Consumer Federation of America

MERGERS AND OPEN ACCESS TO TRANSMISSION IN THE RESTRUCTURING ELECTRIC INDUSTRY:

ANALYTIC TOOLS, EMPIRICAL EVIDENCE AND POLICIES TO BUILD EFFECTIVE MARKET STRUCTURES

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STRUCTURAL FLAWS IN ELECTRICITY MARKETS ARE CREATING PRICE VOLATILITY AND RELIABILITY PROBLEMS

Consumer group analysis urges federal policy makers to act quickly

Washington D.C., April 18, 2000 – Conflicting goals, utility market manipulation, and ineffective policy responses by federal legislators and regulators threaten the reliability of the nation's electricity network and consumers' electricity bills, a report released today by the Consumer Federation of America concluded.

"The wild price spikes in 1998 and widespread outages in 1999 are indicators of fundamental problems in restructuring electricity markets," said Dr. Mark Cooper, CFA's Director of Research. "The need for aggressive public policy is obvious, but neither the Congress nor the Federal Energy Regulatory Commission (FERC) is moving with any great speed to address critical issues."

The report, entitled *Mergers And Open Access To Transmission In The Restructuring Electric Industry: Analytic Tools, Empirical Evidence And Policies To Build Effective Market Structures*, concludes that structural flaws and institutional failures have created a volatile and dangerous situation.

- The breakdown of coordination during restructuring occurs because competition reduces the incentive for market participants to cooperate and makes it difficult for system operators to manage the electricity network.
- Inadequate transmission capacity, ineffective network management, and manipulation of access to transmission limit the ability of power to flow.
- Highly concentrated local markets enable large generators to drive up prices by withholding supplies, but federal regulators keep approving mergers.
- As a constraining bottleneck to expanding supply, the transmission system facilitates manipulation of price and supply.
- A lack of incentives for utilities to keep capacity on line or to discipline their bidding for power overheats the market.
- A complete absence of objective, public information about prices and market conditions prevents buyers from making sound decisions.

"Proper management and expansion of the transmission network are the keys to promoting electricity reliability and preventing the abuse of market power," Cooper noted, "but FERC is taking a hands off attitude toward the formation of Regional Transmission Organizations (RTOs) and Congress has failed to give FERC the additional tools it needs to crack down on abuse in a new market."

Analyzing the market failures of 1998 and 1999 in a comprehensive framework drawn from the literature on industrial organization, the report derives a series of detailed, practical recommendations to the FERC to prevent abuse of consumers.

- Require RTOs to operate independently and have adequate authority to expand and manage the transmission network in an open manner.

- Deny requests for merger approval or market-based rates to utilities that are not participants in an approved RTO.

- Review the existing market-based rates where utilities are not part of an RTO and revoke market-based rates for any vertically integrated utility that

  has its generation in a supply market that is concentrated by the Department of Justice Merger Guidelines;

  controls more than 20 percent of the bottleneck transmission assets in an area where it also owns generation;

  accounts for more than 35 percent of demand; or

  has engaged in market tightening behavior (e.g. took generation plant or transmission facilities out of service on an unscheduled basis, withheld supply, declared a transmission emergency, or participated in a "fictitious" generation deal, or violated market rules) and then sold power at inflated prices into that market.

"With well over half the electricity in the country consumed in states that have enacted restructuring plans, structural problems in the interstate market must be addressed by public policy to improve the performance of these markets, promote competition and protect consumers form abuse," Cooper noted. "CFA has already identified a broad set of principles that need to be enacted in federal legislation, this report identifies immediate, practical steps that the FERC could take that are already within its power.

"The transmission grid stands at the intersection of many of these problems because it is the interstate highway of commerce in the electricity industry. Only Federal authorities can ensure that power flows freely across state borders," Cooper concluded. "The longer the Congress takes to address these problems, the longer the states will have to wait to effectively deliver on the promises made to consumers about electricity restructuring – lower prices, higher quality service, and more real choices."

The report CFA report is available at www.consumerfed.org/electmkt.pdf

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The Consumer Federation of America (CFA) is a non-profit association of some 260 pro-consumer groups, with a combined membership of 50 million. It was founded in 1968 to advance the consumer interest through advocacy and education.

MERGERS AND OPEN ACCESS TO TRANSMISSION IN THE RESTRUCTURING ELECTRIC INDUSTRY

EXECUTIVE SUMMARY

Wild price spikes in 1998 and widespread outages in 1999 indicate structural flaws and institutional problems in restructured electricity markets. The market has failed to deliver on price stability and product quality at the most critical times. Excessive economic concentration and vertical integration are contributing to the problem by facilitating the abuse of market power (see Exhibit ES-1). With more than half the electricity in the country being consumed in states that have enacted restructuring plans, these problems in the interstate market must be addressed by public policy to improve the performance of these markets, promote competition and protect consumers from abuse.

MARKET STRUCTURE PROBLEMS

One of the most urgent areas for public policy action is a response to the flood of merger proposals that has inundated the Federal Energy Regulatory Commission (FERC). The characteristics of the market and the initial experience in the restructuring market argue for a very cautious approach to mergers. Inflexibility on both the supply and demand sides renders the market vulnerable to any reduction of competitors. The demand side cannot be counted on to discipline abusive pricing behavior because the elasticity of market demand is very low. Short term supply responses are constrained and significant additions to supply require substantial lead times. Since the ability (or willingness) of entities in the market to expand supply is limited, entry from outside the market must be encouraged – new players, particularly from other geographic areas. Since generation assets are sunk, the transmission system plays the key role.

Moreover, the market structural conditions that result from the concentration and integration in network industries raise significant barriers to entry and make abuse more likely. The problem is acute in network industries because connection to the network is necessary, which becomes an especially powerful point of leverage for integrated companies. Moreover, because these industries have been exclusive franchises, the transmission networks are economic monopolies – there is only one facility in place. In many respects, they may also be natural monopolies – due to powerful economies of scale and scope the market is not likely to support multiple competing facilities at efficient prices.

The failure of the transmission grid in the past two years is one of the most dramatic demonstrations of market failure in the transition to competition. The breakdown of coordination in the restructuring industry occurs because competition reduces the incentive for market participants to cooperate and makes it difficult for system operators to manage the electricity network. Inadequate transmission capacity and restrictions on access to transmission limit the ability of power to flow. Manipulation of access to the transmission system for self-interested profit motives makes problems worse. Highly concentrated, local markets enable large generators to drive up prices by withholding supplies. As a constraining bottleneck facility that restricts expanding supply, the transmission system facilitates this manipulation.

EXHIBIT ES-1
RESTRUCTURED ELECTRIC UTILITY INDUSTRY MARKET FAILURE
WITHIN THE STRUCTURE, CONDUCT PERFORMANCE PARADIGM

BASIC CONDITIONS	PRICE SPIKE ANALYSIS (CFA FINDINGS)	OUTAGE ANALSYSIS (DOE FINDINGS)
SUPPLY		
Technology	Generation outages,	(16) Delays in replacement
	Transmission shutdowns	(9) Failures take time
	Long lead times	(1) Lag for new sources
	Summer weather impairment	(7, 18, 22) Actual rating or performance are lower in heat
Product durability	Inability to store electricity	
DEMAND		
Price elasticity	Extremely low short run	(2, 19, 23) Limited conservation
Substitutes	Lack of substitutes	
Cyclical and seasonal	Weather-related demand	(21) Inadequate reliability criteria3
Purchase method	Obligation to serve, induced demand	
Marketing type	Lack of incentive to cut back	(2, 19) Limited conservation incentive
MARKET STRUCTURE		
Number of sellers	Few sellers	
Number of buyers	Constrained demand by utilities, limited end-user choice	(30) Constrained distribution
Barriers to entry	Transmission constraints	(10,32) Load pockets, inadequate system
	Emergencies	(31) Substation inflexible
Cost structures	High fixed	
Vertical integration	Affiliate relations distort market	(38) Business factors
Diversification	Utilities add brokerage	(29,34 - 37) Inadequate planning and spending for maintenance
Inadequate Market Institutions		
Information provision	Lack of timely, objective	(8) Load projections (11) Unit ratings (13) Planning tools (5,14) Cable condition, incipient failure (15) Sharing best practices (17, 28) Forecasting (20) Inadequate notice (27) Dispatch software
	Breakdown of Coordination	(4) ISO lacks authority (6) Lack of data
PARTICIPANT CONDUCT		
Pricing behavior	Complaints of hoarding, gouging	(24) Reliance on nonfirm power
Legal tactics	Defaults, abrogation of contracts, daisy chains, two-way deals	(25) Inefficient short term sales (33) Records not preserved
Regulation	Transmission rules create problems	(3) Market rules not developed

PUBLIC POLICY RESPONSES

Given this analysis, we conclude that mergers should be highly suspect, particularly during the transition to a competitive market. Horizontal mergers traditionally receive the most scrutiny because they directly eliminate competition (see Exhibit ES-2). Because of the basic characteristics of this market and during the transition, they should be an even greater source of concern. The key is market definition. Geographic markets are narrow, product markets are highly specific and a function of specific moments in time. Timing is also crucial. Markets must be analyzed when they are tight, since very large amounts of money can change hands very quickly.

Loss of contiguous potential competitors through merger is a source of particular concern. There is no more likely source of supply to alleviate near term shortages.

EXHIBIT ES-2
EMPIRICAL AND ANALYTIC REASONS TO PREVENT ADDITIONAL MERGERS UNTIL AFTER MARKET INSTITUTIONS ARE DEFINED MORE FULLY

HORIZONTAL MERGER
- Basic conditions create vulnerable markets
  - Low supply and demand elasticity
  - Narrow geographic markets
  - Multiple necessary projects
- Concentration of generation resources
- Loss of potential competitors is critical in transition
- Lack of information compounds problems

MARKET EXTENSION
- Extension of distribution monopoly
  - Cross-subsidy facilitated
- Extension of transmission bottlenecks
  - Short term supply response restricted

VERTICAL INTEGRATION
- Vertical leveraging of transmission bottleneck
  - Input foreclosure
  - Price squeeze facilitated
  - Forbearance and reciprocity enhanced

The problem of vertical integration in most mergers is of extreme importance. Most merging utilities combine transmission and generation assets, as well as distribution assets. Restructuring is intended to introduce competition into the generation market, and it is quite clear that transmission is a bottleneck with respect to the generation market. Allowing the extension of control over vertically integrated transmission assets confounds the goal of increasing competition in generation.

With little experience in a competitive market, institutions undeveloped and rules ill-defined, it is extremely dangerous to allow large numbers of competitors to be eliminated. There may appear to be a great deal of potential competition when a market is being restructured, but the ability of new entrants to actually enter is unclear. Policymakers run the risk of establishing a competitive structure but having few competitors. After the fact fixes are extremely difficult, and onerous. An ounce of prevention is worth a pound of cure.

This analysis clearly supports the conclusion that a moratorium on mergers and mandatory participation in Regional Transmission Organizations (RTO) is necessary to facilitate the transition to a competitive generation market.

The FERC should at least adopt a policy that requests for merger approval or market-based rates will not be granted to utilities that are not participants in an approved RTO. Moreover, as more and more state markets are restructured, the transmission bottleneck becomes a larger problem. Therefore, the FERC should declare a policy that it will review, on its own motion, the market-based rates that have been granted. Where specific market conditions exist, it should revoke market-based rates for vertically integrated utilities that refuse to join RTOs, or at least shift the burden of proof to the utility.

These triggers can be drawn directly from the analysis of industry structure. The empirical conditions that are believed to increase the likelihood of the exercise of market power should be set at conservative levels – levels that lean toward protecting competition. They can be identified for both market structure and conduct.

