

MARKET POWER IN ELECTRIC UTILITY MERGERS: ACCESS, ENERGY, AND THE GUIDELINES

by
Robert J. Michaels*

I. INTRODUCTION

All mergers affect competition, some by creating superior competitors and others by creating potential monopolists. The Antitrust Improvements Act of 1976 requires prescreening of proposed mergers to identify those that are likely to affect competition adversely.¹ To implement that law, the U.S. Department of Justice's (DOJ) Merger Guidelines contain prescreening procedures that attempt a compromise between theoretical rigor, limited data, expeditious processing, and consistency.² The Guidelines single out for scrutiny those mergers that significantly affect numerical measures of supplier concentration in relevant markets. In electric utility mergers the antitrust agencies (DOJ and the Federal Trade Commission) defer to the opinion of the Federal Energy Regulatory Commission (FERC). The FERC, however, often uses the concentration standards of the Guidelines in its decision process. As electricity markets change, the FERC's continued reliance on the Guidelines raises the likelihood that it will deny applications for competitive mergers or permit monopolizing mergers to proceed. In some industries a merger that increases supplier concentration may make collusion easier, but in industries with open access to essential facilities any link between concentration and monopolization will be attenuated. The market at risk of monopolization in an electric utility merger is a market for facility access, rather than one for goods or services that the

* Professor of Economics at California State University, Fullerton; A.B. University of Chicago 1965; Ph.D. University of California, Los Angeles, 1972. The author is also Consultant in Economics and Finance, JurEcon, Inc., Los Angeles; and Adjunct Scholar at the Cato Institute. Earlier versions of this article were presented at Rutgers University's Advanced Workshop in Regulation and Public Utility Economics, San Diego, July 12, 1996; and at *The Energy Daily's* Conference on Utility Mergers and Acquisitions, Washington D.C., June 18, 1996.

1. 15 U.S.C. § 18(a) (1988).

2. *U.S. Department of Justice, Merger Guidelines*, 47 Fed. Reg. 38,493 reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,102 (June 14, 1982) [hereinafter 1982 Guidelines]; *U.S. Department of Justice Merger Guidelines*, 49 Fed. Reg. 26,823 reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,103 (June 14, 1984) [hereinafter 1984 Guidelines]; *U.S. Department of Justice Horizontal Merger Guidelines*, 57 Fed. Reg. 41,552 reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,104 (April 2, 1992) [hereinafter 1992 Guidelines]. The Guidelines also apply to mergers under Section 1 of the Sherman Act (15 U.S.C. § 1 (1988)) and Section 5 of the Federal Trade Commission Act (15 U.S.C. § 45 (1988)). See 1992 Guidelines § 0.

Guidelines might suggest. If access is critical and concentration is not, the FERC Order 888 provides a new foundation for rational merger policy.³

Section 203 of the Federal Power Act requires that the FERC investigate mergers of jurisdictional utilities and approve those "consistent with the public interest."⁴ The Federal Power Commission (FPC) itemized that interest in its approval of a 1967 merger between Commonwealth Edison Company and Central Illinois Electric and Gas Company.

... [T]he Commission, in determining whether this particular merger is consistent with the public interest, has considered, among others, the following factors: the effect of the proposed action on the applicants operating costs and rate levels, the contemplated accounting treatment, reasonableness of the purchase price, whether the acquiring utility has coerced the to be acquired utility into acceptance of the merger, the effect the proposed action may have on the existing competitive situation, and finally, whether the consolidation will impair effective regulation either by this Commission or the appropriate state regulatory authority.⁵

In January 1996 the FERC issued a Notice of Inquiry (NOI) into revision of these standards.⁶ Many respondents to it support continued reliance on the Guidelines as a screen for market power and broadly agree with FERC's existing procedures for identifying those markets in which a merger may affect competition.⁷

Concurrently with the NOI, the FERC is debating whether to continue to approve mergers as long as they do not harm competition (its existing standard) or if it should undertake proactive rulemakings and proceedings with the objective of increasing competition.⁸ A 3-2 Commission majority recently set the proposed merger between Baltimore Gas and Electric Company and Potomac Electric Power Company for hearing because of concerns that "[a]pplicants may have overstated the size of the geographic markets in which generation concentration is measured."⁹ The dissenting Commissioners recommended immediate approval, noting that the majority intended to examine competition even though there were no interven-

3. Order No. 888, *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities and Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, III F.E.R.C. STATS & REGS. ¶ 31,036 (1996). [hereinafter Order No. 888].

4. 16 U.S.C. § 824 (b) (1994).

5. *Commonwealth Edison Company and Central Illinois Electric and Gas Company*, 36 F.P.C. 927 (1966).

6. Inquiry Concerning Commission's Merger Policy Under the Federal Power Act, 74 F.E.R.C. ¶ 61,082.

7. See, e.g., *Comments of the U.S. Department of Justice*, FERC Docket No. RM96-6-000, filed May 7, 1996, particularly the Appendix; and *Comments of the American Public Power Association*, Docket No. RM96-6-000, filed May 7, 1996. A broader summary of comments appears in *Justice/FTC Merger Guidelines Recommended as Basis for FERC Review*, INSIDE FERC, May 13, 1996, at 5. Others have made the case that uncertainty about the industry's transition necessitates using the Guidelines as an interim policy. Richard J. Pierce, Jr., *Antitrust Policy in the New Electricity Industry*, 17 ENERGY L.J. 29 (1996).

8. *FERC's Massey Hashes Out View of Mergers, Sees Two Focal Points*, ELECTRIC POWER ALERT, Dec. 20, 1995, at 34.

9. *Baltimore Gas and Elec. Co. and Potomac Elec. Power Co.*, 76 F.E.R.C. ¶ 61,111, at 61,572 (1996); slip op. at 13.

ors who disputed the applicants' claim of competition in all relevant markets.¹⁰ In the since-abandoned merger between Washington Water Power and Sierra Pacific Power, a lack of intervention did not deter the FERC from setting competitive issues for hearing because of concerns about post-merger transmission availability.¹¹ The FERC is proposing a longer-term role for itself in the pending merger between Public Service Company of Colorado and Southwestern Public Service Company, who intend to connect their systems with a high-voltage link that will begin operation in 2001. If it approves the merger, the FERC intends to order filing of a supplemental market power analysis six months before the line goes into service.¹² If the FERC finds "competitive harm associated with the operation or control of the new line," it will consider imposing an open season on the line or requiring construction of additional transmission facilities.¹³

Since the mid-1970s, the FERC has used the tools of antitrust analysis to analyze competition in industries that it regulates.¹⁴ In addition to electric utility mergers, the Commission has defined relevant markets in dockets where a utility or independent power producer is seeking market-based rates for wholesale sales.¹⁵ In the past, the FERC staff constructed antitrust markets to determine competitive situations that might be affected by foreclosures of access to transmission facilities.¹⁶ Currently, the FERC is defining markets to help determine conditions under which it will authorize interstate gas pipelines to charge market-based rates for transportation.¹⁷ It is also examining markets for gas storage in connection with market-based rate requests.¹⁸ Earlier in the history of open access, the FERC used antitrust markets to evaluate applications by pipelines for market-based gas inventory charges.¹⁹ It has also employed them in market-based rate proceedings for oil pipelines, considering the competition applicants faced from other pipelines and from other modes of transport.²⁰

The FERC's NOI on electric utility mergers offers it a unique opportunity to refashion its principles to comport with changes in power markets that will come with open access. At the same time, a wave of merger applications offers an opportunity for case-specific application of the new principles. The FERC currently assumes that open access transmission tariffs for comparable service could mitigate or eliminate market power in transmis-

10. *Id.*, Commissioners Santa and Bailey, Dissenting, slip op. at 4.

11. *Washington Water Power Co. and Sierra Pacific Power Co.*, 73 F.E.R.C. ¶ 61,218 (1995).

12. *Public Serv. Co. of Colo. and Southwestern Pub. Serv. Co.*, 75 F.E.R.C. ¶ 61,325 (1996).

13. *Id.* at 62,045.

14. A summary appears in Robert J. Michaels & Arthur S. De Vany, *Market-Based Rates for Interstate Gas Pipelines: The Relevant Market and the Real Market*, 16 ENERGY L.J. 299, 312 (1995).

15. See also, *Kansas City Power & Light Co.*, 67 F.E.R.C. ¶ 61,183 (1994), and *Enron Power Enterprises Corp.*, 52 F.E.R.C. ¶ 61,193 (1990).

