UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
WASHINGTON, D.C. 20580

BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION
DEPARTMENT OF ENERGY
WASHINGTON, D.C.

In the Matter of
Inquiry Concerning Commission's
Merger Policy Under the Federal
Power Act
Docket No. RM96-6-000

Comment of the Staff of the Bureau of Economics of the Federal Trade Commission(1)

May 7, 1996

1. Introduction and Summary.

The staff of the Bureau of Economics of the Federal Trade Commission (FTC)(2) appreciates this opportunity to respond to the Federal Energy Regulatory Commission's (FERC) notice of inquiry.(3) The staff of the FTC has a longstanding interest in regulation and competition in energy markets, including proposals to reform regulation of the natural gas and electric power industries.(4)

As we observed in our comment on open access,(5) competitive opportunities in the generation and transmission of electric power have burgeoned in the last decade, stimulated by changes in relative costs of different types of generating plants and by changes in laws and regulations. To remove obstacles to increased competition, FERC has approved rules that call for utilities to offer open, nondiscriminatory access to wholesale transmission services. FERC now inquires: what is the appropriate merger analysis for FERC in this new technical and regulatory setting?

Detailed competition analysis, including assessment of the relevant product and geographic markets (including market structure), competitive effects, entry conditions, and efficiencies, is the appropriate approach to screen out mergers that will harm competition and consumers. In our view and experience, there is no good substitute in the process of determining the competitive effects of a proposed merger for detailed competition analysis addressing the principal supply and demand conditions that shape pricing and output decisions in a market. Such an inquiry is likely to increase the accuracy of merger analysis and reduce the incidence of errors in decisions. Errors may include allowing an anticompetitive acquisition or blocking a competitively neutral or procompetitive acquisition. Both kinds of errors may be costly to consumers.

In order to systematize its merger analysis, FERC may wish to rely upon the Horizontal Merger Guidelines issued by the FTC and Department of Justice in 1992. The Guidelines provide a framework for merger analysis based on general principles of economics and law. The Guidelines articulate the steps in analysis as well as providing examples of particularly salient facts and conditions in merger analysis. In this submission, we provide some initial economic perspectives on competition issues likely to arise in the electrical power industry. The appendix

is the FTC/DOJ model second request document and narrative which commonly is used as a starting point for FTC staff in gathering detailed information about a proposed acquisition. FERC may wish to review the sources and types of information it receives in its merger analysis in order to be assured that the pertinent data and documents are being obtained.

It appears unlikely that open access in and of itself will eliminate a need for merger analysis in all electricity markets. While open access is likely to increase the size of geographic markets and make entry easier, bottlenecks, distance, demand peaks, and institutional constraints may well remain sufficient to raise competition problems in some electricity markets. As we stated in our open access comment:

Open access will affect, but not obviate, FERC's assessment of competitive conditions in electric power generation, including its analysis of "generator dominance." ... Expanding the number of suppliers potentially available is likely to make the electric power system more efficient and more competitive, but there may be circumstances, even under open access conditions, in which dominant suppliers might be able to exercise market power. Competitive conditions among mid-cost plants could be particularly significant.

Experience in the open access environment of the U.K. (discussed below in section 3) appears to have been sufficient to dispel the hope that open access will uniformly obviate market power concerns.

2. The FTC/DOJ Horizontal Merger Guidelines Provide a Strong Framework for Merger Analysis.

A useful framework for examining the competitive effects of industry concentration and other market characteristics is set out in the Horizontal Merger Guidelines issued in 1992 by the Department of Justice and the Federal Trade Commission.(6) Under the Horizontal Merger Guidelines, merger analysis begins with delineation of the relevant product and geographic markets. Market concentration is then evaluated for that product and that geographic area.(7) The Guidelines anticipate that, if concentration is high, coordinated interaction (collusion) or the exercise of unilateral market power will be more likely, in the absence of ameliorating factors such as easy entry.(8) If the entry of new competition would rapidly and effectively constrain a price increase, however, then a dominant firm or collusive group could not exercise market power even in a concentrated market.(9)

Product Market and Geographic Market: According to the Horizontal Merger Guidelines: A market is defined as a product or group of products and a geographic area in which it is produced or sold such that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future producer or seller of those products in that area likely would impose at least a "small but significant and non-transitory" increase in price, assuming the terms of sale of all other products are held constant. A relevant market is a group of products and a geographic area that is no bigger than necessary to satisfy this test. The "small but significant and non-transitory" increase in price is employed solely as a methodological tool for the analysis of mergers: it is not a tolerance level for price increases.