For example, horizontal market structure identifies the moderately concentrated threshold at an HHI of 1,000. If a vertically integrated utility has its generation in a supply market which exceeds this threshold but fails to join an RTO, it should lose the right to enjoy market based rates or bear the burden of proving that its market-based rates are in the public interest, since this market is vulnerable to the abuse of market power. The empirical literature identifies other market structural triggers. If a vertically integrated utility controls more than 20 percent of the bottleneck transmission assets or accounts for more than 35 percent of demand, it should lose the right to enjoy market based rates or the burden of proving they are in the public interest.

On the conduct side, any vertically integrated utility that has engaged in market tightening behavior in the previous three years but refuses to join an RTO should bear the burden of proving that its market-based rates are still in the public interest. The types of activities identified with market tightening include the following: took plant out of service on an unscheduled basis, withheld supply, took transmission out of service on an unscheduled basis, declared an emergency, participated in a TLR , executed a swap, engaged in a two-way transaction, was part of a daisy chain in default, violated market rules.

I. INTRODUCTION[1]

A. BACKGROUND AND PURPOSE OF THE PAPER

Concentration and integration in the market structure of the nation's premier network industries – broadband information services[2] and narrowband telecommunications services[3]-- is a growing source of concern for consumers.[4] Efforts to require open access to the networks of these industries that are bottleneck facilities on the most vital highways of commerce in the digital economy of the 21st century, have been one of the centerpieces of consumer policy as these industries are transformed from exclusive franchise monopolies to competitive structures.[5]

These issues and concerns have been extended to the electricity industry as it moves through the process of restructuring. A broad review of industry restructuring leads to strong doubts that residential consumers will benefit much from restructuring.[6] An analysis of the price spikes of 1998 leads to the conclusion that market structural conditions create volatility in the electric utility industry and makes the abuse of market power highly likely.[7] Incorporating the outage experience of 1999 into the analysis only reinforces consumer concerns.[8]

The price spikes and outages did not go unnoticed. In fact, they attracted a great deal of attention from regulators, market participants and large industrial consumers. Major

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[1] First presented at the Harvard Electricity Policy Group, Twenty-First Plenary Session, January 20, 1999.

[2] *Expanding the Information Age in the 1990s: A Pragmatic Consumer Analysis*, January 1990*; Developing the Information Age in the 1990s: A Pragmatic Consumer View* (June 8, 1992); *The Economics of Deregulation and Reregulation in the Cable Industry: A Consumer View* (September 1992), "Statement of Dr. Mark N. Cooper," *In re: Petition of Consumers Union and the Consumer Federation of America to Update Cable TV Regulation and Freeze Existing Cable Television Rates*, MM Docket Nos. 92-264, 92-265, 92-266, September 22, 1997.

[3] *Competition and Consumer Protection in the Florida Telecommunications* Legislation, April 1995 (prepared for the Florida Office of the People's Counsel); *Stonewalling Local Competition: The Baby Bell Strategy to Subvert the Telecommunications Act of 1996* (Consumer Federation of America, January 1998).

[4] Consumer Federation, et al., *The Consumer Case Against the SBC-Ameritech Merger*, January 20, 1998; Consumer Federation, et al., *Breaking the Rules: AT&T's Attempt to Buy a National Monopoly in Cable TV and Broadband Internet Services* (August 17, 1999).

[5] T*ransforming the Information Superhighway into a Private Toll Road: The Case Against Closed Access Broadband Internet Systems* (September 21, 1999*); Keeping the Information SuperHighway Open for the 21st Century* (December 1999).

[6] Consumer Federation of America and Consumers Union, *Residential Consumer Economics of Electric Utility Restructuring* (1998) (hereafter Restructuring).

[7] Consumer Federation of America and Consumers Union, *Electricity Restructuring and the Price Spikes of 1998*, June 1999 (hereafter, Spikes).

[8] See below and Consumer Federation of America, "Request for Reconsideration," *Regional Transmission Organizations*, United States of America, Federal Energy Regulatory Commission, Docket No. RM99-2-000; Order No. 2000, Session, January 20, 1999).

analyses were conducted or sponsored by representatives of entities that had profited from the spikes, and those that had taken losses. Three regulatory bodies – the Federal Energy Regulatory Commission (FERC),[9] the Public Utility Commission of Ohio (PUCO),[10] and the Market Monitoring Committee of the California Power Exchange (MMC)[11] – have taken a detailed look at the price spike problem. The Department of Energy is looking at the reliability problem indicated by the outages and has recently looked at the market power problem. [12]

B. OUTLINE OF THE PAPER

This paper combines those two threads of analysis into a review of the impact of mergers and open access policy on the prospects for competition and consumer benefits in a restructured electric utility industry. [13] In Chapter II a framework for analysis is presented. Chapter III presents an empirical assessment of the characteristics of the industry to extract the implications for merger and network access policy. Chapter IV presents specific recommendations for merger and network access policy.

[9] FERC, Staff Report.

[10] Public Utilities Commission of Ohio Report, Ohio's Electric Market: June 22-26, 1998, *What Happened and Why: A Report to the Ohio General Assembly* (Columbus, Oh; 1998) (Hereafter, Ohio Report).

[11] Bohn, Roger E., Alvin K. Klevorick and Charles G. Stalon, Market Monitoring Committee of the California Power Exchange, *Report on Market Issues in the California Power Exchange Energy Markets* (August 17, 1998) (Hereafter Cal, Report).

[12] *Interim Report of the U.S. Department of Energy's Power Outage Supply Study Team*, January 1999; *Horizontal Market Power in Restructured Electricity Markets*, March 2000.

[13] For an early discussion bridging the three industries see Cooper, Mark N., "Protecting the Public Interest in the Transition to Competition in Network Industries, in *The Electric Utility Industry in Transition* (Public Utilities Reports, Inc. & the New York State Energy Research and Development Authority, 1994).

II. ANALYZING THE IMPACT OF MERGERS ON MARKET STRUCTURE

A. THE SCP PARADIGM

In analyzing market structure and prescribing public policy to address the issue of market power, mergers and network access in network industries, we apply the structure, conduct performance (SCP) view of economic activity.[14]

Exhibit I-1 presents the factors identified as playing an important role in the SCP paradigm.[15] The SCP approach has been the dominant public policy paradigm in the United States for the better part of this century.[16] The elements of the approach can be described as follows.

In SCP analysis the central concern is with market performance, since that is the outcome that affects consumers most directly. The concept of performance is multifaceted. It includes both efficiency and fairness.[17] The measures of performance to which we traditionally look are pricing, quality and profits. Pricing and profits address both efficiency and fairness. They are the most direct measure of how society's wealth is being allocated and distributed.

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14 In addition to the analyses cited in notes 1 – 3 above, the Consumer Federation of America has applied a similar analysis to a variety of other "network" industries including Consumer Federation of America, *Open Skies Closed Airports* (Consumer Federation of America, February, 1997*; Economic Concentration and Diversity in Broadcast Media* (Consumer Federation of America, November 1995*);* and Consumer Federation of America and the Media Access Project, *The Consumer Case Against Microsoft* (October 1998).

15 Shepherd, William, G., *The Economics of Industrial Organization* (Prentice Hall, Engelwood Cliffs, N.J., 1985), p. 5, presents a similar view.

16 Scherer, F. M. and David Ross, Industrial *Market Structure and Economic Performance* (Boston, Houghton Mifflin: 1990), p. 4.

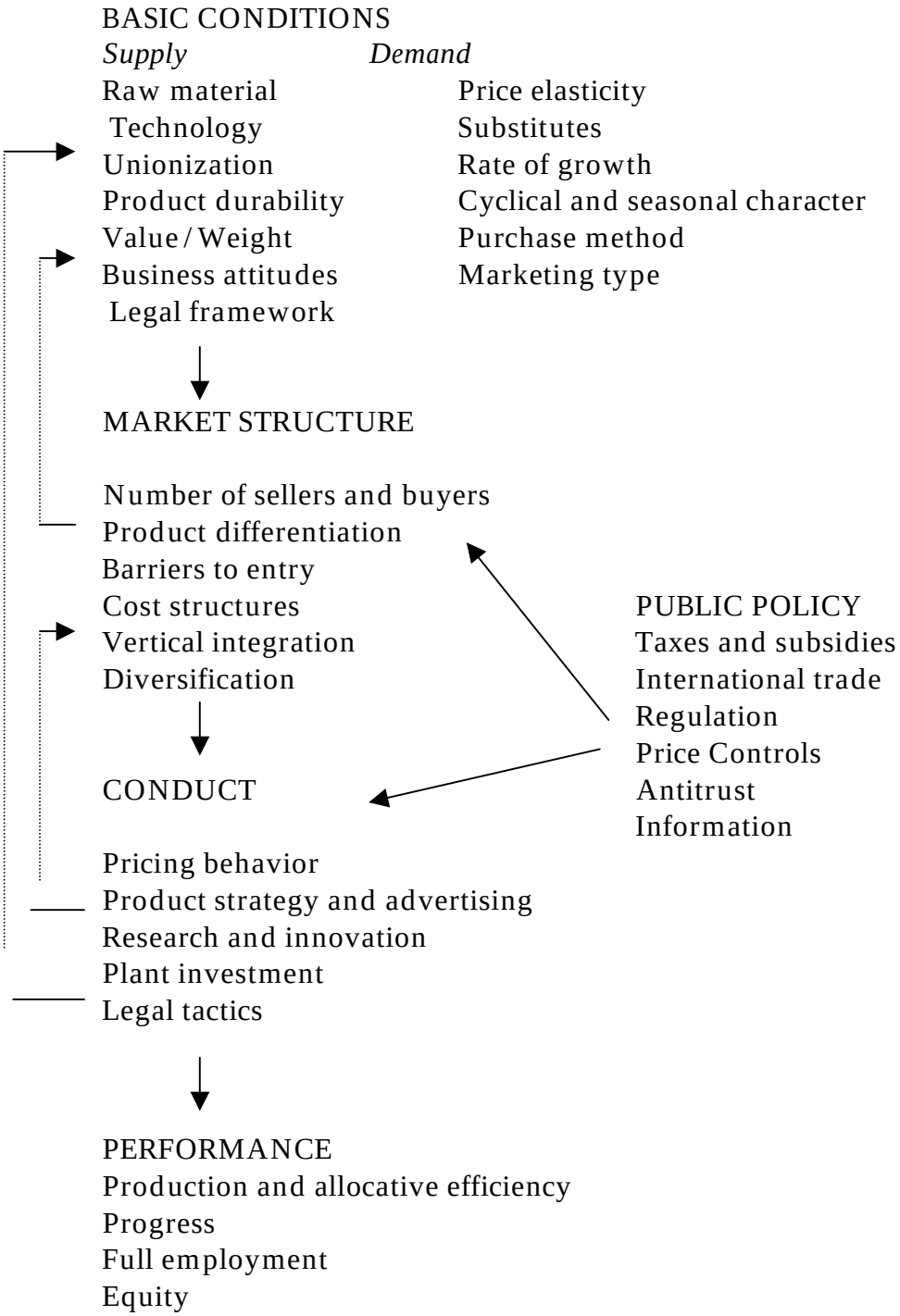
> We seek to identify sets of attributes or variables that influence economic performance and to build theories detailing the nature of the links between these attributes and end performance. The broad descriptive model of these relationships used in most industrial organization studies was conceived by Edward S. Mason at Harvard during the 1930s and extended by numerous scholars.