16. See also, *Pacific Power & Light Co.*, 26 F.E.R.C. ¶ 63,048 (1984).

17. FERC, MARKET-BASED RATES FOR NATURAL GAS COMPANIES 38 (1995) (staff paper).

18. See also, *Koch Gateway Pipeline Co.*, 66 F.E.R.C. ¶ 61,385 (1994).

19. See also, *El Paso Natural Gas Co.*, 49 F.E.R.C. ¶ 61,473 (1989).

20. See also, Opinion No. 360, *Buckeye Pipe Line Co., L.P.*, 53 F.E.R.C. ¶ 61,473 (1990).

sion.²¹ It continues to evaluate capacity and energy markets, however, by the standards of the Guidelines. The FERC must reconsider both those methods and the continuing relevance of those markets in light of its developing open access policy. If the FERC makes transmission access the prime criterion for merger approval, it directly confronts the most likely source of anticompetitive effects. An access-based approach is consistent with established principles of market definition and applicable in a range of regulatory environments. This departure from past practice is necessary because the competition that regulators must protect is qualitatively changing. Mergers, power exchanges, retail wheeling and other new institutions will bring forth markets whose organization and scope we cannot envision today. Competition to design new transactions and create new markets is as important for economic welfare as the competition that exists in today's transitional industry. Open access looks to both the present and the future in ways that the Guidelines do not.

The next section of this article describes the Guidelines and examines their relevance. It broadly concludes that the economic theory underlying them is unclear and the empirical evidence on their applicability is inconclusive. Section III then discusses the problems encountered in applying the Guidelines to electricity markets, in particular the difficulties of inferring monopoly power from data on the concentration of sellers. Even if the FERC uses the Guidelines with care, they will not be helpful for evaluating competition in an industry with open access. Section IV suggests that the FERC's merger policy should deemphasize antitrust markets for capacity and energy. Instead, the Commission should concentrate on the intensive study of transmission access in the merged system, a subject on which it already has regulatory expertise. Section V expands on the critique of capacity and energy markets, concluding that in today's transitional electricity industry those markets are particularly unlikely to improve the Commission's decision-making abilities. Section VI extends this discussion to more general considerations of antitrust activism in the current merger environment. In electricity, economists have identified problems that will often be better resolved by regulation and other litigation than by antitrust. Section VII draws some more general conclusions on the relationship between regulation and antitrust.

II. MERGER POLICY AND THE MERGER GUIDELINES

A. *The Guidelines*

The Guidelines provide the antitrust agencies with standardized procedures to evaluate the numerous and heterogeneous mergers that they must screen. Analysis under the Guidelines starts from the relevant product and geographic markets in which the merger might allow the exercise of monopoly power, defined as "the ability profitably to maintain prices

21. Order No. 888, at 63. The FERC also considers whether affiliate abuse or reciprocal dealing can create barriers to entry that enhance market power in a merger.

above competitive levels for a significant period of time."²² The relevant market is for "a product or group of products such that a hypothetical profit-maximizing firm that was the only present and future seller of those products ("monopolist") likely would impose a 'small but significant and nontransitory' increase in price."²³ The product group is the smallest set for which the hypothetical monopolist (i.e., a perfectly enforced collusion that includes both the merged firm and all others in the market) could profitably increase price by the critical amount, "in most contexts . . . [an] increase of five percent lasting for the foreseeable future."²⁴ The relevant geographic market is the smallest area in which a monopolist in the same products could profitably impose that price increase.²⁵ Market definition focuses solely on the ability of purchasers to abandon more expensive products (demand substitution factors).²⁶ The likelihood that new sellers will enter the market in response to higher prices is considered separately.²⁷

Having found the relevant geographic area and products, the antitrust agency must determine whether that market can sustain the threshold price increase. A hypothetical monopolist's power to profit by raising price depends on the "likely demand responses of consumers" and the "profitable supply responses [of market entrants] likely to occur in one year and without the expenditure of significant sunk costs of entry and exit."²⁸ Consumer responses include switches to substitute products and to the same product shipped in from other areas. Existing producers can respond by increasing output or shipping it across geographic lines (including national boundaries), and new producers can open up for business. Even with copious data, economists will have difficulty predicting and quantifying these responses. An agency with limited resources that must preapprove numerous mergers has little choice but to abandon quantitative sophistication for a simpler way of screening out questionable deals.

For their screen the Guidelines use the Herfindahl-Hirschman Index (HHI). The HHI is the sum of the squares of the shares of all sellers in the relevant market.²⁹ The HHI may be a more sensitive indicator of monopoly power than a market share calculation because the HHI covers all firms in the market and large firms carry disproportionate weight in it. A market with N sellers of equal size has an HHI of $1/N$.³⁰ A monopolized market

22. 1992 Guidelines § 0.1. For overviews of market definition under the Guidelines, see John R. Morris & Gale R. Mosteller, *Defining Markets for Merger Analysis*, 36 ANTITRUST BULL. 599 (1991); and Joseph J. Simons & Michael A. Williams, *The Renaissance of Market Definition*, 38 ANTITRUST BULL. 799 (1993).

23. 1992 Guidelines § 1.11, quotations and parentheses in original.

24. *Id.* § 1.11. The 1984 Guidelines § 2.11 specified a period of one year.

25. 1992 Guidelines § 2.21.

26. 1992 Guidelines § 1.0.

27. *Id.*

28. *Id.* §§ 1.0, 1.32.

29. *Id.* § 1.5. The Guidelines multiply a decimal HHI by 10,000.

30. A five-firm market where one firm has a market share of .96 and the other four each have shares of .01 has an HHI of .92 [or 9,200]; one where each has a .20 share has an HHI of .20 [or 2,000].

has an HHI of 1 [or 10,000] and in the limit a market with numerous small sellers has an HHI approaching 0. If the market's post-merger HHI is below 1,000, it "will ordinarily require no further analysis."³¹ A merger that raises a market's HHI by less than 100 points but keeps it under 1,800 is "unlikely to have adverse competitive consequences," but one that raises the HHI by over 100 points "potentially raise[s] significant competitive concerns" even if it remains below 1,800.³² A merger that raises the HHI by over 50 points in a market where it is already over 1,800 raises the same potential concerns, and a merger that increases such a market's HHI by over 100 points is "likely to create or enhance market power or facilitate its exercise."³³ Applicants for the latter merger might respond by showing that industry characteristics make collusion difficult, that quick market entry by new competitors is likely, or that merger is the only way to achieve lower costs or to save a failing firm's assets.³⁴

B. Economic Theory and the Guidelines

The antitrust agency screening a proposed merger must make predictions about competition that are largely beyond the competence of present-day economics. Competition in the marketplace usually takes the form of unruly and complex rivalry among highly motivated participants whose actions will be difficult to foresee. Such competition is desirable because it promotes innovation and puts a stop to activities that do not create value. No available economic theory consistently and accurately predicts the path along which a continuously rivalrous market will evolve. Instead, economists must distill from individual market situations those principles from which they can draw generally applicable predictions about competition. The method of choice is to focus on the equilibrium a market will attain in the absence of such disturbances as innovation or developments in related markets.³⁵ Equilibrium models start with assumptions about buyer and seller behavior to predict the price, output, profitability, and other measures of performance that a market will settle into. The economic theory that underlies merger policy compares the equilibria of pre-merger markets and post-merger markets that have a greater concentration of suppliers. Unfortunately for policy, small changes in theoretical assumptions (e.g., about how a seller responds to the decisions of competitors) can yield substantially different predictions about equilibrium and about how a merger might affect that equilibrium.

In the first case it may often be reasonable to view the large seller as a monopolist who can make decisions without concern for reaction by the fringe producers.

31. 1992 Guidelines § 1.51.

32. *Id.* § 1.51(b).

33. *Id.* § 1.51(c). An HHI of 1,800 occurs in a market with the equivalent of between five and six equal-size sellers.

34. *Id.* §§ 2-5.

35. See also, the 1992 Guidelines § 1.0 specify that the analysis of a merger's effects on market price is to be made "assuming the terms of sale of all other products are held constant."

The Guidelines do not include a formal statement of the economic theory that underlies their market definitions and criteria for merger approval.³⁶ They do, however, describe the empirical consequences of the theory.

Other things being equal, market concentration affects the likelihood that one firm, or a small group of firms, could successfully exercise market power. The smaller the percentage of total supply that a firm controls, the more severely it must restrict its own output in order to produce a given price increase, and the less likely it is that an output restriction will be profitable. If collective action is necessary for the exercise of market power, as the number of firms necessary to control a given percentage of total supply decreases, the difficulties and costs of reaching and enforcing an understanding with respect to the control of that supply might be reduced.³⁷

Collusion, however, is only one of many possible paths that a market can take when individual sellers have some ability to choose their prices. The likelihood of collusion rises if the market's institutional characteristics are conducive to forming and enforcing an agreement. Characteristics enumerated in the Guidelines include the public visibility of prices and transactions, the homogeneity of products, and the existence of contract terms that might facilitate overt or tacit collusion.³⁸ The likelihood of collusion also depends on the expectations of sellers regarding how other sellers will react to their individual decisions. Depending on these expectations, market outcomes can range from aggressive rivalry that delivers very low prices to perfect collusion that delivers monopolistic ones. In only one case ("Cournot" expectations) are the output and price effects of mergers well-predicted by conventional measures of market shares and concentration.³⁹ There is little empirical evidence that sellers in actual markets, including electricity, have such expectations about one another.⁴⁰ The many plausible economic theories of oligopoly include models of dominant firms, price

36. A "heuristic theoretical representation" of this market model appears in Robert D. Willig, *Merger Analysis, Industrial Organization Theory, and Merger Guidelines*, BROOKINGS PAP. ECON. ACTIVITY MICROECONOMICS 281, 286 (1991). For further discussion, see Robert J. Michaels & Arthur S. De Vany, *supra* note 14, at 302.