Given that the product market is defined in terms of the demand conditions under which a hypothetical monopolist could profitably raise price by a small non-transitory amount and that electricity cannot be readily stored for subsequent consumption, any individual electrical industry merger is likely to involve a number of separate product markets that are based in large part upon reliability or accessibility.(10) Demand characteristics for electricity and transmission services are likely to differ, for example, at different times of the day, different seasons of the year, different points in the business cycle, with different levels of risk of service interruption, and for different lengths of contract. For example, one could distinguish three product markets based on different durations of supply agreements: short-term energy or capacity, intermediate capacity, and long-term capacity. (Werden, 1996) Potentially, sales to differently situated customers may constitute separate markets if differential pricing is feasible.

Perhaps the most critical element in an analysis of electricity mergers is the extent of the relevant geographic market. Defining the geographic market may be difficult because it may involve many factors and factor interactions. The

hypothetical monopolist in a particular hypothesized geographic market may face very different degrees of constraint from more distant alternative supply sources at different times of the day, different times of the year, different points in the business cycle, etc., leading to the conclusion that the geographic market differs for different product markets related to the same acquisition. Differences in the degree and sources of geographic competition may arise because the temporal distinctions between product markets may well be associated with variations in transmission conditions, generating conditions, and existing transmission and generating obligations. For example, supply from generator X that is currently contractually obligated to supply local load is unlikely to be part of the market for short-term capacity to serve distant area Y. However, supply from generator X might well be in the market for intermediate-term capacity to serve area Y, if the local contract of generator X expires before the intermediate term.

While the large number of relevant variations in conditions may make prediction of market participants difficult in the abstract, our experience suggests that parties may develop or commission analyses of transportation costs and other factors involved in geographic market delineation. In the case of electricity suppliers, computerized models of transmission systems developed and used by the merging parties may be fruitfully employed to assess critical elements for product and geographic market analysis. With such models, it may be possible to simulate the effects of a small, non-transitory price increase imposed by groupings of power suppliers over various alternative geographic areas to determine whether the price increases would be profitable for a hypothetical monopolist and therefore which of the areas constitute relevant geographic markets. Firms may perform many of the most relevant modeling exercises in the course of their own assessment of the implications of a proposed acquisition. In addition, documents recording actual suppliers under a variety of pricing conditions or under various prospective pricing conditions may provide similar insight.

As discussed below, changes in transmission pricing and other regulations can potentially alter the product and geographic market. Open access, congestion-based pricing, distance-based pricing, and other policies can dramatically affect the definition of the relevant market(s) for antitrust analysis. Firms' documents, including analyses of the effects of such changes on the incentives of likely competitors, may be particularly helpful in assessing prospective product and geographic market definitions.

Because of the great importance of geographic market delineation in prospective electric power industry mergers, FERC may wish to consider developing sufficient data and system modeling tools to be able to expeditiously screen mergers on the basis of the merger's likely relevant geographic market. An optimally designed system might allow FERC reliably to examine the likely relevant geographic market under different assumptions about future transmission rates, different projected transmission improvements, and different generation siting assumptions. Such an approach could reduce both private and governmental costs by speeding the analysis while providing reliable evaluations. Taking such a proactive approach may be cost effective in circumstances where regulatory changes at the state as well as Federal level are apparently prompting widespread industry restructuring. FERC may wish to consider technical conferences, investment in proprietary modeling techniques, or some other approach to obtain and update this type of system modeling capability.

Market Structure: With product and geographic markets defined, analysis of market structure is the next step in the Guidelines approach. When market concentration is high, there is an increased probability of anticompetitive effects (either due to unilateral market power or to coordinated interaction) absent ameliorating factors. Market concentration may be measured using either output or capacity.(11) In more homogeneous product markets, capacity is the more relevant measure while in differentiated product markets, output-based measures are usually a better indicator of firms' future competitive significance.(12) On this basis, the structure of intermediate- and long-term electricity supply markets is more likely to be reasonably measured by capacity. Short-term electricity supply markets may be better measured on the basis of output if differentiating factors such as reliability and access are important. Capacity or output which is contractually obligated to one set of customers may not be relevant in calculating market shares of potential suppliers for other customers.(13)