17 Scherer and Ross, p. 4.

> We begin with the fundamental proposition that what society wants from producers of goods and services is good performance. Good performance is multidimensional… Decisions as to what, how much and how to produce should be efficient in two respects: Scarce resources should not be wasted, and production decisions should be responsive qualitatively and quantitatively to consumer demands.
>
> The operations of producers should be progressive, taking advantage of opportunities opened up by science and technology to increase output per unit of input and to provide consumers with superior new products, in both ways contributing to the long-run growth of real income per person. The operation of producers should facilitate stable full employment of resources… The distribution of income should be equitable. Equity is notoriously difficult to define, but it implies at least that producers do not secure rewards in excess of what is needed to call forth the amount of services supplied.

EXHIBIT II-1

THE STRUCTURE-CONDUCT-PERFORMANCE PARADIM



SOURCE: Scherer and Ross, F. M., and David Ross, *Industrial Market Structure and Economic Performance* (Houghton Mifflin Company: Boston, 1990), p. 5.

The performance of industries is determined by a number of factors, most directly the conduct of market participants. Do they compete? What legal tactics do they employ? How do they advertise and price their products? [18] The fact that conduct is only part of the overall analytic paradigm is important to keep in mind.

Conduct is primarily a product of other factors. Conduct is affected and circumscribed by market structure. Market structure includes an analysis of the number and size of the firms in the industry, their cost characteristics and barriers to entry, as well as the basic conditions of supply and demand.[19]

Regardless of how much weight one gives to the causal assumptions of the paradigm, giving more or less weight to basic conditions or market structure, the list of variables is important. These are the factors that make markets work.[20]

B. MERGER ANALYSIS IN THE SCP PARADIGM

Mergers are an especially important event in the analytic paradigm because they rapidly and, in some cases, significantly alter the supply-side of the market.

> We have saved for separate treatment a set of particularly important market structure-shaping forces – mergers, takeovers, and other legal transformations

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[18] Scherer and Ross, p. 4.

> Performance in particular industries or markets is said to depend upon the conduct of sellers and buyers in such matters as pricing policies and practices, overt and taciturn interfirm cooperation, product line and advertising strategies, research and development commitments, investment in production facilities, legal tactics (e. g. enforcing patent rights), and so on.

[19] Scherer and Ross, p. 5.

> Conduct depends in turn upon the structure of the relevant market, embracing such features as the number and size distribution of buyers and sellers, the degree of physical or subjective differentiation prevailing among competing seller's products, the presence or absence of barriers to entry of new firms, the ratio of fixed to total costs in the short run for a typical firm, the degree to which firms are vertically integrated from raw material production to retail distribution and the amount of diversity or conglomerateness characterizing individual firms' product lines.
>
> Market structure and conduct are also influenced by various basic conditions. For example, on the supply side, basic conditions include the location and ownership of essential raw materials; the characteristics of the available technology (e.g. batch versus continuous process productions or high versus low elasticity of input substitution); the degree of work force unionization; the durability of the product; the time pattern of production (e.g. whether goods are produced to order or delivered from inventory); the value/weight characteristics of the product an so on. A list of significant basic conditions on the demand side must include at least the price elasticity of demand at various prices; the availability of (and cross elasticity of demand for) substitute products; the rate of growth and variability over time of demand; the method employed by buyers in purchasing (e.g. acceptance of list prices as given versus solicitation of sealed bids versus haggling); and the marketing characteristics of the product sold (e.g. specialty versus convenience shopping method).

[20] Scherer and Ross, p. 6.

> through which two or more formerly independent firms come under common control…
>
> Few topics in industrial organization economics arouse more passionate debate than mergers and takeovers. Some see mergers as an important source of efficiency; others emphasize their prominence as an outlet for managerial empire-building instincts whose pursuit degrades, not enhances efficiency; still others focus on mergers' role in altering market structure and enhancing monopoly power.[21]

Given the passionate debate over mergers, it is not surprising to find that mergers in general, and vertical integration through merger in particular, have come to be governed by a "rule of reason" or case-by-case approach in contemporary economic and legal analysis.[22] Because arguments can be made both for and against vertical integration through merger, in particular, economists and antitrust authorities judge each merger based on the facts of the specific case.[23] They weigh claimed efficiency gains against likely harm to competition. They ask whether the efficiencies could be achieved in other ways that would not harm competition at all. When mergers are vertical, they are particularly concerned about the level of competition in each of the affected markets and the impact of the merger on competition across stages of production.

> Generally, we must be aware of four different types of mergers, or merger effects:
>
> A **horizontal** merger is a marriage of rivals. It involves firms doing "the same" thing in "the same" market…
>
> A **vertical** merger involv[es] companies in a supplier-customer relationship…
>
> **Conglomerate** mergers…: [are] **market-extension**, mergers, in which the acquiring and acquired firms do the same thing in different geographic markets; **product-extension** mergers, in which the products (or activities) of the partners do not compete with each other but have some functional relationship in production or distribution.[24]

As we go through the economic and legal discussions, we finds that under specific circumstances vertical mergers are consistently found to be likely to reduce competition and impose a cost on the public. These conditions are likely to apply in network industries and particularly in the case of vertically integrated incumbent in those industries.

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[21] Scherer and Ross, p. 153… 198.

[22] Scherer and Ross, pp. 450-458, on the "Emergence of a Rule of Reason."

[23] Asch, Peter, *Industrial Organization and Antitrust Policy* (John Wiley and Sons, New York: 1983), Chapter 14.

[24] Asch, pp. 262-263.

C. CONCEPTUALIZING AND MEASURING HORIZONTAL MARKET POWER

Horizontal concentration, the result of horizontal mergers, has been the most suspect type of merger activity.[25]

> The firm may simply buy out its rivals, merging with them to get a high combined market share for the new larger firm. Once unified, the former competitors no longer compete with one another.[26]
>
> The corporate merger is the ultimate form of collusion: when two firms merge they cease to have separate identities and act thereafter as a single unit…
>
> The horizontal merger [is] the most troubling form from a policy point of view (due to its effect on concentration) and the one that is subject to the closest scrutiny from antitrust authorities. The reason for economists concern with horizontal combinations can best be seen by exploring the relationship between industry concentration and price.[27]

Measuring concentration for purposes of market structure analysis has received a great deal of attention. Market structure analysis is used to identify situations where a small number of firms control a sufficiently large part of the market as to make coordinated or reinforcing activities feasible. Through various implicit and explicit mechanisms a small number of firms can reinforce each other's behavior, rather than compete. Identification of when a small number of firms can exercise this power is not a precise science. Generally, however, when the number of significant firms falls into the single digits, there is cause for concern, as the following suggests.

> Where is the line to be drawn between oligopoly and competition? At what number do we draw the line between few and many? In principle, competition applies when the number of competing firms is infinite; at the same time, the textbooks usually say that a market is competitive if the cross effects between firms are negligible. Up to six firms one has oligopoly, and with fifty firms or more of roughly equal size one has competition; however, for sizes in between it may be difficult to say. The answer is not a matter of principle but rather an empirical matter.[28]

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[25] Asch, Peter and Rosalind Senaca, *Government and the Marketplace* (Dryden Press, Chicago: 1985), pp. 192-195.

[26] Shepherd, p. 28.

[27] Jacquemin, Alexis and Margaret E. Slade, "Cartels, Collusion and Horizontal Merger," in Richard Schmalensee and Robert D. Willig, Eds., *Handbook of Industrial Organization* (North-Holland: New York, 1989), p. 430.

[28] J. W. Friedman, Oligopoly Theory (Cambridge: Cambridge University Press, 1983), pp. 8-9.

The clear danger of a market with a structure equivalent to only six equal sized firms was recognized by the Department of Justice in its Merger Guidelines.[29] These guidelines were defined in terms of the Herfindahl-Hirschman Index (HHI). This measure takes the market share of each firm squares it, sums the result and multiplies by 10,000.[30]

A market with six equal sized fir33ms would have an HHI of 1667. The Department declared any market with an HHI above 1800 to be highly concentrated. Thus, the key threshold is at about the equivalent of six or fewer firms.

Another way that economists look at a market at this level of concentration is to consider the market share of the largest four firms (called the 4-Firm concentration ratio).[31] In a market with six equal sized firms, the 4-Firm concentration would be 67 percent. The reason that this is considered an oligopoly is that with a small number of firms controlling that large a market share, their ability to avoid competing with each other is clear.

Shepherd describes this threshold as follows:[32]

> Tight Oligopoly: The leading four firms combined have 60-100 percent of the market; collusion among them is relatively easy.

While six is a clear danger sign, theoretical and empirical evidence indicates that many more than six firms are necessary for competition – perhaps as many as fifty firms are necessary. Reflecting this basic observation, the Department of Justice established a second threshold to identify a moderately concentrated market. This market was defined by an HHI

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[29]U.S. Department of Justice, Merger Guideline, revised, 1992.

[30] Shepherd, p. 389, gives the following formulas for the Herfindahl-Hirschman Index (HHI) and the Concentration Ratio (CR):

$$H = \sum_{i=1}^{n} S_i^2$$

$$CR = \sum_{i=1}^{m} S_i$$

where

n = the number of firms

m= the market share of the largest firms (4 for the 4 firm concentration ratio)

S_i = the share of the ith firm.

[31] See note 59.

[32] Shepherd, p. 4.

of 1000, which is equivalent to a market made up of 10 equal sized firms. In this market, the 4-Firm concentration ratio would be 40 percent.

Shepherd describes this threshold as follows:

> Loose Oligopoly: The leading four firms, combined, have 40 percent or less of the market; collusion among them to fix prices is virtually impossible.[33]

Shepherd also notes that a dominant firm – "one firm has 50-100 percent of the market and no close rival"[34] – is even more of a concern.[35]

Even the moderately concentrated threshold of the Merger Guidelines barely begins to move down the danger zone of concentration from 6 to 50 equal sized firms. For a "commodity" with the importance of the services that these network industries provide (communications and electricity), certainly this moderately concentrated standard is a more appropriate place to focus in assessing the structure of the market.

D. VERTICAL INTEGRATION AS A SPECIAL CONCERN IN NETWORK INDUSTRIES

It is also notable that the vertical aspects of mergers raise concerns and have been receiving more attention as concentration, integration and conglomeration have increased in network industries. Exhibit I-2 summarizes the anticompetitive conduct and negative market performance that can emerge from the weakened market structures that result from the particular type of concentration caused by vertical integration and conglomeration.

The most succinct statement from the general literature that captures the problems with such a merger is from William Shepherd who concludes that:

> Large costs could arise if the two merging firms are both heavily dominant at their levels, and capital barriers are high at one level.[36]

> The "ideal" conglomerate merger is by an unexpected entrant acquiring a minor firm. By contrast, if an important potential entrant buys up a dominant firm (or vice versa), competition will be doubly reduced.[37]

The market structural conditions that result from the concentration and integration in network industries raise significant barriers to entry and make behavioral abuse effective. The

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[33] Shepherd, p. 4.