37. 1992 Guidelines § 2.0. The Guidelines also consider a merged firm's power to unilaterally meet the price increase threshold. *Id.* § 2.2. The distinction between unilateral and coordinated action is unclear because under the Guidelines, a firm with unilateral power over price will be sufficient in itself to constitute a relevant market. Lucile S. Keyes, *The Horizontal Merger Guidelines of 1992*, 10 REV. INDUST. ORG. 143, 151 (1995).

38. 1992 Guidelines § 2.1. See also, Kevin J. Arquit, *The Boundaries of Horizontal Restraints: Facilitating Practices and Invitations to Collude*, 6 ANTITRUST L.J. 531 (1993); The interpretation of a given restraint is often unclear. See also, Keith J. Crocker & Thomas P. Lyon, *What Do 'Facilitating Practices' Facilitate? An Empirical Investigation of Most-favored-Nation Clauses in Natural Gas Contracts*, 37 J. LAW & ECON. 297 (1994).

39. Gregory J. Werden, *Horizontal Mergers: A Comment*, 81 AM. ECON. REV. 1002 (1991); GEORGE A. HAY & GREGORY J. WERDEN, HORIZONTAL MERGERS: LAW, POLICY, AND ECONOMICS, U.S. DEPT. OF JUSTICE ANTITRUST DIVISION DISCUSSION PAPER EAG 93-1, at 3 (1993). Views in these articles are not necessarily those of the U.S. Department of Justice.

40. Frank Gollop & Mark Roberts, *Firm Interdependence in Oligopolistic Markets*, 10 J. ECONOMETRICS 313 (1979); and Gyoichi Iwata, *Measurement of Conjectural Variation in Oligopoly*, 42 ECONOMETRICA 947 (1974). In electricity, data from the U.K. pool are inconsistent with some versions of the theory. See CATHERINE D. WOLFRAM, MEASURING DUOPOLY POWER IN THE BRITISH

leadership, market-share growth strategies, rivalry in producing innovations, and game-theoretic worlds in which super-rational competitors can arrive at numerous possible end-states depending on the details of what is assumed.⁴¹ The authorities probably err on the side of excessive caution when they base premerger approvals on a theory that posits collusion as the most likely consequence of seller concentration.⁴² The law, however, may require such caution.⁴³

The change in a market's HHI bears no necessary relation to a merger's economic benefits and costs. More efficient (i.e., lower cost) production benefits both the merging parties and society because it reduces the resources necessary to produce a unit of output. Against this benefit, the economist weighs the likelihood that resources will be misallocated because the post-merger market may be more prone to collusion and restrictive practices.⁴⁴ A merger that increases market price by more than the threshold of the Guidelines may still pass the cost-benefit test if it yields large enough production efficiencies.⁴⁵

C. *Economic Evidence on the Guidelines*

Of the many possible economic theories, only some contain logical demonstrations that concentrated markets will reach collusive equilibria and unconcentrated ones will not.⁴⁶ Since the 1930s, economists have attempted to evaluate these theories by measuring the existence and strength of statistical associations between seller concentration (e.g., as measured by the HHI) and market performance (e.g., as measured by profits or prices) over samples of industries.⁴⁷ These studies have not substantially narrowed the range of professional disagreement about these

ELECTRICITY SPOT MARKET, MASSACHUSETTS INSTITUTE OF TECHNOLOGY DEPT. OF ECONOMICS WORKING PAPER (1995).

41. DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* (2nd ed. 1994), ch. 5-8 and 10. For a statement that these models are seldom adequate to capture economically important aspects of competition, see Franklin M. Fisher, *Games Economists Play: A Noncooperative View*, 20 *RAND J. ECON.* 113 (1989).

42. Others believe that the Guidelines provide such easily satisfied criteria that an excessive number of anticompetitive mergers slip through their screen. See Keyes, *supra* note 37.

43. "[T]he Guidelines reflect the Congressional intent that merger enforcement should interdict competitive problems in their incipency." 1984 Guidelines § 1.

44. William Landes & Richard Posner, *Market Power in Antitrust Cases*, 94 *HARV. L. REV.* 937 (1981); and Oliver Williamson, *Economies as an Antitrust Defense*, 58 *AM. ECON. REV.* 18 (1968).

45. The Guidelines allow flexibility on the percentage price increase depending on "the nature of the industry" but do not further describe the relevant attributes of that nature. 1992 Guidelines § 1.11.

46. These collusive equilibria can be explicit or "tacit." The latter term, though frequently used, is difficult to define. For example, is there a tacit collusion if a market is served by two sellers who have no restrictive agreement but have independently chosen not to compete aggressively?

47. The sources of data do not necessarily correspond to relevant markets for antitrust analysis. For example, the frequently-used U.S. Census of Manufactures provides data on profit margins, concentration (four-firm measures rather than HHIs), and other variables for hundreds of Standard Industrial Classifications. These classifications are defined for statistical reporting purposes and will only by coincidence also be relevant antitrust markets. Cf. Sam Peltzman, *The Gains and Losses from Industrial Concentration*, 20 *J. L. & ECON.* 229 (1977); F. M. Scherer, *The Causes and Consequences of Rising Industrial Concentration: A Comment*, 22 *J. L. & ECON.* 191 (1979).

relationships and their interpretation.⁴⁸ Some believe that the evidence for a positive concentration-performance relationship is strong enough to serve as a basis for aggressive antitrust policy.⁴⁹ Others contend that the measured strength of that relationship is highly sensitive to the choice of data samples and statistical methods.⁵⁰ The interpretation of the statistical work is also unresolved. Positive correlations between concentration and profit or price are consistent with a range of seller behavior that includes collusion as one of numerous possible cases. Such correlations can be evidence of efficiency rather than collusion if economies of scale are substantial.⁵¹

Seeking more direct evidence on price, some economists have studied how seller concentration affects it in different markets for the same good.⁵² In the largest work of this kind, Leonard W. Weiss and his associates examined 121 different sets of data, mostly for such services as banking, retailing, advertising space, and rail freight.⁵³ Of these data sets, between 61 and 73 percent exhibited a positive price-concentration relationship, but the chosen criterion for positivity is open to question.⁵⁴ Other studies have found positive concentration-price relationships in some industries (air fares and bank loans) and negative or nonexistent ones in others (brewing, baking, and grocery retailing).⁵⁵ There is no unique link between the price effects of concentration and the HHI standards of the Guidelines, but under plausible assumptions concentration that would trigger scrutiny under the Guidelines often produces a price increase of less than five percent.⁵⁶

48. Paul A. Pautler & Robert P. O'Quinn, *Recent Empirical Evidence on Mergers and Acquisitions*, 38 ANTITRUST BULL. 741, 768 (1993); Richard Schmalensee, *Industrial Economics: An Overview*, 98 ECON. J. 643 (1988).

49. See, e.g., William G. Shepherd, *Reviving Regulation — and Antitrust*, 7 ELEC. J. 16 (1994); Samuel C. Thompson, Jr., *A Proposal for Antitrust Merger Reform: Repudiating Judge Bork in Favor of Current Economic Learning*, 41 ANTITRUST BULL. 79 (1996).

50. GREGORY J. WERDEN, A REVIEW OF THE EMPIRICAL AND EXPERIMENTAL EVIDENCE ON THE RELATIONSHIP BETWEEN MARKET STRUCTURE AND PERFORMANCE, U.S. DEPARTMENT OF JUSTICE ANTITRUST DIVISION ECONOMIC ANALYSIS GROUP DISCUSSION PAPER EAG 91-3 (1991). (This paper is not a statement of DOJ's official views.)

51. Harold Demsetz, *Two Systems of Belief about Monopoly*, in INDUSTRIAL CONCENTRATION: THE NEW LEARNING 164 (Harvey Goldschmied et al. ed., 1974); JOHN MCGEE, IN DEFENSE OF INDUSTRIAL CONCENTRATION 95 (1971).

52. More direct evidence on mergers and price is scarce. Pautler & O'Quinn, *supra* note 48, at 757, cite a handful of studies. The list is dominated by airline mergers that raised prices after substantially increasing concentration (e.g., at individual airports) from already-high levels.