Competitive Effects: Once market definition and structural conditions have been determined, the analysis next turns to the issue of possible anticompetitive effects. This phase of analysis seeks to identify whether the acquisition would

create or enhance market power, how the market power would be exercised, and who would be adversely affected. The analysis is divided into unilateral market power and coordinated interaction market power inquiries. The former focuses on how the merged party acting alone could exercise market power, while the later focuses on how the creation of the merged party might influence interactions between current suppliers or between current and potential suppliers. The predicted, merger-related effects of these interactions could be procompetitive or anticompetitive on net. Under the Guidelines, the antitrust agency staff seeks to identify specific scenarios under which either form of market power may arise in one or more relevant markets. In assessing these scenarios, agency staff utilize, for example, insights from customers and third parties, documents from the merging firms, past industry behavior, economic theory, and experience in other industries.

Entry and Efficiencies: The next two elements of the Guidelines analysis are entry and efficiencies. Likely, timely, and sufficient entry may obviate concern about anticompetitive effects by assuring that increased supply from independent sources will defeat efforts to exercise market power. Lags in regulatory approvals and construction for new generating and transmission facilities may, however, make the entry element in merger analysis of limited significance for most electric power merger cases. Experience suggests that most generation and transmission projects take longer than two years. If so, according to the Guidelines, these forms of entry are unlikely to respond to an anticompetitive merger in time to deter or constrain the exercise of market power. (Werden, 1996) Should regulatory lags become less lengthy, however, entry conditions may become a more important consideration in analyzing electric utility mergers. Efficiencies associated with the specific acquisition(14) may also modify the final conclusions when anticompetitive effects are identified, if these efficiency gains are important and demonstrable.

Remedy: Finally, merger analysis must turn to the issue of remedy. The ideal remedy for an anticompetitive merger would remove the anticompetitive effect without hampering pro-competitive or efficiency-enhancing aspects of the acquisition. Sometimes this can be accomplished through divestiture of some or all of the overlapping assets without blocking the merger in its entirety.

3. In Assessing a Proposed Merger, Competitive Conditions in Generation Must Still Be Monitored Under Open Access.

Although open access may lead to increased competition in most markets, FERC should still examine actual market concentration and competitive conditions in determining whether to allow each proposed acquisition. Introducing open access to transmission would not prevent completely the exercise of market power in generation, but it is likely to limit the situations of competitive concern about market dominance through acquisitions. Open access could broaden the relevant geographic market for generation by alleviating impediments to wholesale wheeling. Broadening geographic markets typically results in lower concentration and thus reduced risk of market power. Opening a system to a larger number of generating plants could also lead to operating efficiencies, by more completely capturing gains from trade among facilities with different costs and by reducing the system's reserve requirements. Open access could increase the likelihood that a price increase attempted by the merger parties will be met by timely and sufficient entry, either by new generator construction, new transmission capacity, or new transmission rights. And with open access, entrants would be more likely to enjoy nondiscriminatory prices for transmission service. But open access alone would not eliminate the need to consider the problem of generation market power. Although market dominance situations may become rarer, they will not necessarily disappear, so the specifics of each case may still have to be evaluated.

Recent empirical work on electricity generation pricing in the United Kingdom may provide some insight about generator dominance and how to limit its effects.(15) The U.K.'s electric power reforms have taken place within the context of high concentration in generation. The findings of the U.K.'s electricity regulator and recent academic research show that the two dominant generators have exercised considerable control over price in many periods.(16)

Most relevant for this inquiry, however, is that for most of the year, the market price in the U.K. is determined by relatively few plants -- those with middle levels of cost.(17) Low cost plants are always dispatched (that is, operated). High cost plants are dispatched only at brief demand peaks or in emergencies. In most periods the marginal plants

that set the price are the middle cost plants. Given this pattern, greater competition among middle cost plants could make the exercise of market power more difficult even if capacity at the extremes is concentrated.(18) In deciding whether to relax regulation in a market under open access, attention might be focused on the ownership structure of the middle-cost sources. Higher concentration overall may be more acceptable if concentration among middle-cost plants is low.(19)