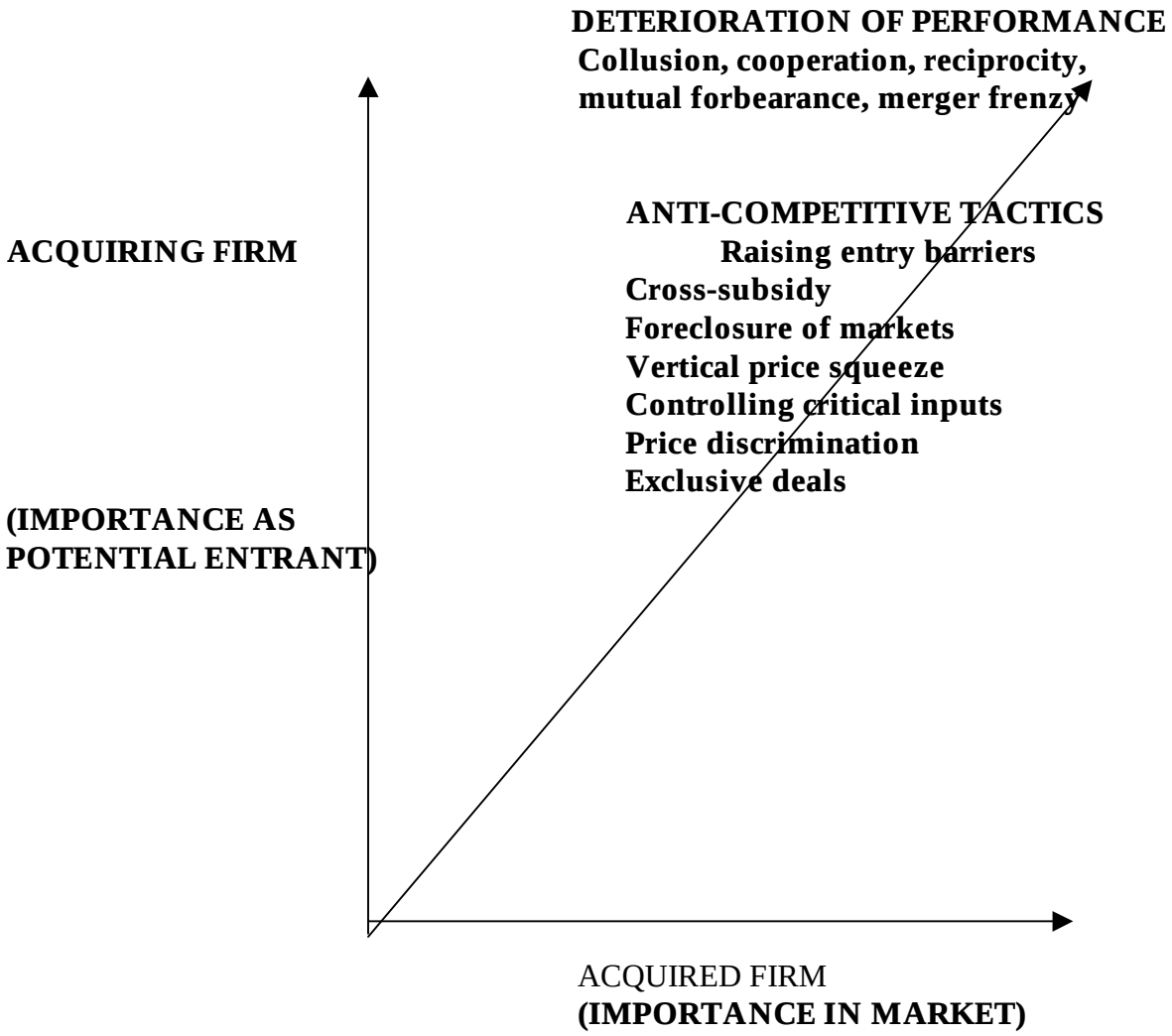
[34] Shepherd, p. 4.

[35] The Department of Justice Guidelines of 1984 had a dominant firm proviso, which was dropped in the 1992 update.

[36] Shepherd, p. 292.

[37] Shepherd, p. 304.

EXHIBIT II-2:
THE SPECIAL PROBLEM OF VERTICAL INTEGRATION AND CONGLOMERATES



Shepherd, William G., The Economics of Industrial Organization (Prentice Hall, Englewood Cliffs, NJ, 1985), pp. 289-304.

problem is acute in network industries because interconnection to the network is necessary, which becomes an especially powerful point of leverage for the integrated company. Moreover, because these industries have been exclusive franchises, the transmission networks are economic monopolies – there tends to be only one facility. In many respects, they may also be natural monopolies – due to powerful economies of scale and scope there is not likely to be multiple competing efficient facilities.

1. BARRIERS TO ENTRY

Vertical integration through merger can create barriers to entry. By integrating across stages of production, incumbents may force potential competitors to enter at both stages, making competition much less likely. These barriers take a variety of forms.[38]

A barrier to entry that receives considerable attention in the general literature is the need to raise large sums of capital for entry into vertically integrated industries.[39] Self defense against the leverage that the integrated firm gains may cause firms to have to enter both markets, raising the need for capital.[40]

Capital market hurdles are only one of the barriers that vertical integration and conglomeration can create to entry. Backward integration by a dominant manufacturer may also create a barrier to entry so as to preserve its dominance. Such mergers can also foreclose input markets to competitors.[41]

Even without foreclosure, when large firms vertically integrate, the markets for inputs may become thin. This can have an anticompetitive effect.[42] Potential entrants or

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[38] Perry, p. 247.

> [V]ertical mergers may enhance barriers to entry into the primary industry if entrants must operate at both stages in order to be competitive with existing firms and if entry at both stages is substantially more difficult than entry at one stage.

[39] Perry, p. 197.

> Bain popularized the concept of barriers to entry and also discussed the importance of potential competition. Bain argued that vertical integration creates a capital barrier to entry by forcing potential entrant to contemplate entry at two stages of production rather than just one.

[40] Scherer and Ross, p. 526.

> To avoid these hazards, firms entering either of the markets in question might feel compelled to enter both, increasing the amount of capital investment required for entry.

[41] Shepherd, pp. 289-290.

> When all production at a level of an industry is "in-house," no market at all exists from which independent firms can buy inputs. If they face impediments or delays in setting up a new supplier, competition at their level will be reduced. The clearest form of this is the rise in capital a new entrant needs to set up at both levels.

[42] Perry, p. 247.

competitors face higher prices[43] or can be the victims of strategies that raise rivals costs. [44] These problems can arise when firms begin to account for a relatively small share of the market.

> Restrictions may be set on areas, prices or other dimension … Only when they are done by small-share firms may competition be increased. When done by leading firms with market shares above 20 percent, the restrictions do *reduce* competition.[45]

2. POTENTIAL COMPETITION

Mergers between vertically integrated incumbents remove several of the most important potential entrants across a number of markets and stages of production.

> Potential competition may be important for some markets. If one such potential entrant merges with a firm already inside the market, the ranks of actual plus potential competitors are reduced by one. Unless the entrant is in a vertical relation, the conglomerate reduces the total degree of competitive constraint, even if only slightly.[46]

> In addition, [Bain] pointed out that vertical merger also eliminated one of the most natural potential entrants into each stage. Indeed, these two theories are complements. It is difficult to argue that firms in neighboring stages are the most likely entrants without also believing that entry at both stages is more difficult than entry at one stage.[47]

> The first firms to integrate into neighboring stages reduce the number of alternative sources for other firms at either stage. This "thinning" of the market can increase the costs of market or contractual exchange. Subsequent integration by other firms then becomes more likely.

[43] Shepherd, p. 290.

> Ores, special locations, or other indispensable inputs may be held by the integrated firm and withheld from others. The integration prevents the inputs from being offered in a market, and so outsiders are excluded. A rational integrated firm might choose to sell them at a sufficiently high price.

[44] Perry, p. 197.

> Similarly, a dominant firm may also use vertical integration to raise the costs of its competitors … By leaving the open market thin, competitors may be unable to expand without significantly driving up the input price, they may be subject to higher prices set by the fewer remaining suppliers, or they may incur higher transaction costs for having to negotiate contracts with suppliers.

[45] Shepherd, p. 294.

[46] Shepherd, p. 303.

[47] Perry, p. 197.

3. CONDUCT

The market structural conditions that result from the concentration and integration of the industry make behavioral abuse more likely. Cross subsidization becomes possible,[48] although this is by no means the only available instrument of anti-competitive conduct.

> The simple concept involved in cross subsidizing is that conglomerates can use profits from branch A to support deep, "unfair" price cuts by branch B …
>
> If all branches of a diversified firm are dominant in their markets, their pooled resources are likely to increase their dominance through greater price discrimination, threats of punitive actions, and so forth. By contrast, a string of small-share branches is more likely to promote competition than to reduce it, if it can help its members at all.[49]

Vertical integration facilitates price squeezes and enhances price discrimination.[50] By controlling bottleneck facilities vertically integrated incumbents can impose higher costs on their rivals, or degrade their quality of service to gain an advantage.

> This could happen, if, for example, the conduct of vertically integrated firms increased risks for nonintegrated firms by exposing downstream specialists to regular or occasional price squeezes or made it difficult for upstream specialists to find a market for their output in times of depressed demand.[51]

Not only will the dominant firm in the industry gain the leverage to profitably engage in anti-competitive conduct, but also the dynamic processes in the industry will clearly shift toward cooperation and coordination rather than competition. The issue is not simply collusion, although that is a concern.

> The *Guidelines* do recognize three major competitive problems of vertical mergers in concentrated industries. First, forward mergers into retailing may

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[48] Asch, Peter and Rosalind Senaca, *Government and the Marketplace* (Dryden Press, Chicago: 1985), p. 248.

> Subsidization: The conglomerate firm can choose to behave in a predatory fashion in one market, subsidizing its predation from profits earned elsewhere.

[49] Shepherd, p. 302.

[50] Scherer and Ross, p. 524.

> Substitution elasticities of unity and less normally imply that inputs are indispensable, that is, that no output can be produced until at least some use is made of each relevant input. When the monopolist of an input indispensable in this sense integrates downstream, it can make life difficult for remaining downstream competitors. It can refuse to sell the input to them, driving them out of business. Or it can sell it to them at a monopoly price, meanwhile transferring input at marginal cost to its affiliated downstream units, which, with their lower costs, can set product prices at levels sufficiently low to squeeze the rivals our of the market.

[51] Scherer and Ross, p. 526.

> facilitate collusion at the manufacturing stage by making it easier to monitor prices or by eliminating a "disruptive buyer." [52]

Beyond collusion, a mutual forbearance and reciprocity occurs as spheres of influence are recognized and honored between and among the small number of interrelated entities in the industry.

> Now we consider the big picture, rather than market-by-market effects. Imagine an extreme situation, with five big diversified firms extending into all major sectors. They coexist in parallel, touching one another in hundreds of markets. Whatever their effects on each market might be, they pose a larger problem of spheres of interest, or diplomatic behavior replacing competition …
>
> Reciprocity is an exchange of favors. Reciprocal buying is one form of it. At its simplest, firm A buys from firm B because of some purchase that B makes from A …
>
> Reciprocity: The large conglomerate may have numerous opportunities for reciprocal buying arrangements.
>
> Mutual forbearance: More generally (it is sometimes claimed) large firms treat each other with deference, avoiding competitive confrontation whenever possible.[53]

The final behavioral effect is to trigger a rush to integrate and concentrate. Being a small independent at any stage renders the company extremely vulnerable to a variety of attacks.

> It is possible that business firms undertake vertical integration mergers not to enhance the level of monopoly power at some stage, but to redistribute it. Oligopolies often settle down into behavioral patterns in which price competition atrophies, even though some or all sellers suffer from excess capacity. Non-price rivalry then becomes crucial to the distribution of sales. One form of nonprice competition is the acquisition of downstream enterprises which, all else (such as prices) being equal, will purchase from their upstream affiliates. If acquisition of this sort deflects significant amounts of sales, disadvantaged rivals are apt to acquire other potential customers in self-defense, and reciprocal fear of foreclosure precipitates a bandwagon effect in which the remaining independent downstream enterprises are feverishly sought.[54]

---

[52] Perry, p. 247.

[53] Asch and Senaca, p. 248.

[54] Scherer and Ross, pp. 526-527.

> Triggering: If there are 10 nonintegrated firms and only one of them integrates, then little affect on competition might occur. But if this action induces the other 9 to do the same, the ultimate impact of the first "triggering" move may be large. Any increase in market power is magnified.[55]

4. MONOPSONY POWER

One important aspect of the mergers that has not been a major concern in the past is the issue of monopsony power. Monopsony is a situation in which "some buyer can perceptibly influence price."[56]

This topic is generally discussed under the broad category of vertical integration.[57] The issue is dealt with as an analysis of a large (or the sole) purchaser of an input or product at wholesale who can exercise bargaining power in the confrontation with suppliers who possess market power. The power of the buyer is said to countervail the power of the seller. This bilateral monopoly situation results in an improvement in consumer welfare under certain circumstances.