53. CONCENTRATION AND PRICE (Leonard W. Weiss ed., 1989).

54. Most of Weiss's other data sets showed no statistically significant relationship, as opposed to a negative one. Nearly all sets were subjected to several regression analyses that attempted to isolate the effect of seller concentration by standardizing for other variables known to affect price. The choice of variables to "hold constant" depends on theoretical relevance and data availability, and normal practice is to publish several alternative formulations. Weiss somewhat arbitrarily classifies a data set as showing a positive association if at least one of these formulations yields a significantly positive effect for concentration, regardless of what other formulations using the same data show. *Id.* at 266.

55. See citations in Pautler & O'Quinn, *supra* note 48, at 772.

56. Weiss, *supra* note 53, at 277.

However uncertain the economics, screening mergers by a numerical standard may still yield more economically rational decisions than the making of case-specific judgments. If so, alternative HHI criteria will have differing consequences. Research on the relationship between the HHI and industry performance has found that neither the danger level of 1,800 nor the safe harbor of 1,000 are associated with any notable departures from competitive outcomes.⁵⁷ Even if the HHI is a useful warning of collusion in certain market situations, no concise characterization of those situations is currently available.⁵⁸ The originators of the Guidelines selected 1,000 for a safe harbor HHI "as much as a political anchorage [against more restrictive views] as because anyone thought that nicely round number was just right."⁵⁹ Commenting on the FERC's merger policy, the DOJ states that "[c]hanges in market structure such as market share and market concentration are indicators of the potential for the merged firm to behave anticompetitively."⁶⁰ In reality, the evidence favoring the Guidelines is sparse.

III. STRUCTURAL ANALYSIS OF REGULATED MARKETS

A. Concentration and Competition

The common practice of calculating concentration statistics is intrinsically questionable if a market is under price, profit, and service regulation. Even if market structure accurately predicts outcomes in unregulated industries, it must be used with great care in industries where regulators determine important aspects of that structure.⁶¹ The pitfalls of structural analysis are at their clearest in the antitrust context of *Otter Tail Power Company v. United States*.⁶² The relevant markets in contemporary merger and market-based rate dockets are usually not those of *Otter Tail*, but the methods of analysis are descended from that case. More recent capacity and energy market definitions are examined in Section V below.

In *Otter Tail*, the Supreme Court accepted the government's structure-based determination that a utility had monopoly power. The Court held that *Otter Tail* had violated the Sherman Act by refusing to wheel inexpensive federal power to newly-formed municipal utilities, thus using its transmission monopoly to block retail competition. In the relevant market for

57. Noel D. Uri & Malcolm Coate, *The Department of Justice Merger Guidelines: The Search for Empirical Support*, 7 INT'L REV. L. & ECON. 113 (1987).

58. Statistics of prosecuted collusions point to their greater prevalence in declining industries rather than growing ones, and in industries where owners of (relatively small) businesses rather than employees make the decision to collude (e.g., highway contractors). Peter Asch & J.J. Seneca, *Is Collusion Profitable*, 68 REV. ECON. & STATS. 1 (1976); Jon M. Joyce, *Effect of Firm Organizational Structure on Incentives to Engage in Price Fixing*, 7 CONTEMP. POLICY ISSUES 19 (1989).

59. William F. Baxter, *Antitrust Policy*, in AMERICAN ECONOMIC POLICY IN THE 1980s 600, 610 (Martin Feldstein ed., 1994). Baxter offered no corresponding explanation of how 1,800 became the danger-level HHI or how 50 and 100 point increases in it were determined to be critical.

60. *Comments of the U.S. Department of Justice*, supra note 7, at 8.

61. Keith S. Watson & Thomas W. Brunner, *Monopolization by Regulated 'Monopolies': The Search for Substantive Standards*, 22 ANTITRUST BULL. 559 (1977); Michaels & De Vany, supra note 14, at 309.

62. 410 U.S. 366 (1973).

retail service, the government found a monopoly because Otter Tail's service to 465 of the 510 municipal franchises in its territory gave it a market share of 91 percent.⁶³ Otter Tail's refusal to wheel probably deterred some franchise changeovers, but the fraction of cities it served at the time of the refusals either tells nothing or misleads regarding its ability to act monopolistically. Instead of indicating market power, the company's high "share" of franchises could equally well reflect its inability to refuse service to them.⁶⁴ At trial, Otter Tail argued that the major determinant of municipal utility formations was their legal priority to obtain inexpensive federal power.⁶⁵ Unallocated blocks of this power, however, turned up only infrequently. If the only superior alternative to Otter Tail was so limited, the company's continuing service to the many cities that were without that alternative cannot reliably indicate its monopoly power.

Otter Tail's refusal to wheel was an exercise of monopoly power over transmission, but the government did not call transmission a relevant market.⁶⁶ Instead, the government was content to state that the company had "strategic dominance."⁶⁷ If (by analogy to retail) Otter Tail's territory bounded the transmission market, the company actually had too low a share for monopoly power. It owned only 6.2 percent of transmission in the territory, the remainder being held by cooperatives, municipals, other corporate utilities, and the federal government.⁶⁸ By refusing access to certain lines, however, the company was able to thwart franchise changeovers. Otter Tail's low share of transmission still allowed it to harm those cities without alternative paths to inexpensive power. Under regulation, both high and low concentration lose whatever inferential value they might have in unregulated markets.

B. Open Access: Competitive Allocation of a Natural Monopoly

In a natural monopoly, the minimization of total cost requires that only a single facility of appropriate size be constructed.⁶⁹ If electric transmission between two points is a natural monopoly, regulators promote efficiency by permitting construction of only one high-capacity line and

63. The government's calculation was unorthodox. Cities with populations ranging from 20 to 15,000 each counted as one franchise. Numerous cooperatives not included in the computation served areas that did not give official franchises, and the three largest cities in the territory were islands served by another corporate utility. Otter Tail actually sold under 30 percent of the retail kilowatts in its territory. See Andrew N. Kleit & Robert J. Michaels, *Antitrust, Rent-Seeking, and Regulation: The Past and Future of Otter Tail*, 39 ANTITRUST BULL. 689, 709 (1994).

64. Watson & Brunner, *supra* note 61, at 566.

65. The government agreed with Otter Tail. Kleit & Michaels, *supra* note 63, at 708.

66. Although defining markets for various types of bulk power and transmission is now standard procedure, it was not then. Otter Tail was active in a well-developed regional bulk market that no one considered relevant despite the desire of municipal utilities to trade in it. At the time, modestly-sized Otter Tail was the fourth largest wheeler in the country. Kleit & Michaels, *supra* note 63, at 699.

67. *U.S. v. Otter Tail Power Co.*, 331 F. Supp. 54, 60 (D. Minn. 1971).

68. Kleit & Michaels, *supra* note 63, at 699.

69. It is difficult to determine a facility's efficient size if market growth is expected or if there is uncertainty about future demand for the facility's services. Michaels & De Vany, *supra* note 14, at 338 (discuss the likelihood that pipelines will be undersized to capture monopoly rents).

imposing a service obligation on its owner. In reality, there are engineering limits to the economic capacity of one line embedded in a larger system, and reliability may warrant duplicative lines of lower capacity. Operational problems aside, the line's owner need not be a reseller of purchased or self-produced power to end-users. If the line operates under open access rules, users and producers of power (shippers) can have contractual rights to the line's capacity and related services.⁷⁰ If shippers can subdivide and trade those rights, exchange will allocate them to users who value them most highly, as it would in a competitive market. Natural monopoly is an attribute of transmission technology, but the market in which the line's services are exchanged can be competitive. The fact that a single line is the cheapest link between two points tells nothing about who should produce, purchase, or market through put in order to maximize the line's economic value.

Assume that a number of small, separately-owned transmission lines link a power producing area with a consuming area.⁷¹ Shippers contract for transportation with owners of the lines in an environment where information about opportunities and alternatives is easily available. In this market, a shipper's options for contracting with any one line are unconstrained by its dealings with other lines. As described, the market is probably competitive enough to escape the attention of antitrust and there is no reason to institute rate regulation.⁷² (It resembles inter-city trucking.) Now assume that a single line with the same total capacity replaces the small ones and each former owner contracts with it, at cost-based rates, for the same capacity it held previously. Under open access, capacity holders can repackage and retrade it among themselves and with shippers who in turn can further parcelize and reallocate it. If capacity holders cannot collude (e.g., because agreements are unstable or because antitrust is a threat), the competitive price for service and the competitive allocation of space will again prevail with a single line carrying everyone's power.

Rate regulation of capacity contracts may be necessary to deter the line's owner from attempts to withhold capacity or price discriminatorily. A regulatory "use-it-or-lose-it" provision is also needed to discourage attempts by holders of capacity rights to monopolize or collude. Under such a rule, unused capacity reverts to the owner, who must offer it for

70. A line's capacity at any instant will be determined by both its engineering specifications and the state of the surrounding system. The text abstracts from the important question of defining property rights when the underlying capacity of the line is changing, and from a discussion of markets for ancillary services that necessarily accompany wheeling. On these topics, see William W. Hogan, *Electric Transmission: A New Model for Old Principles*, 16 *ELEC. J.* 18 (Mar. 1993); Order No. 888, at 198.

