribution systems.

Thus the scheme outlined above addresses most of the problems that impair the efficiency of the electric-power industry. It would create bulk-power supply systems of efficient size, introduce competition into the most capital intensive phase of the industry, promote the development of new generating technologies, and eliminate capricious local disparities in rates and ratemaking rules.

C. *Potential Problems*

The plan also has several weaknesses. Under the current regime, state laws require utilities to provide adequate service at all times.¹⁶⁷ States hold utilities responsible for projecting future capacity requirements and generating or purchasing the necessary capacity. Utilities have every incentive to err on the side of safety, both because capital investments go into the rate base and because a power shortage can be a social catastrophe.

Under the proposed regime, the responsibility for projection of future demand would be vested in an RDC, which would have to rely on producers to build the necessary facilities. Producers, however, would face no sanctions for failure to build enough capacity. On the contrary, the infusion of competition at the production stage would penalize producers that overbuild. Nor would RDCs have any financial incentive to lease capacity in excess of current needs. For these reasons there is likely to be less "slack" in the bulk-power supply than at present.

Nothing would prevent RDCs from setting future capacity targets and soliciting bids to meet them. These targets could include generous reserve margins. But the division of responsibility between RDCs and producers would deprive the planning authority of the direct power to carry out its own program. This bifurcation could conceivably affect the reliability of the power supply.

166. See note 44 *supra*.

167. See, e.g., CAL. PUB. UTIL. CODE § 451 (West 1975); CONN. GEN. STAT. § 16-10a (Supp. 1979). See generally Meeks, *supra* note 19, at 69.

Electric Power

A second problem involves a possible conflict between the competitive orientation of the proposed regulatory plan and the licensing requirements imposed by various state and federal statutes.¹⁶⁸ Under the plan, producers would bid for contracts to lease generating facilities. At present the licensing and construction of a nuclear power plant takes ten to fourteen years.¹⁶⁹ Given this lead period the RDCs would have to solicit bids a decade or more before the new capacity was needed. Producers would have to bid on the basis of the projected cost of building a new facility. The problem this poses is that utilities have little control over some items in the capital budget for a new plant, such as the cost of raw materials and the cost of meeting licensing requirements.¹⁷⁰ Environmental and safety regulation imposes costs that are almost unpredictable because they depend on factors such as the location of the plant, and the political environment in the surrounding community. Given the infeasibility of closely estimating regulatory costs, no prudent firm would bind itself fifteen years in advance to deliver capacity from a new plant at a specified price, without running the regulatory gamut first. Yet only a foolhardy entrepreneur would initiate the lengthy and expensive licensing process without an advance purchasing commitment from an RDC.

A partial solution to this dilemma would be to expedite the licensing process. In 1978, the Carter Administration proposed a streamlining of the procedure for licensing nuclear power plants.¹⁷¹ This controver-

168. Large generating plants require a multitude of operating licenses and construction permits. The sponsor of the Seabrook nuclear power station reported having to obtain more than 43 different permits from 17 federal, state, and local agencies. NEW ENGLAND FEDERAL REGIONAL COUNCIL ENERGY RESOURCE DEVELOPMENT TASK FORCE BULK POWER COMMITTEE, A REPORT ON NUCLEAR POWER PLANT DELAYS IN NEW ENGLAND 21 (1976), reprinted in *States Rights Hearings*, supra note 134, pt. 1, at 493. The subject matter of the regulations is beyond the scope of this essay, but the point worth noting is that many different authorities have the power to prolong the construction period and to regulate the design or operation of the plant, in either case dramatically affecting the cost of the facility. For a description of the regulatory framework and the cost of delay, see A. MURPHY, *THE LICENSING OF POWER PLANTS IN THE UNITED STATES* (1978), reprinted in *Nuclear Siting and Licensing Act of 1978: Hearings Before the Subcomm. on Energy and the Environment of the House Comm. on Interior and Insular Affairs*, 95th Cong., 2d Sess., pt. 3, at 361-472 (1978).

169. A. MURPHY, supra note 168, at 384-85. The lead time for coal-fired plants is several years shorter, but Murphy notes "the fear that the length of the licensing process for coal-fired plants will soon approach, or even match, that for nuclear." *Id.* at 371.

170. Antipollution equipment alone accounts for 15% of the capital cost of a new generating plant. Dodash, supra note 126.