> Under what circumstances might countervailing power lead to still better results for the consumer? The answer must involve an asymmetry on the buyer's side: the buyer must be powerful enough to constrain the monopolistic seller's prices, but lack the power as a reseller to charge monopoly prices.[58]

The key to the outcome is "the absence or presence of power on the selling side of the market."[59]

E. FORMAL ANALYSIS OF MARKET POWER AND CONSUMER HARM

We are concerned about market power because of the harm it does to consumers. The primary measure of that harm is in the impact it has on prices. The conceptual depiction of the exercise of market power over price is presented in its simplest form in Exhibit II-3. Market power allows a firm to set price above cost and achieve above normal profits.

> The profit maximizing firm with monopoly power will expand its output only as long as the net addition to revenue from selling an additional unit (the marginal revenue) exceeds the addition to cost from producing that unit (the marginal cost). At the monopolist's profit-maximizing output, marginal revenue equals marginal cost. But with positive output, marginal revenue is less than price, and so the monopolist's price exceeds marginal cost. This

[55] Shepherd, p. 290.

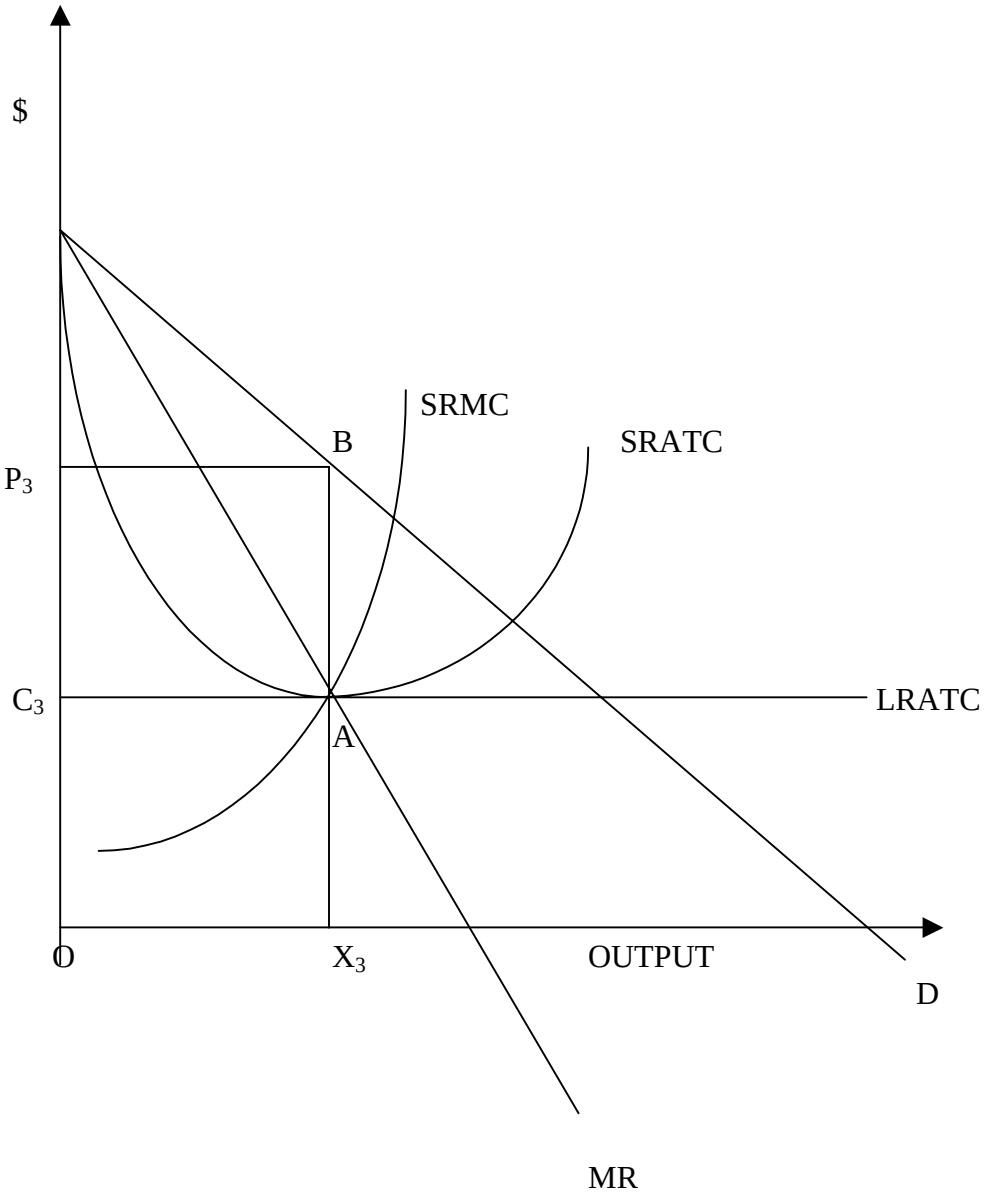
[56] Scherer and Ross, p. 17.

[57] The major texts cited in this paper, Scherer and Ross, Shepherd and Perry all treat the issue in this context.

[58] Scherer and Ross, p. 527.

[59] Scherer and Ross, p. 532.

EXHIBIT II-3
MONOPOLIST PRICING



> equilibrium condition for firms with monopoly power differs from that of the competitive firm. For the competitor, price equals marginal cost; for the monopolist, price exceeds marginal cost…
>
> [The] Figure .. illustrates one of the many possible cases in which positive monopoly profits are realized; specifically, the per-unit profit margin P_3C_3 times the number of units OX_3 sold. As long as entry into the monopolist's market is barred, there is no reason why this profitable equilibrium cannot continue indefinitely.[60]

The most frequent starting point for a discussion of the empirical measurement of the price impact of monopoly power is the *Lerner Index.* The *Lerner Index*, is defined as

> M= (Price – Marginal Cost)/ Price.
>
> Its merit is that it directly reflects the allocatively inefficient departure of price from marginal cost associated with monopoly. Under pure competition, M=0. The more a firm's pricing departs from the competitive norm, the higher is the associated Lerner Index value. A related performance-oriented approach focuses on some measure of the net profits realized by firms or industries.[61]

Returning to Exhibit II-3, the Lerner Index represents the ratio of the monopoly overcharge (P_3 - C_3) divided by the total price (P_3). The total value of the overcharge is derived by multiplying the per unit overcharge times the total number of units sold (OX_3). This is equal to the area of the rectangle P_3 BA C_3.

> Ideally, we would observe the price in the marketplace, estimate the cost and calculate M directly. Obtaining data is always a problem. Therefore, economists also consider several other measures of monopoly profits that are the aggregate manifestation, the result of the underlying pricing abuse.[62]
>
> The usual common denominator for evaluating prices is costs – ideally, in a short run analysis, marginal cost. Unfortunately, it is difficult to obtain systematic data on business firms' marginal cost, or to estimate Lerner indices. As a surrogate, researchers have chosen diverse profitability measures that can be used, with varying degrees of reliability, as proxies for the evaluation of Price above marginal cost…
>
> A good long-run approximation to the Lerner index would be the ratio of supra-normal profits to normal cost. This is approximated by the ratio:

[60] Scherer and Ross, pp. 21…22.

[61] Scherer and Ross, pp. 70… 71.

[62] Scherer and Ross, pp. 415… 416.

$$\overline{\quad} \; / \; /_S = \frac{\text{Supra-normal profit}}{\text{Sales revenue}}$$

Where supra-normal profit = sales revenue – noncapital costs – depreciation – (total capital x competitive cost per unit of capital).

The profit margin identified above is the abnormal profit margin earned by the monopolist. While profit margins are readily available, they present some problems.

> Because the cost of capital is not recorded in firms' accounting statements and can only be imputed with difficulty, few researchers have developed accounting-based estimates of $_{//S.}$ Economists seeking to avoid the difficulty have usually opted for second-best surrogates falling into three categories
> One is the accounting rate of return on stockholders' equity

$$\overline{\quad} \; / \; /_E = \frac{\text{Accounting profits attributable to stockholde9rs}}{\text{Book value of stockholders equity}}$$

Or on capital

$$\overline{\quad} \; / \; /_E = \frac{\text{Accounting profits + interest payments}}{\text{Total Assets}}$$

The return on equity estimate uses the reported accounting profits divided by book equity. Because of the lack of cost data and concerns about price and profit data, economists transform these price cost analyses into other economic measures for which they have data or which they can estimate. The price cost margin is converted to the reciprocal of the elasticity of elasticity of demand.

$$L = \frac{P - MC}{P} = \frac{1}{E}$$

Landes and Posner offered a different translation of the Lerner index.[63] They transformed the index into an expression that used the market share of the dominant firm and decomposed the elasticity of demand into two components.

$$L = \frac{(P - C)}{P} = \frac{S}{e_m^d + e_j^s (1 - s_i)}$$

where:

[63] Landes, W. M. and R. A. Posner, "Market Power in Anti-trust Cases," *Harvard Law Review*, 19: 1981.

S = the market share of the dominant firm

e_m^d = elasticity of demand in the market

e_j^s = elasticity of supply of the competitive fringe

s_i = market share of the fringe.

In words this formula says that the markup of price over cost will be directly related to the market share of the dominant firm and inversely related to the ability of consumers to reduce consumption (the elasticity of demand) and the ability of other firms (the competitive fringe) to increase output (the elasticity of this supply).

An improvement was immediately suggested for this formula.[64] It can be adjusted to take into account the key factor of strategic interactions. A term can be included which adjusts for the special impact of the market shares of other firms.

$$L = \frac{(P - C)}{P} = \frac{S(1 + k)}{e_m^d + e_j^s (1 - s_i)}$$

where k = the effect of strategic interaction

If the likelihood of strategic interaction will reinforce the efforts of the dominant firm to raise prices, then k can be set positive. If there is likely to be a uniquely vigorous competitive response, then k can be set negative. When k equals zero, there is no strategic interaction effect. Estimating the value of k is a subjective process, but it does add an important element to relating market structure to performance through conduct.

[64] Ordover, J.A. and R. D. Willig, "Herfindahl Concentration, Rivalry, and Mergers," *Harvard Law Review*, 95: 1982.

III. STRUCTURAL FLAWS IN THE TRANSITIONAL ELECTRIC UTILITY MARKET

A. OVERVIEW OF MARKET PROBLEMS

Two years of experience in the restructuring electricity market raises serious questions about its ability to perform. As state-by-state restructuring spread, pressures on the interstate electricity market have increases and, from one point of view, the newly restructured markets have not functioned well at the most critical time. In the summer when demand is high, these markets have failed to deliver price stability or quality products.

Huge price spikes and severe supply disruptions have plagued the industry. During 1998 and to a lesser extent 1999 electricity markets on the West Coast and in the Midwest experienced repeated episodes when prices increased at least ten fold and as much as 300 fold.[65] Hundreds of millions of dollars changed hands in a matter of days.[66] Bankruptcies of over a quarter of a billion dollars resulted.[67] In fact, one estimate places utility losses in electricity trading during the air conditioning season at over half a billion dollars for 1998.[68] In 1999 there were widespread power outages in the northeast and Midwest. While 1998 witnessed one major outage, the 1999 outages occurred in many markets.