71. Here again the text abstracts from technical problems in operating parallel lines.

72. This description is incomplete regarding entry of new sellers. In a competitive market newcomers may have higher costs than existing sellers (e.g., because their lines must traverse rougher terrain). In a competitive market, however, existing sellers are unable to take actions that raise the costs of new ones.

interruptible or short-term firm service.⁷³ The more capacity a collusion attempts to withhold, the lower the likelihood of interruptions on transportation offered for interruptible service. The line's owner is, in effect, a competitive market entrant who instantaneously acquires all unused capacity and has no choice but to make it available. If all available capacity thus reaches the market, each unit of it will fetch the competitive price.

"Use-it-or-lose-it" rules exemplify the importance of analyzing market institutions rather than statistics of concentration. Concentration statistics for facility ownership or capacity holding are calculable under any system of rules. Competitive allocation of capacity, however, will be more likely with open access than without it. The choice of relevant markets is itself institution-dependent. If the line has a single owner, the HHI for ownership is 1.0 [or 10,000]. A market for ownership, however, is not where competition happens.⁷⁴ If rights to the line are well-defined and exchangeable, competition happens in a market for access.⁷⁵ The state of competition for access bears no necessary relation to the number of entities that have rights to use the line at any moment. The Guidelines state that ease of entry into a market can counteract the potential effects of a merger that would otherwise raise concerns.⁷⁶ If so, an HHI based on current user statistics loses significance because open access opens a market for reallocating rights to the line, one that is open to new users and in which existing users cannot contrive an artificial scarcity.

Experience with gas pipelines broadly validates the importance of access and the irrelevance of concentrated ownership. Since the coming of open access, markets for both gas and its transportation have performed far more competitively than before while the concentration of pipelines between most fields and city-gates has changed little. Events have outpaced the FERC's interest in determining when it should allow market-based pipeline rates because the evidence is that market-based rates are already in effect. Secondary capacity markets are growing, discounting is widespread, and "gray market" transactions effectively circumvent secondary market price caps.⁷⁷ The amount and depth of discounting between fields and city-gates is independent of the concentration of pipeline owner-

73. This usage differs from the FERC's. Order 888 authorizes short-term service on unused electrical capacity as in the text, but defines "use-it-or-lose-it" as meaning that the holder of a temporarily unused capacity right will lose the right itself, a provision absent from the Order. See Order No. 888, at 166.

74. The FERC staff's analysis of market-based pipeline rates generally reaches pessimistic conclusions using statistics of ownership. The FERC Staff Paper, *supra* note 17, at 38.

75. Rodney T. Smith, Arthur S. De Vany, & Robert J. Michaels, *Defining a Right of Access to Interstate Gas Pipelines*, 8 CONTEMP. POLICY ISSUES 142 (1990).

76. 1992 Guidelines § 3.0. The Guidelines' emphasis on "committed" entry that entails sunk costs appears inapplicable to markets for access rights.

77. Michaels & De Vany, *supra* note 14, at 330. The FERC recently issued a notice of proposed rulemaking to remove price caps on released capacity. See *FERC Initiates Rulemaking to Consider Revisions to Capacity Release Program*, FOSTER NATURAL GAS REPORT, at 1 (Aug. 1, 1996).

ship linking the points.⁷⁸ In gas, the evidence is becoming clear that institutions matter and structure does not.

IV. AN ACCESS-BASED STANDARD

A. Access as a Merger Screen

Because the Guidelines lack empirical support and are problematic in regulated industries, they will probably not serve the FERC well in analyzing what many expect will be a wave of electric utility mergers. The Commission is likely to gain more insight by applying its existing regulatory expertise to the implementation of open access in merged systems. As competitive generation grows, utilities might best protect their remaining monopoly power by providing competitors with unequal transmission access. If so, the FERC should find a merger consistent with the public interest in competition if it determines that the post-merger utility will comply with all open access practices and standards in effect. If it analyzes capacity or energy markets, the FERC should take great care before applying the Guidelines to them.⁷⁹ If it finds risks that open access will be administered anticompetitively, the FERC should explore conditions on the merger. It might require the reformulation of questioned contract or tariff provisions (beyond the requirements of Order 888).⁸⁰ If operating practices carry risks of anticompetitive action, the FERC might require an Independent System Operator (ISO). If market imperfections will give the merged system an unwarranted competitive edge, the Commission might consider specifying characteristics of the power exchange institutions the merged company operates under.⁸¹

Orders 888 and 889, and the *Pro Forma* Open Access Tariffs, specify institutions and practices intended to allocate transmission and related facilities competitively: an allocation process and reservation priorities for existing capacity, a requirement of efforts to expand congested facilities, a nondiscriminatory and uniform system of information exchange, and a mechanism for reassignment of capacity. The details of capacity reservation and transmission pricing necessary for competitive access are subjects of separate proceedings.⁸² If those proceedings produce efficient reserva-

78. PAUL W. MACAVOY, MICHAEL DOANE, & MICHAEL WILLIAMS, FEDERAL ENERGY REGULATORY COMMISSION ORDER NO. 636 AS THE PENULTIMATE REGULATORY REFORM OF THE GAS INDUSTRY (JOHN M. OLIN FOUNDATION WORKING PAPER, No. 38, 1995).

79. The case against using capacity and energy markets for any purpose appears in Section VI *infra*.

80. That Order requires the reformulation of unnecessarily discriminatory coordination and pooling contracts. Order No. 888, at 177, 261.

81. Order No. 888, at 279 sets down the FERC's criteria for Independent System Operators. Some economists believe that exchange institutions and the ISO cannot be separated without a loss of economic efficiency. See William W. Hogan, *A Wholesale Pool Spot Market Must Be Administered by the Independent System Operator: Avoiding the Separation Fallacy*, 8 ELEC. J. 26 (Dec. 1995).

82. *Capacity Reservation Open Access Transmission Tariffs*, Docket No. RM96-11-000, F.E.R.C. STATS. & REGS. ¶ 32,517 (1996); *Inquiry Concerning the Commission's Pricing Policy for Transmission Services Provided by Public Utilities Under the Federal Power Act*, F.E.R.C. STATS. & REGS., Regs. Preamble ¶ 31,005, 59 Fed. Reg. 55,031 (1994).

tion and pricing schemes, open access will have brought about the competitive market for delivery that is the necessary complement of competitive markets for energy and capacity.⁸³

Access as a merger screen is consistent with the FERC's view that open access tariffs for comparable services mitigate or remove market power in transmission.⁸⁴ It can also be considered a relevant market whose product is the right of access to transmission in the merged system.⁸⁵ Although open access deprives HHIs of much meaning, if the FERC wishes to do so it can calculate them for existing users of the network or subsets of it. Whatever the calculated value, the merger should rise or fall according to whether the market for access satisfies the Guidelines' standards for ease of competitive entry.⁸⁶ The FERC has acknowledged that existing markets for capacity reassignment allow "transmission customers to compete with the owner to some extent in the firm transmission market."⁸⁷

An access standard makes exclusionary conduct and situations that are conducive to it easier to identify. For example, the *Otter Tail* Court would have received better guidance from a market for access rights than it received from the retail market that it accepted. *Otter Tail* participated in wholesale pooling activities over the upper midwest and wheeled extensively for other transmission-owning utilities.⁸⁸ Its wheeling policies, however, excluded potential competition for transmission access from new municipal systems. By excluding municipals, *Otter Tail* profited from its ability to foreclose their alternatives. To reach the "right" result from anti-trust precedent, the *Otter Tail* Court had to rely on an uninformative calculation of franchise shares and to disregard shares that indicated that the company lacked monopoly power in transmission. Defining the relevant market as one for access rights leaves fewer gaps in the logic.

B. Access Present and Future

The electricity markets of the future will probably contain commodities and services that are unknown today. Some transactions that are common today will probably lose importance as the industry changes. The market institutions of the future will also differ, both from today's institu-

83. Transmission pricing is complicated by a lack of consensus about efficient rate designs and the administration of transmission allocations in the presence of real-time power flows. See Hogan, *supra* note 70; Shmuel Oren *et al*, *Nodal Prices and Transmission Rights: A Critical Appraisal*, 8 ELEC. J. 24 (Apr. 1995); IPALCO ENTERPRISES, INC., A WHITE PAPER FOR RESTRUCTURING THE ELECTRIC UTILITY INDUSTRY (1995).

84. Order No. 888, at 38; *Southern Company Services, Inc.*, 75 F.E.R.C. ¶ 61,130 (1996). Beyond access, the Commission also considers whether affiliate abuse or reciprocal dealing can enhance market power. *Id.*

85. The FERC has previously treated rights as relevant commodities, e.g., franchise competition as rivalry for the right to serve an area. See *Southern California Edison Company*, 40 F.E.R.C. ¶ 61,371 (1987).