171. According to Energy Secretary James R. Schlesinger, the Administration's proposed amendments to the Atomic Energy Act, S. 2775, 95th Cong., 2d Sess. (1978); H.R. 11704, 95th Cong., 2d Sess. (1978), would have reduced the interval between the decision to build a nuclear plant and the receipt of an operating license to 6.5 years. CONG. Q. WEEKLY REP., Mar. 25, 1978, at 745. A House subcommittee rejected the bill in 1978, but the Administration was expected to resubmit the measure without major changes in the 96th Congress. *Id.*, Mar. 24, 1979, at 508.

sial legislation would eliminate areas of overlap between state and federal regulation, authorize the NRC to resolve safety issues common to all plants in one generic proceeding, and limit the participation of public interest intervenors.¹⁷² By reducing the cost and uncertainty attributable to regulatory delay¹⁷³ the Administration bill would enable producers to make more reliable cost estimates for a nuclear project.

A more sweeping solution would be for RDCs to lease capacity from new projects before they are licensed, and to reimburse the producer for the cost of meeting regulatory requirements above some baseline figure. The weakness of this solution is that it would create a class of costs that are external to the bidding process. RDCs could expect to see more offers to lease nuclear capacity (the most expensive to license) than would be received if producers bore the entire cost of meeting regulatory standards. Nevertheless, producers must have some means of making reliable long-range projections of the cost of building generating plants; otherwise the vast amounts of capital needed to finance them would not be forthcoming.

Moreover, insuring producers against unexpected regulatory burdens would create an important external benefit as well as an external cost. Today utilities sometimes choose between generating technologies because of comparative licensing advantages, even though the rejected option might produce more economical electricity.¹⁷⁴ On balance, the advantages of minimizing licensing cost as a selection criterion would far outweigh the incremental cost of licensing the most efficient set of plants.

Conclusion

It is possible to restructure the electric-power industry in a way which promotes both competition and coordination. The creation of regional dispatching authorities that procure generating capacity through com-

172. See S. 2775, *supra* note 171; H.R. 11704, *supra* note 171. For a one-page summary of the provisions of these bills, see CONG. Q. WEEKLY REP., Mar. 25, 1978, at 745.

173. The Commonwealth Edison Co. estimated the cost of one year's delay in the licensing of an 1,100 MW nuclear plant (a medium-large unit) at \$50 million, when the delay occurs early and no replacement power needs to be purchased, and \$200 million when the delay occurs near the end of the construction process and the utility must purchase power that would have been produced by the plant. A. MURPHY, *supra* note 168, at 386.

174. The licensing advantages of coal over nuclear generation led one utility to abandon nuclear power, even though on other grounds it preferred the nuclear option. As one critic noted, "A more self-defeating impact of the regulatory process is hard to imagine." *Id.* at 381.

Electric Power

petitive bidding for resale to independent distributors would encourage both the efficient utilization of existing bulk-power facilities and the expeditious development of new technologies. In these ways the proposed plan would promote the national energy goals first enunciated by Congress in 1935: an abundant supply of electricity, delivered "with the greatest possible economy and with regard to the proper utilization and conservation of natural resources."¹⁷⁵

The proposal offered here is not without precedent. The argument that a natural monopoly at one stage of a vertically integrated industry does not preclude competition at every stage of the enterprise has been applied to other pervasively regulated industries.¹⁷⁶ Electric power presents a particularly difficult problem, due to the need for coordinated management of production and transmission facilities. For this reason the structural reform proposed in this paper deserves consideration. It would inject a welcome dose of competition into the national energy plan.

Matthew Cohen

175. Federal Power Act, § 202(a), 16 U.S.C. § 824a(a) (1976).

176. The issues in *United States v. American Tel. & Tel. Co.*, No. 74-1698 (D.D.C., filed Nov. 20, 1974), closely resemble those discussed in this essay. The American Telephone & Telegraph Co. (AT&T) is a vertically integrated holding company. Its Western Electric and Bell Telephone Laboratories subsidiaries manufacture and develop telecommunications equipment. The Long Lines division provides long-distance circuits to connect telephone exchanges in different areas. The local operating companies provide service between customers connected to the same exchange. The government contends, *inter alia*, that the local exchange franchises are bottleneck monopolies, the control of which AT&T uses to foreclose market entry by competing equipment manufacturers and intercity carriers. Plaintiff's First Statement of Contentions and Proof at 82-83, 625. AT&T responds, *inter alia*, that considerations of efficiency and reliability support the vertical extension of the local exchange monopoly to long lines and to the manufacture of equipment. Defendants' First Statement of Contentions and Proof at 6-9.