The review of the structural conditions in the electricity markets in 1998 and 1999 leads us to conclude that systematic factors and circumstances well within the realm of active policy making are the key to ensuring an effective electricity market (see Exhibit III-1). While it is clear that factors such as weather and mechanical breakdowns are not controllable, the evidence suggests that these factors were not sufficiently more powerful in 1998 or 1999 than earlier years as to account for a 3000 percent increase in the price of peak power[69] or the widespread outages.[70]

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[65] The summer price spikes received a great deal of attention but the California winter price spikes may indicate more about the vulnerability of markets see Bohn, Roger E., Alvin K. Klevorick and Charles G. Stalon, Market Monitoring Committee of the California Power Exchange, *Second Report on Market Issues in the California Power Exchange Energy Markets* (March 9, 1999) (Hereafter Cal, Second Report). p. 20.

[66] Federal Energy Regulatory Commission, *Staff Report to the Federal Energy Regulatory Commission on the Causes of the Pricing Abnormalities in the Midwest During June 1998* (Washington, D.C.; 1998) (hereafter, FERC, Staff Report). P. 3-19, estimates a net transfer of revenues (net losses by some, net gains by others) of approximately $300 million. Five entities accounted for almost three-quarters of the losses ($215 million).

[67] "Marketer Bankruptcy Filing Lists Claims of $236 Million from Tumult," *Electric Utility Week*, September 7, 1998.

[68] "Everen Study Cited Pacificorp, Cinergy and Firstenergy for High Risk Marketing," *Electric Utility Week,* September 28, 1998.

[69] FERC, Staff Report, p. 3-8. Ohio Report, p. 23-24

[70] Outages.

EXHIBIT III-1

RESTRUCTURED ELECTRIC UTILITY INDUSTRY MARKET FAILURE WITHIN THE STRUCTURE, CONDUCT PERFORMANCE PARADIGM

BASIC CONDITIONS	PRICE SPIKE ANALYSIS (CFA FINDINGS)	OUTAGE ANALSYSIS (DOE FINDINGS)
SUPPLY		
Technology	Generation Outages,	(16) Delays in replacement
	Transmission shutdowns	(9) Failures take time
	Long lead times	(1) Lag for new sources
	Summer Weather Impairment	(7, 18, 22) Actual rating or performance are lower in heat
Product durability	Inability to store electricity	
DEMAND		
Price elasticity	Extremely low short run	(2, 19, 23) Limited conservation
Substitutes	Lack of substitutes	
Cyclical and seasonal	Weather-related demand	(21) Inadequate reliability criteria
Purchase method	Obligation to serve, induced demand	
Marketing type	Lack of incentive to cut back	(2, 19) Limited conservation incentive
MARKET STRUCTURE		
Number of sellers	Few sellers	
Number of buyers	Constrained demand by utilities, limited end-user choice	(30) Constrained distribution
Barriers to entry	Transmission constraints	(10,32) Load pockets, inadequate system
	Emergencies	(31) Substation inflexible
Cost structures	High fixed	
Vertical integration	Affiliate relations distort market	(38) Business factors
Diversification	Utilities add brokerage	(29,34 - 37) Inadequate planning and spending for maintenance
Inadequate Market Institutions		
Information provision	Lack of timely, objective	(8) Load projections
		(11) Unit ratings
		(13) Planning tools
		(5,14) Cable condition, incipient failure
		(15) Sharing best practices
		(17, 28) Forecasting
		(20) Inadequate notice
		(27) Dispatch software
	Breakdown of coordination	(4) ISO lacks authority
		(6) Lack of data
PARTICIPANT CONDUCT		
Pricing behavior	Complaints of hoarding, gouging	(24) Reliance on nonfirm power
Legal tactics	Defaults, abrogation of contracts, daisy chains, two-way deals	(25) Inefficient short term sales
		(33) Records not preserved
Regulation	Transmission rules create problems	(3) Market rules not developed

Accidents do not just happen; controllable conditions and circumstances can make them more or less likely to occur. Controllable conditions and circumstances make their consequences more or less severe. There are also ways in which new market institutions and transactions make the likelihood of accidents and their impact greater.

First, the underlying conditions are tight in a number of markets and they are not likely to change anytime soon.[71] "Accidents" affected a variety of technologies in a number of markets at different times. Several major categories of baseload plant – nuclear, fossil, and hydro – have contributed to one or another of the unplanned outages.[72] The problem is pervasive and comprehensive. Highly concentrated, local markets enable large generators to drive up prices by withholding supplies. As a constraining bottleneck facility that restricts expanding supply, the transmission system facilitates this manipulation. The problem is pervasive and systemic. Because it is, and because it facilitates the exercise of market power, it requires policy responses.

Second, while weather and outages may tighten supplies within a given region, transmission constraints limit the ability of power to come from outside of the region to alleviate the local imbalance. There is no doubt that constraints on the transmission system played an important role. The problem is pervasive and systemic. Because it is, and because it facilitates the exercise of market power, it requires policy responses.

These less controllable factors occur in the context of a market that is weak. On the supply-side, technology prone to outages in the supply of a commodity that is impossible to store creates significant potential for supply problems. Capital stock is long lived and significantly determines supply and demand responses. While the lead times for smaller, peaking generation units is not long, larger baseload facilities still have substantial lead times, and transmission facilities are especially difficult to bring on line. As a result there are significant constraints in some areas on the ability to expand supply. The problem is pervasive and systemic. Because it is, and because it facilitates the exercise of market power, it requires policy responses.

On the demand-side, we find consumption significantly influenced by weather. Demand is also affected by the stock of capital equipment deployed. Pricing structures also give little incentive to alter demand in the short-term. These pricing and marketing structures can be changed, but they are long-standing and may encounter consumer resistance for a variety of reasons. The problem is pervasive and systemic. Because it is, and because it facilitates the exercise of market power, it requires policy responses.

[71] Harris, p. 4.

[72] Cal, Second Report, p. 15. FERC, Staff Report, p. 2-11, 2-12.

B. SUPPLY-SIDE PROBLEMS

1. EXERCISE OF MARKET POWER

The analysis of the market structure leads to the conclusion that market power can be exercised in these markets because they are thin.[73] With little supply available at certain times and few competitors, there is no need to identify or assume collusion, since supply is so restricted.[74] The analysis of market concentration in the electric utility industry has consistently found that many product and geographic markets are highly concentrated.[75] The analysis of bidding behavior indicates that market power was being exercised. [76]

The most blatant exercise of market power is the withholding of supply. A supplier with market power watches the price rise, well above its level of costs, but does not sell because he is confident that there are not enough other producers who can enter the market.[77] The problem of manipulation of bidding is not one that is likely to just go away; nor is it limited to conditions where markets are extremely tight.[78]

Withholding supplies is one strategy that can drive prices up and increase profits. To the extent that such a strategy is dependent upon the inability of competitors to offer supplies, the success of the exercise of market power can be enhanced if competitors can be prevented from entering the market.[79] The mechanism for doing so is to prevent the transmission of power or to raise the price of transmission services.[80] In the former case, the generation owner captures the rents. In the latter case the transmission owner captures excess profits. [81] Large entities tend to gain regionally dominant positions, especially where they control transmission. Because geographic markets are small, market power can be easily exercised in specific markets.[82]

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[73] Cal, First Report, p. 20-21.

[74] Cal, Second Report, pp. 49-50, 56.

[75] Cardell, Judith B., Carrie Cullen Hitt and William W. Hogan, "Market Power and Strategic Interaction in Electricity Markets," *Resources and Energy Economics*, 19:1, 1997; DOE, Market Power.

[76] Borenstein, Severin, James Bushnell and Frank Wolak, "Diagnosing Market Power in California's Deregulated Wholesale Electricity Market," Working Paper PWP-064, *Power* (University of California Energy Institute, 1999); Wolak, Frank A. and Robert H. Patrick, "The Impact of Market Rules and Market Structure on the Price Determination Process in England and Wales Electricity Markets," Working Paper PWP-047, *Power* (University of California Energy Institute, 1997); Cal, First Report, p. 21.

[77] FERC, Staff Report, p. 3-15.

[78] Newberry, David, "Viewpoint: Freer Electricity Markets in the UK: A Progress Report," *Energy Policy*, 26:10, 1998, pp. 746-747; "Interview – UK Power Pool Says Reduces Price Surges," *Reuters*, April 16, 1999.

[79] Thilly, p. 4; FERC, Staff Report, p. 4-7.

[80] DOE, Market Power, p. 2; Cardell, Hitt and Hogan.

[81] FERC, Staff Report, p. 4-7.

[82] Cal, First Report, p. 21.

Although the outage report did not seek to discover manipulative behavior as part of its study, certain findings may indicate problems in this regard. The business factors (Finding 38) and the failure to preserve records (Finding 33) are consistent with our finding in the analysis of price spikes. The DOE *Market Power* report concluded that the empirical evidence clearly indicated market power had been exercised in some restructured markets[83] and the potential for its exercise in other markets is substantial.[84]

2. TRANSMISSION CONSTRAINTS

The transmission supply problem is pervasive and widespread.[85] This is reflected in both the inability to move power between regions and the existence of load pockets within regions. In the near term there is little that can be done about these constraints. This condition has existed for some time.[86] However, it is clear that the introduction of competition has put a strain on an already stressed asset.[87]

Vertical integration between generation, transmission and distribution make entry more difficult and create an ongoing problem about codes of conduct to govern the treatment of non-affiliated entities.[88] Moreover, the rules for allocating the scarce transmission resource during times of stress were far from optimum.[89] In a competitive market, some entities gain an interest in hoarding this asset.[90] As a result, markets may have appeared more constrained to buyers than they were in actual physical terms.[91]

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[83] DOE, Market Power, pp. 4-5.

[84] DOE, Market Power, chapter 4; Borentstein, Severin, James Bushnell and Christopher Knittel, "A Cournot-Nash Equilibrium Analysis of The New Jersey Electricity Market," *Review of General Public Utilities Restructuring Petition*, Docket No. EA97060396, 1997; Sweester, Al, "Measuring a Dominant Firm's Market Power in a Restructured Electricity Market, A Case Study of Colorado, *Utility Policy*, 1999; Public Service Commission of Utah, *Market Power Report to the Electrical Deregulation and Customer Choice Task Force*, 1998; Michigan Public Service Commission, "Staff Market Power Discussion Paper," *Electric Restructuring*, Case No. U-11290, 1998.

[85] Harris, p. 5.

[86] Ohio Report, p. 19.

[87] Ohio Report, pp. 20-21.

[88] Restructuring, p. 13, References cited in the original paper in support of this argument include Comnes, G. A., E. P. Kahn and T. N. Belden, "The Performance of the U.S. Market for Independent Electricity Generation," *The Energy Journal*, 17:3, 1996; Green, R.J. and D. M. Newberry, "Competition in the British Electricity Spot Market," *Journal of Political Economy*, 100:5, 1992; Kennedy J. and Associates, *Electric Utility Restructuring Issues for ERCOT: Prices, Market Power and Market Structure*, (Office of Public utility Counsel of Texas, 1996); Newberry, D. M. And M. G. Pollitt, "The Restructuring and Privatisation of Britain's CEBG -- Was It Worth It?," *The Journal of Industrial Economics*, 45:3, 1997.

[89] FERC Report, p. 5-6.

[90] Thilly.

[91] Cal, Second Report, p. 24 Ohio Report, p. 17.

With a mix of planned and market driven behaviors interacting with genuine concerns about physical shortages, the actual state of the available physical system is difficult to perceive.[92] Our analysis of the price spikes concludes that this uncertainty has been exploited to raise prices.