86. 1984 Guidelines § 3.3.

87. Notice of Proposed Rulemaking, IV F.E.R.C. STATS. & REGS. ¶ 32,514, at 33,088.

88. See Kleit & Michaels, *supra* note 63, at 697.

tions and from those institutions that many conjecture that they will see. An access-based standard is well-suited for mergers in an industry whose future shape is so uncertain. The standard adapts well because access is the right to transmission of any product that might be invented rather than only those products that are traded today. Whatever market institutions evolve, traders will require transmission access to arrange their receipts and deliveries. An access standard also transcends changes in the numbers and types of eligible transmission users. If retail customers gain wheeling rights, the criteria for openness will be the same that apply in markets that currently exclude them. The standard of competitive access also adapts easily to changes in the federal-state jurisdictional boundary and is consistent with differing state policies on retail wheeling.

In recent merger dockets, the FERC has usually singled out short-run capacity, nonfirm energy, and transmission as relevant markets.⁸⁹ As open access becomes general and markets evolve, the opportunities for users to assemble their preferred power supplies from unbundled components will grow apace. Under the Guidelines, relevant products are determined by interchangeability. As markets evolve with open access so will the boundaries within which products are interchangeable. If the industry's institutions are changing drastically, the products relevant for today's mergers are less likely to remain relevant than they would if mergers were taking place against an unchanging institutional background. Market geography will also change. In recent mergers, the FERC has accepted wholesale markets that include only systems that are one or two wheeling transactions away from the new company.⁹⁰ In at least one recent merger, this geography excluded from the market long-distance transactions that are actually taking place.⁹¹ Under open access, only cost will limit the scope of power exchanges, and shares in such arbitrarily defined markets will lose any relevance they might have today.⁹² If open access makes currently uncommon transactions such as transmission by displacement more feasible, it will also change market areas in unpredictable ways.

Just as predicting new institutions and products is inherently risky, so is predicting a merger's long-term effects by examining how it plays under today's market power standards in today's markets. Merging utilities often state an intention to compete by inventing new products, new types of

89. John S. Moot, *A New FERC Policy for Electric Utility Mergers?* 17 ENERGY L.J. 139, 144 (1996). In other mergers and power marketing dockets, the FERC has treated transmission as relevant, sometimes breaking it into short-term and long-term. See *Utah Power and Light*, 45 F.E.R.C. ¶ 61,095, at 61,284 (1988); *Entergy Systems, Inc.*, 53 F.E.R.C. ¶ 61,234 (1992).

90. Moot, *supra* note 89, at 148-149.

91. *Baltimore Gas and Electric Company and Potomac Electric Power Company, Commissioners Santa and Baily, Dissenting*, *supra* note 9, slip op. at 4.

92. One author finds that existing transmission rates so constrain energy markets that almost any merger becomes questionable under the Guidelines. Carmen D. Legato, *Electric Mergers: Transmission Pricing, Market Size, and Effects on Competition*, 134 PUB. UTILS. FORT. 23 (June 1, 1996).

transactions and new market institutions.⁹³ The power markets that cover the west today grew and changed over three decades in ways that no one could have predicted when transactions began.⁹⁴ One might justifiably question proposals that the FERC can expedite merger processing if it institutes a rulemaking to define a generally applicable set of markets using computer models of power flows.⁹⁵ Beyond the risk of error, when the environment is changing so rapidly, computerized economics is inherently contentious. In the 1980s, conflict over computer models in California's resource planning process led to legislation that identified acceptable software by name and required annual reports by the Public Utilities Commission to the legislature. The legislation could not reconcile differences between utilities and intervenors over data used as input to the models, and the subsequent record "leaves an impression that disputes were fundamentally settled by negotiation rather than fact."⁹⁶

V. CAPACITY AND ENERGY AS RELEVANT MARKETS

Open access may nullify monopoly power in transmission, but the FERC believes it possible that an open access utility can have monopoly power over capacity or energy.⁹⁷ The FERC now presumes that open access utilities requesting market-based energy prices have no monopoly power in new generation.⁹⁸ Regarding existing capacity, however, merger could conceivably create a utility with monopoly power even if neither of the parties alone possessed it. Before concluding that a market study of capacity or energy is warranted, a cost-benefit analysis is in order. The FERC can impose costs on society by approving mergers that turn out anticompetitive and by rejecting mergers that would have increased competition. Foregone competitive benefits and deadweight losses from monopoly are amounts that economists treat symmetrically.⁹⁹ Cost-benefit analysis is an exercise at the margin: If a merger has passed the open access screen, does further study of energy or capacity increase the likeli-

93. For a sample of possible offerings, see SHMUEL OREN & S. SMITH (EDS.), *SERVICE OPPORTUNITIES FOR ELECTRIC UTILITIES: CREATING DIFFERENTIATED PRODUCTS* (1993).

94. Robert D. Glynn Jr., *Offering Customers Direct Access: Using Choice to Stimulate Competition*, 7 *ELEC. J.* 52 (Dec. 1994); Robert J. Michaels, *Wholesale Pooling: The Monopolist's New Clothes*, 7 *ELEC. J.* 64 (Dec. 1994).

95. Comments of the U.S. Department of Justice, F.E.R.C. Docket No. RM96-6-000, Appendix at A5.

96. Edward Kahn, *Regulation by Simulation: The Role of Production Cost Models in Electricity Planning and Pricing*, 43 *OPERATIONS RES.* 388, 395 (1995).

97. *Baltimore Gas and Electric Company and Potomac Electric Power Company*, *supra* note 9, slip op. at 12.

98. Order No. 888, at 63.

99. The law's emphasis on incipient monopoly may require that the authorities weigh a dollar lost through a monopolistic merger more heavily than to a dollar saved through an efficient one. See note 43 *supra*. In its rulings on mergers, the FERC should specify (to the extent possible) the relative weights it is placing on the two outcomes.

hood that the FERC will reach a correct decision?¹⁰⁰ That research will be beneficial if it provides information that the open access analysis does not, and if the accuracy and relevance of this information reduces the FERC's uncertainty.¹⁰¹

Applying the Guidelines, however, is particularly problematic in markets where commodities, geography, traders, and institutions are all in flux. The Guidelines may pass a cost-benefit test for mergers in unregulated industries. They do so, however, not because they are effective discriminators, but because if premerger screening must be done there is no clearly superior alternative. The antitrust agencies defer to the FERC's expertise, and that expertise surely includes insight into the nature of power markets that goes beyond generalities about concentration. The FERC should use the Guidelines only if it has reason to believe them the best tool to apply to the markets it understands.¹⁰² Before accepting the Guidelines, the FERC should try using some available data to test their applicability. The Commission has yet to produce publicly available studies of such basics as the relationship between energy prices and seller concentration, or the effect of open access on those prices.¹⁰³

Capacity and energy markets are often defined by the service areas and interconnections of utilities, pools, and reliability councils. Those areas have usually taken their existing shapes because of politics or historical accident (e.g., past mergers) rather than as outcomes of market forces. They were also shaped by electrical technologies that once required companies to be self-sufficient. Measures of size or concentration based on such territories can be unreliable and misleading, as they were in *Otter Tail* and are today under rules-of-thumb that limit trading distances to one or two wheeling transactions. Increasing competition will bring pressure on utilities to merge irrational territories or otherwise change their operations.¹⁰⁴ Whether or not utilities merge, the areas over which they transact

100. The text abstracts from the cost of performing and evaluating the additional studies. The costs of delaying a worthwhile merger probably outweigh the expenses on expert work by applicants, intervenors, and Commission staff.

101. The text is a capsule summary of a complex process. See R. DUNCAN LUCE & H. RAIFFA, *GAMES AND DECISIONS* (1957); RAIFFA, *DECISION ANALYSIS: INTRODUCTORY LECTURES ON CHOICE UNDER UNCERTAINTY* (1968).

102. It is not clear how the Commission should weigh the absence in some recent proceedings of intervenors with specific concerns about prices, e.g., *Baltimore Gas and Electric Company and Potomac Electric Power Company*. Commissioners Santa and Baily, *Dissenting, supra* note 10, slip op. at 4; *Washington Water Power Company and Sierra Pacific Power Company*, 73 F.E.R.C. ¶ 61,218 (1995).

103. Research using utility and market data will require ingenuity and rigor, and economists will probably differ on research methods and interpretation of results. Such research, however, adds to useful knowledge at costs that are small when compared with the loss if the FERC decides a merger incorrectly. As examples of such work, not directly applicable to mergers, see Jan Paul Acton & Stanley M. Besen, *Assessing the Effects of Bulk Power Rate Regulation: Results from a Market Experiment*, 19 APPL. ECON. 663 (1987); Douglas Gegax & John Tschirhart, *An Analysis of Interfirm Cooperation: Theory and Evidence from Electric Power Pools*, 50 SOUTHERN ECON. J. 1077 (1984).