4. Efficiency Gains from Open Access Depend on Concurrent Reform of Transmission Pricing.

1. Transmission Rates Must Be Made Responsive to Economically Relevant Criteria.

Economically efficient transmission rates will be vital to obtaining the potential efficiency benefits of open access(20) and resolution of transmission pricing questions is also essential in the geographic market element of merger analysis. The transmission grid is likely to remain a regulated monopoly, no matter what method is used to ensure or encourage open access to it. FERC acknowledges that current "postage stamp" transmission rates are not sensitive to distance and actual electricity flows, and thus may not lead to economically efficient employment of, or investment in, generating capacity.(21) Unless transmission rates are economically efficient, open access will not serve to give buyers, sellers, and investors the right signals for developing new service alternatives, assessing where new plant and transmission lines should be located, or determining when entry is warranted. Transmission rates should send signals to allocate resources efficiently in the short run and to invest efficiently in the long run. Thus, transmission rates should respond to such factors affecting marginal cost as distance and time of day, and, where capacity constraints limit output, to the incremental cost of removing bottlenecks or adding capacity.

FERC's decisions about wholesale interstate transmission pricing methodology are likely to have a significant impact on the definition of the relevant geographic market. For example, charges that increase with distance should provide more efficient signals for transmission decisions than do "postage-stamp" charges, which are independent of actual distance, since transmission costs are more strongly related to distance than to the number of utility territories crossed. Geographic markets defined with respect to distance charges should correspond to underlying cost conditions more accurately than market defined with respect to postage-stamp pricing. Whether the resulting geographic markets are larger or smaller will depend on particular franchise configurations.

5. Conclusions.

Open access to transmission services should enable increased competition among power generators to benefit consumers through lower rates. In determining the appropriate level of regulation for wholesale electricity prices under an open-access regime, the analysis set out in the FTC and Department of Justice Horizontal Merger Guidelines provides a logical framework for evaluating the likely economic effects of concentration among suppliers, including suppliers of electric power. As part of its revised merger analysis, FERC may wish to develop electrical system models to help expeditiously assess the relevant geographic market in proposed mergers. As recent experience with the British electricity system suggests, dominant suppliers might exercise market power even in open access conditions. Competitive conditions among generation suppliers will still have to be examined in the context of an open access environment. However FERC chooses to achieve open access to transmission services, it is critical that transmission pricing be made economically efficient.

Respectfully submitted,

Jonathan B. Baker
Director

John C. Hilke
Economist

Michael O. Wise
Attorney
Bureau of Economics
Federal Trade Commission

May 7, 1996

1. This comment represents the views of the staff of the Bureau of Economics of the Federal Trade Commission. They are not necessarily the views of the Federal Trade Commission or any individual Commissioner.

2. This comment represents the views of the staff of the Bureau of Economics of the Federal Trade Commission. They are not necessarily the views of the Federal Trade Commission or any individual Commissioner. Inquiries regarding this comment should be directed to John C. Hilke (202-326-3483).

3. 61 Fed. Reg. 17,662 (February 7, 1996) [hereinafter "Notice" or "Proposal"].

4. The staff of the FTC has commented on electric power regulation to FERC, Dkt. RM95-8-00 and RM94-7-001 (August 7, 1995), to the South Carolina Legislative Audit Council (February 28, 1994) ("South Carolina Comment"), the California Public Utilities Commission, Nos. R94-04-031 and I.94-04-032 (June 8, 1994), and to FERC, Dkt. RM85-17-000 (1985). In addition, the staff of the FTC has often commented to FERC about natural gas regulation; see comments about pipeline regulation after partial wellhead decontrol, Dkt. RM85-1-000 (1985), alleged anticompetitive practices of pipeline marketing affiliates, Dkt. RM87-5-000 (1987), and capacity brokering, Dkt. RM88-13-000 (1988). The FTC regularly reviews proposed mergers involving gas and electric utility companies.

5. FERC, Dkt. RM95-8-00 and RM94-7-001 (August 7, 1995).

6. Although the Horizontal Merger Guidelines are applied to merger analysis, the general principles of industrial organization economics on which they are based are applicable to evaluations of market power generally. Publications elaborating the Guidelines and applying them to the electrical power industry include: Einhorn, Michael, *From Regulation to Competition: New Frontiers in Electricity Markets,* Boston: Kluwer Academic Publishers, 1994; Frankena, Mark, and Bruce Owen, *Electric Utility Mergers: Principles of Antitrust Analysis*, Westport, Conn.: Praeger Publishers, 1994; and Werden, Gregory, "Identifying Market Power in Electric Generation," *Public Utilities Fortnightly* (February 1996), pp. 16-21.