The analysis of the power outages reinforces these observations. The recent DOE outages report underscores technology constraints as a systemic problem. Transmission is difficult to repair or replace in response to outages (Findings 9, 31). This then places a premium on flexibility of supply and reserve margins, but neither of these is well accommodated in the industry (Findings, 1, 16). Ironically, in a restructured environment utilities discover that their systems do not perform as rated (findings 7, 18, 22). This is a systemic factor that must be brought into the planning process. The transmission resource is clearly limited (Findings, 10, 32). Similar constraints on the availability of distribution are noted (Finding 30). The DOE *Market Power* report affirms the importance of transmission capacity and pricing as a key condition for the exercise of market power.[93]

C. DEMAND-SIDE PROBLEMS

One of the key factors that drove prices up was the need of utilities to ensure physical availability of supplies.[94] For all the focus on market efficiency, the ultimate test of electricity service is keeping the lights on, and some entities still have the obligation to ensure that they do. The obligations and incentives of these entities drives them to what can be considered extreme behavior from a simple market point of view. They are driven to pay an awful lot to meet demand.

Virtually all demand, certainly for residential customers, is still met by a utility obligation to serve. The obligation to serve becomes a virtual edict to avoid blackouts at all costs.[95] Consumers have generally supported this continuation of the fundamental principle of utility service. Electricity service is just too important to be unreliable.

However, in an unfettered market for supply there are adverse consequences of this behavior. It is difficult for utilities to exercise restraint as supplies become tight.[96] Utilities need physical supply to meet their load. Marketers can default and negotiate or litigate damages.[97]

Restructuring may require much more attention to interruptible rates to facilitate the response to tight markets. Interruptible customers must be prepared to actually be

[92] Cal ,Second Report, p. 24.

[93] DOE, Market Power, p. 9, 13.

[94] Ohio Report, p. 35.

[95] FERC, Staff Report, p. 4-1.

[96] Cal Second Report, p. 48.

[97] Ohio Report, pp. 24-25.. 39.

interrupted.[98] New incentives in a restructured market call into question whether utilities will live up to the non-price terms of their interruptible tariffs, given the high price they can fetch for released power or be avoided for purchased power. Interruptible rates based on a regulated system that did not contemplate frequent interruptions may be inadequate. Rewards for releasing power need to reflect the higher prices being paid at peak. Given the greater frequency and higher prices occurring in the marketplace, new rules on who is cut back and who is not and how customers are compensated are needed.

The analysis of outages repeatedly points to the problem of inelastic demand. Both the inability to conserve (Finding 2, 19) and the lack of incentives (finding 23)are noted.

D. A NEW MARKET CREATES DISORDER

1. TRANSACTIONAL DEMANDS

Creation of markets for electricity services requires a huge growth in transactions. These transactions create heavy administrative requirement in an industry that exhibits economies of coordination. One of the central activities of electric utility monopolies is to balance load -- to aggregate customers who use electricity at different times of the day or year. By bringing together customers with dissimilar load patterns utilities are able to use their facilities more fully -- to balance periods when some customers are off line with other customers who are on line. Empirical studies show strong economies are achieved by coordinating supply and demand. [99]

Directly related to the transactions and managerial functions are facilities costs. Demands on network facilities are likely to increase as a result of the wide range of new transactions taking place. The physical facilities to support these transactions will have to be constructed and maintained. An increase in the number of transactions may require costly improvements to the transmission system in order to ensure reliability.[100] Prior to the price

[98] "Corporate Customers Demand Probe into Electric Utility Practices," *Wichita Eagle*, Mar 14, 1999.

[99] Restructuring, p. 7. References cited in the original as supporting this observation include Gegax, Douglas and Kenneth Nowotny, "Competition and the Electric Utility Industry," *Yale Journal on Regulation*, 10:63, 1997; Gilsdorf, Keith, "Testing for Subadditivity of Vertically-Integrated Electric Utilities," *Southern Economic Journal*, 18:12, 1995: Henderson, J. Stephen, "Cost Estimation for Vertically Integrated Firms: the Cost of Electricity," M. A. Crew (Ed.), *Analyzing the Impact of Regulatory Change in Public Utilities* (Lexington, MA, Lexington Books, 1985); Hirst, Erick and Brenda Kirby, "Dynamic Scheduling: The Forgotten Issue," *Public Utilities Fortnightly*, April 15, 1997; Kaserman, David L. and John W. Mayo, "The Measurement of Vertical Economies and the Efficient Structure of the Electric Utility Industry," Journal of Industrial Economics, 29:5, 1991; Kwoka, John E. Jr., *Power Structure: Ownership, Integration, and Competition in the U.S. Electricity Industry* (Dordrecht, Boston: 1996); Roberts, Mark J., "Economies of Density and Size in the Production and Delivery of Electric Power," *Land Economics*, 62:4, 1986.

[100] Restructuring, p. 8. References cited in the test in support of this proposition include Mistr, Alfred E. Jr., "Incremental-cost Pricing: What Efficiency Requires," *Public Utilities Fortnightly*, January 1, 1996; Oren, Shmuel, S., "Economic Inefficiency of Passive Transmission Rights in Congested Electricity Systems with Competitive Generation," *The Energy Journal*, 18:1, 1997, "Passive Transmission Rights Will Not Do the Job," *The Electricity Journal*, 10:5, 1997; Ostroski, Gerald B., "Embedded-cost Pricing: What Fairness Demands,"

spikes of 1998, the number of traders increased over 50 fold; the quantity traded increased several hundred times.[101]

There were also complications of financial and ownership relationships between entities.[102] Who owns what and who has the obligations to provide the various services that support the movement of electricity were not always crystal clear.

One of the most important changes in behavior that affected the market during the price spikes and outages is to reduce the ability of system managers to coordinate and run the transmission system. The problem stems both from complexity and from a lack of cooperation. Market participants do not have an incentive to cooperate. [103]

The outage report raises the problem of transaction pressures in a number of ways. An unwillingness to share best practices is a generic problem (Finding 15). Inadequate notice of problems (Finding 20) and business factors (finding 38) also fall into this category. Even more fundamental is the lack of authority of the ISO to respond to problems (Finding 4) and an absence of rules (Finding 3).

2. INFORMATION INADEQUACIES

Thus we have a new market with a multitude of complex transactions. One of the most important requirements for coping with this new market situation would be good information.

Unfortunately, such information was not available during the price spikes of 1998 or the outages of 1999. There is simply no centralized, reliable source of information.[104] Information is much more difficult to gather for system operators. Moreover, the brokers who were the sources of information may well have had interests that would be served by skewing information in one direction or another.[105]

The information problem received the most attention in the outage report. A number of information and management weaknesses are noted including inadequate forecasting tools

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Public Utilities Fortnightly, January 1, 1996; Radford, Bruce W., "Electric Transmission: An Overview, *Public Utilities Fortnightly*, January 1, 1996: Volpe, Mark J., "Let's Not Socialize Transmission Rates," *Public Utility Fortnightly*, February 15, 1997. Bohi, Douglas and Karen Palmer; "The Efficiency of Wholesale vs. Retail Competition in Electricity, *The Electricity Journal*, October 1996; Gegax, Douglas and Kenneth Nowotny, "Competition and the Electric Utility Industry, *Yale Journal on Regulation*, 10:63, 1997, Cornelli, Steve, "Will Customer Choice Always Lower Costs?", *The Electricity Journal*, October, 1996.

[101] FERC, 3-1, 3-2.

[102] Ohio Report, p. 28.

[103] Ohio Report, p. 38

[104] FERC, Staff Report, p. 3-2.

[105] FERC, Staff Report, pp. 4-3, 4-4, 4-16.

(Finding 8, 13, 17, 18 20), a lack of monitoring instruments (Findings 5, 11, 14), and little real time information to respond to problems (Findings 6, 27).

3. MANIPULATION OF TRANSACTIONS

The increase in the number of transactions was compounded by the nature of many of the transactions. Daisy chains passed power through a long line of sequential owners without ever physically being delivered, except by the last owner. [106] This adds no new supply to the market. At least some of the transactions on which the market was built were fabrications – deals in which the buyer and seller were one and the same.

This institutional structure was clearly implicated in the price run-up when financial transactions increased apparent demand. In tight markets traders with financial problems add to the bidding for power.[107] Entities with needs for physical power compete with entities with financial needs for power, but the underlying physical supply and demand have not changed.[108]

Defaults on contracts in 1998 fueled the frantic bidding partly because of the nature of trading. As prices mounted, so too did the cost of failing to meet financially firms contracts.[109]

While attention has been focused on the default of electricity brokers, it appears that other institutions invoked contract clauses that sent some utilities scrambling for replacement power.[110] Moreover, given the chaotic and emergency situation under which transactions were being conducted, and because rules had not been clearly defined by authorities, even when they bought power, they could not be sure what price they would be charged.[111]

Although not strictly a problem of "manipulation," the outage report identifies incentive and behavioral problems that can be classified in this category. The complaint about inefficient short-term transactions is essentially a complaint about the market transaction mechanism (Finding 25). The new market also elicited a reliance on nonfirm sales, which simply could not be sustained in a stressed market (Finding 24).

[106] FERC, Staff Report, pp. 3-2, 4-10.

[107] FERC, Staff Report, p. 3-20.

[108] FERC, Staff Report, p. 3-20.

[109] Ohio Report, p. 29.

[110] FERC, Staff Report, p. 4-1.

[111] FERC, pp. 4-5. 9

IV. IMPLICATIONS FOR MERGER AND OPEN ACCESS POLICY

A. GENERAL CONCERNS ABOUT MERGERS

The weak market structures described in our earlier analyses have led us to recommend a variety of public policies to establish greater order in the transition to competitive markets in electricity. One of the most urgent areas for public policy action is developing a response to mergers. The Federal Energy Regulatory Commission has been flooded with requests for mergers in anticipation of the development of a competitive market. The structure of the market and the initial experience in the restructured market argue for a very cautious approach to mergers (See Exhibit IV-1).

EXHIBIT IV-1
EMPIRICAL AND ANALYTIC REASONS TO PREVENT ADDITIONAL MERGERS UNTIL AFTER MARKET INSTITUTIONS ARE MORE FULLY DEFINED

HORIZONTAL MERGER
- Basic conditions create vulnerable markets
  - Low supply and demand elasticity
  - Narrow geographic markets
  - Multiple necessary projects
- Concentration of generation resources
- Loss of potential competitors is critical in transition
- Lack of information compounds problems

MARKET EXTENSION
- Extension of distribution monopoly
  - Cross-subsidy facilitated
- Extension of transmission bottlenecks
  - Short term supply response restricted

VERTICAL INTEGRATION
- Vertical leveraging of transmission bottleneck
  - Input foreclosure
  - Price squeeze facilitated
  - Forbearance and reciprocity enhanced

The inflexibility on both the supply and demand sides renders the market vulnerable to the reduction of competitors. The elasticity of market demand is very low in the short term and low in the long term. The demand side cannot be counted on to discipline abusive pricing behavior. Short term supply responses are constrained and significant additions to supply require substantial lead times. Since the ability (or willingness) of entities in the market to expand supply is limited, entry from outside the market must be encouraged – particularly

new players from other geographic areas. Since generation assets are sunk, the transmission system plays the key role.

Because of the severe conditions that typify the electricity market, concentration must be considered in very narrow geographic and product terms. A number of different services are necessary to properly manage the grid. Each of these must be considered separately. The ability to move product into the market is restricted geographically, particularly in the short term. Consequently, economic impacts are severe and rapid. Therefore, economic markets must be considered based on the short term ability to raise prices.

Given this situation, loss of contiguous potential competitors through merger is a source of particular concern. There is no more likely source of supply to alleviate near term shortages.

Mergers between most utilities in the early period of restructuring involve significant market extension that involves monopoly and bottleneck facilities. To the extent that utilities have had exclusive distribution territories, they are extending the distribution monopoly. Similarly, since utilities have owned the transmission facilities within their service territories, most mergers involve market extension over these bottlenecks.