104. As an analogy, airline route awards under Civil Aeronautics Board regulation were determined in part by politics, leaving the typical airline with an economically irrational grid that it could not sustain if required to compete. Airlines responded to deregulation by: [1] merging where

will change as competition grows and regulation changes.¹⁰⁵ If economic and political forces will so change markets, the long-term relevance of any statistics that use today's territories should be demonstrated rather than assumed.

Market forces are also changing the identities of economic and uneconomic power producers in ways that measures of concentration do not capture. Increasing amounts of generation are being constructed by non-utilities. As market forces increase the fraction of generation owned by non-utilities, they also increase the fraction of older utility-owned plants that will be economically unable to compete.¹⁰⁶ Measures of concentration become particularly suspect when analyzing efficient plants because they will depend on market prices of the future that are intrinsically unknowable today.¹⁰⁷ Investments in efficient new plants have been a major force in expanding market areas. This expansion will continue as the proportion of efficient plants rise and open access becomes universal.

Open access changes product interchangeability and conditions of market entry. As it puts neighboring utilities under more uniform rules, open access increases their freedom to experiment with transactions that mitigate distance-related restrictions on market areas. Open access may also facilitate the entry of new producers because it guarantees them the same transmission rights as existing ones. If gas is an apt analogy, open access that makes transmission more competitive can also increase competition in power production.¹⁰⁸ Even in the worst-case scenario of collusion in generation markets, open access can help destabilize restrictive agreements because it prohibits transmission owners from using exclusion as an enforcement device. With or without open access, a transmission owner can attempt to operate its system to favor its own power production.¹⁰⁹ The transmission owner's likelihood of success, however, probably depends more on details of the implementation of open access than on the concentration of generators in its area.¹¹⁰

The institutions that underlie market exchange determine both the possibilities for competition and the efficiency with which markets operate. In most industries, merger analysts can safely assume that future sellers will be operating in markets that resemble today's. In electric utilities, mergers are occurring amidst regulatory changes that will bring new market institutions. For mergers whose HHIs cause concern, the Guidelines call for an examination of how market institutions may affect post-merger competi-

route systems complemented one another; [2] entering new city-pair markets where they were more efficient than incumbents; and [3] altering established schedules to hub-and-spokes patterns.

105. DOJ, May 7 Comments, RM 96-6, Appendix at A5.

106. Lewis J. Perl, *Measuring Market Power in Electric Generation*, 64 ANTITRUST L.J. 311 (1996).

107. The uncertainty of future market prices gives another reason to question the applicability of the Guidelines. What is the significance of a five percent increase when today's prices are set by a mix of competition and regulation, in markets whose institutions are still developing?

108. Michaels & De Vany, *supra* note 14, at 328.

109. DOJ, May 7 Comments, RM 96-6 at 11; John W. Wilson, *Merger Policy Guidelines for the Electric Power Industry*, 9 ELEC. J. 14 (Jan./Feb. 1996).

110. This matter is discussed further in Section VI *infra*.

tion.¹¹¹ If future market institutions are unknown, however, the HHI may lose whatever inferential value it has in markets whose institutions are not changing.

Some commentators hold that experience with the United Kingdom's mandatory and centralized electricity pool market provides evidence that higher seller concentration leads to higher prices.¹¹² U.K. generators apparently act strategically to produce energy prices that sometimes exceed the operating cost of the most costly plant bid into the pool.¹¹³ Market institutions there, however, may require that price exceed operating costs if suppliers are to meet their capital obligations.¹¹⁴ Norway has an unconcentrated generation industry and a voluntary pool. Nearly ninety percent of power in Norway is traded under contracts that are independent of the pool, making it hard to determine how closely prices track costs.¹¹⁵ This superficially less efficient bilateral market may produce more nearly competitive outcomes than the centralized exchange in the U.K. If Norway's performance is in fact superior, it could be due to either the larger number of sellers or to the absence of compulsory institutions that facilitate coordinated action by U.K. generators. In another variation, Chile's mandatory pool buys from producers whose HHI exceeds that of the U.K. generating sector, but Chilean prices track costs quite closely.¹¹⁶ If institutional differences can lead to substantially different market outcomes, the relevance of concentration statistics must be questioned.

111. 1992 Merger Guidelines § 2.

112. See, e.g., Comments of the Staff of the Bureau of Economics of the FTC, F.E.R.C. Docket Nos. RM95-8-000 and RM94-7-001 (Aug. 7, 1995), at 3 and 8.

113. Stephen Littlechild, *Competition, Monopoly, and Regulation in the Electricity Industry*, in MICHAEL EINHORN (ED.), *FROM REGULATION TO COMPETITION: NEW FRONTIERS IN ELECTRICITY MARKETS* 125 (1994); Richard J. Green & David M. Newbery, *Competition in the British Electricity Spot Market*, 100 J. POLIT. ECON. 929 (1992); David M. Newbery, *Power Markets and Market Power*, 16 ENERGY J. 39 (1995); FRANK A. WOLAK & ROBERT H. PATRICK, *THE IMPACT OF MARKET RULES AND MARKET STRUCTURE ON THE PRICE DETERMINATION PROCESS IN THE ENGLAND AND WALES ELECTRICITY MARKET* (1996). All generators bidding into the pool receive the same price as the marginal generator.

114. In Great Britain only an energy price can be bid into the pool, leaving the question of capacity payoff. Plant owners without power purchase commitments may need to bid more than marginal cost if they hope to recover their investments. The pool energy rate includes an adder that is paid when capacity is short, but in practice, plants are not financed by gambling on the adder. See Michaels, *supra* note 94.

115. Dan W. York, *Competitive Electricity Markets in Practice: Experience from Norway*, 7 ELEC. J. 48 (June 1994); Jan Moen & Jan Hamrin, *Regulation and Competition Without Privatization: Norway's Experience*, 9 ELEC. J. 37 (Mar. 1996). Nearly all generation in Norway is hydroelectric, a technology for which marginal costs are particularly hard to conceptualize.

116. R. Peter Lalor & Herman Garcia, *Reshaping Power Markets: Lessons from South America*, 9 ELEC. J. 63 (Mar. 1996). Chile's Interconnected Central System accounted for 87 percent of that country's 1988 power production and had an HHI of 3,400. The HHI for generation into the U.K. pool in 1992-93 was 2,900. Both of these mixes include plants which must run independent of prices [e.g., nuclear] and plants which are only conditionally available [e.g., hydroelectric]. Pablo T. Spiller & Luis Viana Martorell, *How Should It Be Done? Electricity Regulation in Argentina, Brazil, Uruguay, and Chile*, in RICHARD J. GILBERT & EDWARD P. KAHN (EDS.), *INTERNATIONAL COMPARISONS OF ELECTRICITY REGULATION* 82, 116 (1996); STEPHEN LITTLECHILD, *COMPETITION, MONOPOLY AND REGULATION IN THE UK ELECTRICITY INDUSTRY* 4 (1993).

VI. HOW USEFUL IS ANTITRUST?

Despite the ambiguity surrounding the concentration-performance relationship in electricity, some economists recommend more active anti-trust intervention in utility mergers. Writing for the American Public Power Association, Professor William Shepherd believes that without anti-trust the current merger wave will lead to dominance of the industry by a small number of firms.¹¹⁷ The poor performance of dominant firms in unregulated industries is a complex issue, and Shepherd offers no quantitative evidence on the effects of dominance in electricity.¹¹⁸ Some economists favor antitrust policy that prohibits or strongly conditions mergers that violate bright-line quantitative standards.¹¹⁹ Others favor superimposing on the Guidelines a rule of reason based on the facts of each merger.¹²⁰

To its supporters, antitrust can attack both horizontal market power that arises when mergers concentrate generation and vertical market power that arises when an integrated utility compels customers to take uneconomic power by denying them transmission access to alternatives.¹²¹ As discussed above, the rationale for intervention in capacity and energy markets is not compelling. Regarding transmission, antitrust activists doubt that open access will be sufficient to eliminate the risk of vertical market power. Their major concern is that transmission owners can manipulate availability and operating procedures to favor their own transactions over those of competitors.

. . . “[O]pen access” is probably no major cure for monopoly power. . . The problem is that electricity services can be extremely complex, particularly involving long-run full-reliability services. . . The terms of access can be a thicket of difficulties, in which “open access” is actually pretty much closed to competition. . . But even if all conditions could be arranged perfectly, access may leave major degrees of monopoly power undisciplined.¹²²

117. WILLIAM G. SHEPHERD, *APPLYING ANTITRUST TO MERGERS IN THE ELECTRICITY INDUSTRY*, APPENDIX A TO JOINT PETITION OF THE AMERICAN PUBLIC POWER ASSOCIATION AND THE NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION FOR A RULEMAKING PROCEEDING TO REVISE THE COMMISSION'S STANDARDS APPLICABLE TO THE MERGER OF PUBLIC UTILITIES UNDER § 203 OF THE FEDERAL POWER ACT (Jan. 17, 1996).