7. Concentration is measured by the Herfindahl-Hirschman Index (HHI), which is the sum of the squares of the market shares of individual firms. The Guidelines characterize markets as unconcentrated (HHI below 1,000), moderately concentrated (HHI from 1,000 - 1,800), or highly concentrated (HHI above 1,800). Horizontal Merger Guidelines, 1.5.

8. *See generally* Horizontal Merger Guidelines; F. M. Scherer and David Ross, Industrial Market Structure and Economic Performance (1990); and Douglas Greer, Industrial Organization and Public Policy (1992).

9. *See generally* Guidelines 3. Indeed, if entry is quick and the costs of entry are recoverable if the entry does not succeed, the exercise of market power is unlikely even if there is only one current supplier. See Guidelines 1.32; William J. Baumol et al., *On the Theory of Perfectly-Contestable Markets*, in New Developments in the Analysis of Market Structure (Joseph Stiglitz & C. Frank Mathewson, eds., 1986); William J. Baumol et al., Contestable Markets and the Theory of Industry Structure (1982); South Carolina Comment, *supra* note 3, Appendix B.

10. The remaining materials in this section borrow from the 1992 Guidelines, Frankena, Mark, and Bruce Owen, *Electric Utility Mergers: Principles of Antitrust Analysis*, Westport, Conn.: Praeger Publishers, 1994; Frankena, Mark, "*Electric Utility Mergers: Trends & Antitrust Update*," Washington, D.C.: Economists, Inc., 1996; and Werden, Gregory, "Identifying Market Power in Electric Generation," *Public Utilities Fortnightly* (February 1996), pp. 16-21.

11. *See* note 6.

12. *See* Guidelines 1.41.

13. Id.

14. The Guidelines do not generally give weight to efficiencies which could be obtained through less anticompetitive means. Such efficiencies need not be lost to society in the event the merger is blocked.

15. David Newberry, Power Markets and Market Power (1995, unpublished). In the U.K. system, "merit dispatch" -- that is, use of the lowest price sources to meet projected demand -- for each half hour is based on bids submitted the previous day. Thus, there are thousands of separate electricity "markets" each year, denominated by time because of the impossibility of storing large quantities of electricity economically for later use.

16. Newberry, *supra* note 21; *see* also South Carolina Comment, *supra* note 3, at 52-53, which observed:

Evaluators of the British system have emphasized one major drawback in the manner the reforms have been implemented. Although there are ten generator firms, the structure of the generating industry is essentially a duopoly because the government's generation capacity was divided into only two entities. Consequently, these two firms may be in a position to affect the market clearing price substantially, by withholding even a small portion of their capacity. In an effort to discourage strategic capacity withholding, new franchising rules require an operationally capable plant to offer a bid and require the major generating companies to offer for sale any plants that they are going to close or "moth ball."

17. Newberry, *supra* note 21. In the U.K., nuclear plants, with their low marginal costs, are run continuously. Natural gas plants are run only infrequently, as peaking capacity. Coal-fired plants tend to be the middle cost units.

18. In the U.K. experience, prices at peak periods have risen dramatically because the peaking plants are so costly to operate. In evaluating peak prices, it is important to distinguish scarcity rents from effects of market power. Scarcity rents are the excess of price over cost on inframarginal units of output in a competitive market during peak demand periods. Scarcity rents are an economic signal inviting entry or expansion. By contrast, market power effects appear when supply falls short of the competitive level because suppliers recognize that their output choices influence price. By withholding capacity, either individually, if they are dominant firms, or collectively, if they are coordinating their actions, firms with market power can profitably increase prices above the competitive level. If entry and expansion of generation is relatively easy and rapid, as FERC believes, then high peaking prices would probably represent scarcity rents, that is, signals encouraging entry of peaking capacity. By contrast, if higher prices do not lead to capacity expansion, FERC should examine the market conditions more closely to determine whether the price increases are due to collusion or the abuse of a monopoly position.

19. Conversely, if overall concentration was low but concentration among middle-cost generators was high, a more detailed analysis of the potential for market power could be called for. Identifying these factors will require understanding which plants are high-, middle-, and low-cost in the relevant markets; cf. note 23, *supra*.

20. The importance of transmission pricing policy to the development of competitive bulk power markets is discussed in more detail in the comment submitted by the Department of Justice in the transmission pricing inquiry, FERC Dkt. 93-19 (1995).

21. Notice, *supra* note 2, at 17,674.