Since these facilities have not been subject to competition, they can be a source of cross subsidy. Because they are bottlenecks and determine the ability to provide service, they certainly provide the basis for the anticompetitive behaviors identified in the review of conglomeration and vertical integration.

The problem of vertical integration in most mergers is of extreme importance. Most merging utilities combine transmission and generation assets, as well as distribution assets. Restructuring is intended to introduce competition into the generation market, and it is quite clear that transmission is a bottleneck with respect to the generation market. Allowing the extension of control over transmission assets confounds the goal of increasing competition in generation.

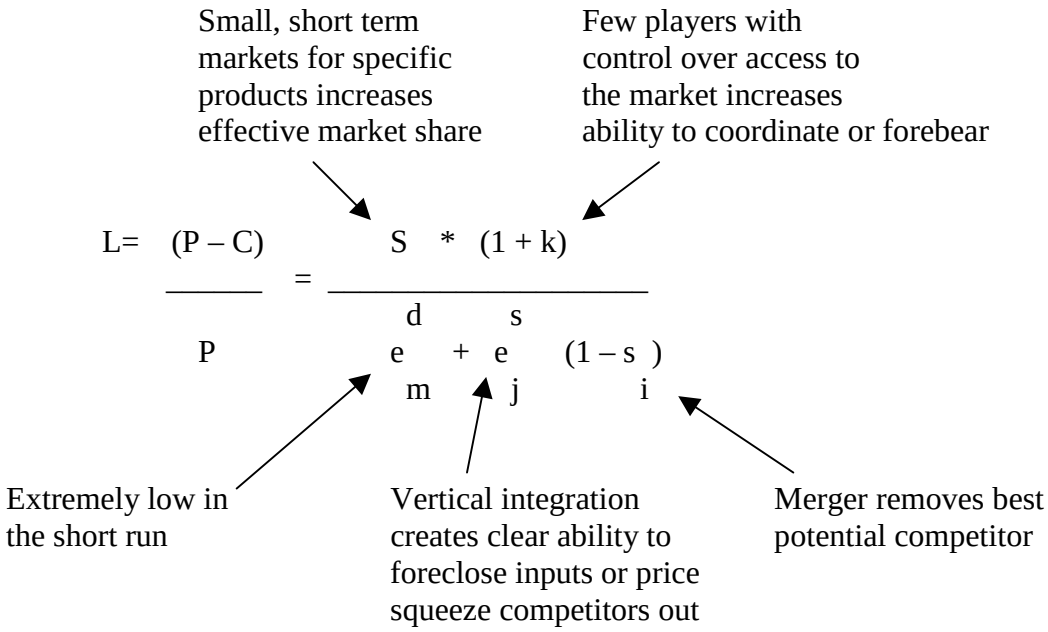
Competitors can be foreclosed from the market or squeezed by price. The evidence that this has occurred in the market in the past two years makes it clear. The markets that have been created in the early stages of restructuring have clearly demonstrated the ability of large players to forebear.

These impacts can be readily interpreted in terms of the qualitative and formal paradigm outlined in Chapter II. The ability to raise prices above costs as measured by the Lerner index is high because the factors we have identified increase the numerator and decrease the denominator (see Exhibit IV-2).

We define the market share term in the numerator of the Lerner index for separate products in small geographic markets and over short periods of time. This approach to market definition reflects the reality of the electric utility industry.

EXHIBT IV-2

EVALUATING THE IMPACT OF UNIQUE ELECTRICITY MARKET CHARACTERISTICS ON MARKET POWER ANALYSIS



The strategic interaction term in the numerator is at best neutral and, given the small number of operators in the transmission market, likely to reinforce anticompetitive behaviors. Entry into the electricity market has a long lead time and assets are sunk. Competition is entirely dependent on transmission access for entry in the short and mid term. With a system operator controlling the flow of competitive power, the ability to coordinate or forebear is greatly enhanced.

The denominator of the index is reduced because the elasticity of demand is low and the elasticity of supply is reduced substantially by merger activity. Mergers take the most important players out of the competitive fringe (nearby utilities with generation and transmission assets to reach the market). They enhance the potential to foreclose or squeeze the competitive fringe.

Given this, we conclude that mergers should be highly suspect, particularly during the transition to a competitive market.

Horizontal mergers traditionally receive the most scrutiny because they directly eliminate competition. Because of the basic characteristics of this market and during the

transition, they should be an even greater source of concern. The key is market definition. Geographic markets are narrow, product markets are highly specific. Timing is also crucial. Markets must be analyzed when they are tight, since very large amounts of money can change hands very quickly.

The concern that is generally expressed about horizontal mergers should be extended to mergers that involve vertically integrated incumbents. These mergers should not be allowed until after the structure of a competitive market has been established. Further, the vertical and conglomerate problems created by mergers of vertically integrated utilities requires that the transmission bottleneck be opened completely and irreversibly.

The vulnerability of the markets as a general matter and the undeveloped status of market institutions provides a fertile field for anticompetitive actions that may not only harm consumers in the short term, but that may also distort competition in the long term. The head of the Antitrust Division had suggested a moratorium on mergers in electricity in the formative years of the market, or at least a shifting of the burden of proof. That is, under normal antitrust practice, the Justice Department must show harm and sue to stop a merger. Given the status of this market, it has suggested that the merging parties be required to show an absence of harm.

A cautious approach to mergers in the early stages of the transition to competition is especially needed. With little experience in a competitive market, institutions undeveloped and rules ill-defined, it is extremely dangerous to allow large numbers of competitors to be eliminated. There will appear to be a great deal of potential competition when a market is being restructured, but the ability of new entrants to actual enter is unclear. Policymakers run the risk of establishing a competitive structure without competitors. After the fact fixes are extremely difficult, and onerous. An ounce of prevention is worth a pound of cure.[112]

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[112] The analogy to telecommunications is compelling.

> Indeed, if the Bureau does in fact decide to regulate this industry because access does not magically become open, we will end up with more rather than less regulation, because the bureau will have to regulate not just access to the wires, but a whole host of industries that could have been competitive but that ended up being bundled to the network itself. We will find ourselves, in short, in a new era of regulation reminiscent of the old days of the Bell System. (89)
>
> The way to reduce uncertainty, and promote broadband adoption, would be for the FCC to simply state a clear policy — that cable must be architected to facilitate open access to cable customers. How quickly, and how precisely, are questions the agency can defer for now. Just as the FTC has required online merchants to deal with privacy, or face regulation, so too could the FCC require access providers with significant market power to provide open access, or face regulation if they don't. The policy — open access — should be clear, even if cable companies control how it is implemented in the first instance. (90)
>
> Moreover, the costs of dislodging an existing monopoly power are always significant, and always higher ex post. This is particularly true in this context, where if we must regulate ex post we will face integrated, bundled broadband providers that will have to be broken up, and ways will have to be found to recreate the competition the FCC will have allowed to languish. (103)

B. FOCUSSING ON TRANSMISSION AS A BOTTLENECK

Wild price spikes in 1998 and widespread outages in 1999 indicate structural flaws and institutional failures in the restructured electricity markets that require vigorous policies to promote competition and protect consumers from abuse. The transmission grid stands at the intersection of many of these problems.

- The breakdown of coordination in the restructuring industry occurs because competition reduces the incentive for market participants to cooperate and makes it difficult for system operators to manage the electricity network.
- Inadequate transmission capacity and restrictions on access to transmission limit the ability of power to flow.
- Manipulation of access to the transmission system for self-interested profit motives makes problems worse.
- Highly concentrated, local markets enable large generators to drive up prices by withholding supplies. As a constraining bottleneck facility that restricts expanding supply, the transmission system facilitates this manipulation.

With more than half the electricity in the country being consumed in states that have enacted restructuring plans, structural problems in the interstate market must be addressed by public policy to improve the performance of these markets. The FERC recognizes that time is of the essence in reforming the transmission system. The states have moved to restructure and the interstate market is not working. The FERC has decided to open a voluntary process to seek to solve the problem, but our experience in other industries suggests that this strategy does not have a high probability of success. We offer the experience of the telecommunications industry as an example.

Our experience in the telecommunications industry leads us to conclude that vertically integrated incumbent network monopolists will not willingly give up control over the bottleneck network facilities that they own. Market power is just too valuable to them. The slow and rancorous process to open the local market in telecommunications has come in spite of very clear requirements and powerful incentives in the Telecommunications Act of 1996 Act. As the FERC has structured its rule, there is much less to compel the incumbents in the electric utility industry to cooperate in market opening than in the telecommunications industry.

Almost four years after the passage of the 1996 Act and over three years after the FCC's Local Competition Order, the failure of market opening is stunning. One company in one state (Bell Atlantic in New York) has met the standards in the Act and a second is close (SBC in Texas). The Department of Justice is not convinced that either company has met the terms of the Act.

We believe that the structural problems in the electric utility industry are so severe; the role of non-discriminatory access to the transmission system so fundamental to an effectively competitive interstate electricity market and the resistance of vertically integrated incumbent network owners so vigorous, that the FERC's proposed voluntary negotiations will fail to solve the problem in a timely manner. There is simply not enough muscle in the Final Rule to induce the incumbent utilities to part with their market power voluntarily. Nor do we believe that they should (or could) be bribed to do so. They must feel compelled to do so.

While we believe the FERC should mandate participation in RTOs, we recognize the FERC's hesitance in this regard. Therefore, we suggest that the FERC should at least adopt a policy that mergers and market-based rates will not be approved for utilities that are not participants in an approved RTO. Only by removing the control over critical bottleneck transmission facilities should utilities be allowed to merge generation assets or to enjoy the benefits of market-based rates.

Mergers involving vertically integrated utilities that own bottleneck transmission facilities are likely to be anticompetitive. Control over bottleneck facilities increases the market power of vertically integrated incumbents. FERC's ability to regulated these facilities in an increasingly restructured industry is limited. Failure to participate in an RTO undermines the potential benefits of mergers or market-based rates. Without participation in an RTOs allowing mergers or market-based rates is not in the public interest.

C. MARKET-BASED RATES

Moreover, as more and more state markets are restructured, the transmission bottleneck becomes a larger problem. Therefore, the FERC should review, on its own motion, the market-based rates that have been previously granted to utilities that fail to join RTOs. Where specific market conditions exist, it should revoke market-based rates for vertically integrated utilities that refuse to join RTOs, or at least shift the burden of proof to the utility.

These triggers can be drawn directly from the analysis of industry structure. The empirical conditions that are believed to increase the likelihood of the exercise of market power should be set at conservative levels – levels that lean toward protecting competition. They can be identified for both market structure and conduct.

For example, horizontal market structure identifies the moderately concentrated threshold at an HHI of 1,000. If a vertically integrated utility has its generation in a supply market which exceeds this threshold, it should bear the burden of proving that its market-based rates are in the public interest, since this market is vulnerable to the abuse of market power. The empirical literature identifies other market structural triggers. If a vertically integrated utility controls more than 20 percent of the bottleneck transmission assets or more accounts for more than 35 percent of demand, the burden of proof should be shifted.

On the conduct side, any vertically integrated utility that has engaged in market tightening behavior in the previous three years but refuses to join an RTO should bear the

burden of proving that its market-based rates are still in the public interest. The types of activities identified with market tightening are identified in Exhibit IV-3.

EXHIBIT IV-3
MARKET TIGHTENING CONDITIONS THAT RAISE DOUBTS ABOUT
THE PUBLIC INTEREST BENEFIT OF MARKET-BASED RATES

SUPPLY TIGHTENING

Took plant out of service on an unscheduled basis
Withheld supply
Executed a swap
Engaged in a two-way transaction
Was part of a daisy chain in default

LEVERAGING THE TRANSMISSION BOTTLENECK

Took transmission out of service on an unscheduled basis
Declared an emergency
Participated in a TLR
Violated market rules