118. *Id.* at 8. His examples of dominance include Kodak (which has exited mass-market cameras and lost its dominance in film), IBM (whose former dominance in mainframes did not reach personal computers), and Xerox (inventor of the copying process, but now a minor player in the industry). Dominant at one time, such firms can equally be viewed as examples of how competitive markets function in reality. Each started small, grew with the help of innovation, and lost its position to a new wave of innovators.

119. Wilson, *supra* note 109, at 16. His citations on the relevance of seller concentration cover only unregulated industries.

120. MARK W. FRANKENA & BRUCE M. OWEN, *ELECTRIC UTILITY MERGERS: PRINCIPLES OF ANTITRUST ANALYSIS* (1994).

121. Some analysts also believe that antitrust may be helpful in attaining goals usually considered beyond economic analysis such as “fairness” and “freedom of choice.” *See, e.g.*, Shepherd, *supra* note 117, at 6. Likewise, economics may not subsume Wilson's concern that regulators “cannot adequately control the strategic power that these merged enterprises will still enjoy in dealing with would-be rivals.” Wilson, *supra* note 109, at 16.

122. Shepherd, *supra* note 117, at 23.

As examples, utilities might alter the transmission available to generation competitors by strategically reconfiguring their own operations, by transacting for themselves to produce parallel flows on lines that are important for competitor transactions, and by strategically scheduling or neglecting maintenance.¹²³ Some of the transmission discrimination episodes cited in Order 888 could probably have been attempted by utilities in an open access regime as well.¹²⁴

The relevance of antitrust to operational incidents such as these is unclear. As noted in the discussion of *Otter Tail*, a utility's absolute size is of little consequence for its monopoly power over a single customer's transmission alternatives. Because transmission is a singular resource operating under technical circumstances that regulators cannot monitor perfectly, its owners will quite possibly have leeway to manipulate it as alleged. They will, however, have this power whether antitrust oversight of generation is tight or lax. Instead of an antitrust issue, this is a situation in which efficiency may require that the ownership of transmission be separated from its control. If this separation is warranted, formation of an Independent System Operator may be in order.¹²⁵

Disputes over transmission operation are to be expected during the transition to an open access regime. It is unlikely that filed tariffs and service contracts will cover all of the contingencies that turn out to be relevant in a market that has hardly existed before now. Beyond unforeseen events, utilities and wheeling customers may differ in their interpretations of contract terms. One expects a disproportionate amount of litigation during a market's formative period because it is then that unforeseen opportunities and unanticipated conflicts will probably arise in the greatest numbers. Precedents set in litigation give market participants knowledge of the operational consequences of their agreements and encourage them to contract more efficiently in the future.¹²⁶ Agents in any market can act opportunistically to avoid undesired outcomes or to seek gains beyond those expected from a contract.¹²⁷ Both owners and users of transmission have incentives to allocate benefits to themselves and shift costs onto others. Either side can initiate disputes that become regulatory matters or lawsuits. Some disputes will be settled between the parties, and the settlements will become precedential, while regulators or courts will impose solutions in others.

123. MARK W. FRANKENA, BACKGROUND FOR THE 1996 DEBATE ON FERC'S ELECTRIC UTILITY MERGER POLICY, 10 (1996).

124. Order No. 888, at 128. Appendix C contains summaries of some incidents that have appeared in merger testimonies. In some cases (e.g., App. C at 13, Item 5), the utility's actions were found consistent with its wholesale contracts and the antitrust laws.

125. The ISO, however, will likely be designed in part by the transmission owners, introducing the opportunity for manipulation because of specialized knowledge at the design rather than operational level. See *IPPs, Power Marketers Vote No On PJM Transmission Proposal*, ENERGY DAILY, Aug. 22, 1996.

126. See, e.g., ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 492 (1988); and George Priest, *The Common Law Process and the Selection of Efficient Rules*, 6 J. LEGAL STUD. 65 (1977).

127. Benjamin Klein, Robert G. Crawford, & Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J. L. & ECON. 297 (1978); OLIVER WILLIAMSON, ECONOMIC ORGANIZATION 101, 197 (1986).

Antitrust can be used as a strategic tool to impede rather than foster competition, and treble damages may motivate private plaintiffs to turn contract disputes into antitrust suits.¹²⁸ If experience with gas pipelines is relevant, however, antitrust may have a minimal impact on the transition. Few pipeline antitrust cases reached the appellate courts, and those courts were often able to distinguish efficiency from opportunism.¹²⁹ Operational disputes arose between pipelines and shippers, but few if any became claims that capacity was anticompetitively withheld. As its details became more transparent, open access facilitated new competition in interconnections, storage, market centers, and released capacity that further diminished the monopoly power of pipelines.¹³⁰

Finally, there are no guarantees that the FERC and the courts will rule in accordance with an activist vision. Utility defendants often prevailed in pre-EPA antitrust suits over transmission. As examples, in *Borough of Lansdale v. Philadelphia Electric Company*, the Third Circuit held that defendant did not have monopoly power in the relevant market because plaintiff could have built its own lines to the bulk power market.¹³¹ In *Town of Concord v. Boston Edison Company*, the First Circuit made price squeeze cases more difficult by requiring a showing of actual competition between a utility and its wholesale customer.¹³² In *Cities of Anaheim, et al v. Southern California Edison Company* the Ninth Circuit found a business justification for denial of access to fully-loaded transmission that would have allowed municipal systems to purchase Preference Power for themselves.¹³³ Defendant's offer of interruptible service on these lines was deemed reasonable because municipals had transmission rights that allowed them to import power from other regions. In a related case, the same court stated that the City of Vernon's request for similar access that would only transfer benefits from the transmission owner to itself would "stand the essential facilities doctrine on its head."¹³⁴ It is not clear how EPA and Order 888 might affect the antitrust aspects of these decisions.

128. William J. Baumol & Janusz A. Ordover, *Use of Antitrust to Subvert Competition*, 28 J. L. & ECON. 247 (1985).

129. In *State of Illinois ex. rel. Burris v. Panhandle Eastern Pipeline Company*, 935 F.2d 1469 (7th Cir. 1991), plaintiff was denied the right to purchase gas at market prices in lieu of supplies that it had contracted for with defendant at the high prices that prevailed in the early 1980s. In *City of Chanute et al v. Williams Natural Gas Company*, 955 F.2d 641 (10th Cir. 1992), the court found that defendant had a business justification for closing its pipeline to interim open access, and that an offer to sell gas at prices approved by the FERC constituted reasonable access.

130. See Michaels & De Vany, *supra* note 14, at 320.

131. *Borough of Lansdale v. Philadelphia Electric Co.*, 692 F.2d 307 (3rd Cir. 1982).

132. *Town of Concord, Mass. v. Boston Edison Co.*, 915 F.2d 17 (1st Cir. 1990).

133. *Cities of Anaheim et al v. Southern California Edison Company*, 955 F.2d 1373 (9th Cir. 1992). This case (and *City of Vernon infra* note 134) litigated alleged incidents of transmission discrimination described in Order No. 888, App. C.

134. *City of Vernon v. Southern California Edison Company*, 955 F.2d 1361, 1367 (9th Cir. 1992).

VII. CONCLUSIONS

Premerger approval leaves the antitrust agencies and the FERC with the task of predicting when a proposed merger is likely to significantly reduce competition in a relevant market. Economics has not yet reached the state that it can make such a prediction with reasonable certainty, and the costs of error can be high for the economy. In electric utility mergers, preapproval is particularly thorny because markets are harder to define and quantify in a regulated industry than they are in an unregulated one. The Guidelines are also hard to apply in electricity because technological and regulatory forces are dramatically changing the environment as the mergers go forward. There is good reason to expect that the markets in which the merged utilities will operate will be quite unlike markets of the past, in those cases where markets even existed.

A merger analysis must look forward, but with the knowledge that policies to ensure competitive conditions in today's markets will not necessarily do so in tomorrow's markets. Merger policy that operates under such uncertainty can best anticipate the unknown by first identifying the assets utilities can use to block new competition and determining how a merger will affect the gains from using them. Those assets are in transmission and not in generation. A merger is more likely to harm competition because of its effects on transmission than its effects on energy markets. Open access protects both competition in existing markets and competition to reshape markets by introducing new products and trading institutions. The single most relevant market for both types of competition is the market for rights to use transmission.

Despite the prominence usually given to statistics of energy market concentration in utility mergers, those markets are only relevant if relationships between concentration and price assumed in the Guidelines are valid in electricity. The Guidelines are in reality a weak foundation for merger policy, both in electricity and elsewhere. The necessity of open access to foster the development of a competitive power industry has never been in doubt. The FERC should take seriously the possibility that open access is also the only necessary policy.