

ADDRESSING MARKET POWER

THE NEXT STEP IN ELECTRIC RESTRUCTURING

Prepared by

Ronald J. Binz

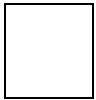
Mark W. Frankena

A policy paper of the

Competition Policy Institute

1156 15th Street, NW, Suite 520
Washington, DC 20005

3773 Cherry Creek North Drive, Suite 1050
Denver, CO 80209



CONTENTS

1	Introduction.....	1
2	Findings and Executive Summary	5
3	Developments in the Electric Power Industry	15
4	What is Market Power?.....	19
5	Market Power in the Electric Power Industry	25
6	Assessing Market Power	35
7	Dealing with Market Power	47
8	Mergers and Market Power	57
9	Retail Customer Choice and Market Power.....	67
10	Market Power and Federal Legislation	75
Appendices		
A	Sources and Bibliography.....	81
B	The Evasion of Regulation	85

1

INTRODUCTION

The United States electric power industry is in the midst of fundamental change. Competition in previously monopoly sectors of the industry promises to increase the efficiency of electricity production, lower the price of the product and provide consumers with added choices at the retail level.

But electric restructuring has an Achilles' heel. Its promised benefits — increased efficiency, lower prices and wider consumer choice — depend critically on the assumption that newly deregulated generation and retail services markets will actually be competitive so that market forces will discipline sellers.

What can go wrong? Simply put, owners of deregulated generating plants and retail marketers of electricity could have **market power**. Generators in a region may be able to keep deregulated prices of electricity above competitive levels and earn supra-normal profits while depriving consumers of some of the benefits of restructuring. If deregulated retail marketers of electricity are shielded from the pressures of competition from other providers, the result will be predictable: consumers will pay too much for electricity.

On the other hand, if market power is substantially eliminated by structural changes in the electric industry, the economic gains from competition will flow through to consumers. Policy makers must therefore have the ability to assess market power and the authority to bring about appropriate structural changes through the restructuring process. Any lesser prescription threatens to deny consumers the benefits of restructuring from the start.

WHAT IS MARKET POWER?

In antitrust analysis, **market power** is the ability of a firm, alone or in concert with other firms, profitably to maintain the prices of a product above competitive levels for an extended period of time. Firms with market power are insulated from pressures of competition. The oil-producing OPEC cartel has market power to the extent that it can raise the world price of oil and profits for members above competitive levels by curtailing oil production.

In contrast, firms in a competitive market cannot profitably raise prices. These firms are *price-takers*, not *price-makers*. Typically, a retail grocery store cannot profitably raise the price of milk. If its price is too high, shoppers will simply go down the block.

Market power is not synonymous with size or market share. A large firm with a high market share will not charge prices above the competitive level for an extended period of time if competing firms can easily enter the market. Further, firms may be without market power even if prices rise sharply during some periods. Indeed, price fluctuations are common in competitive markets as a result of changes in supply and demand: recent changes in natural gas prices have occurred in markets that most would judge to be highly competitive.

Owners of electric generators might exercise market power in several ways — for example, by strategically withholding generation from the market, by offering to supply power only at prices above competitive levels, and by managing the transmission grid to keep lower-priced power from reaching a market. Policy makers must see that the electric industry is structured in ways that minimize the incentives of firms to engage in such strategies. It would be a mistake to attempt to rely on regulation to detect and deter exercises of market power by firms that have strong incentives and the ability to act anticompetitively.

Determining whether market power is likely to be a significant problem is especially complex in electricity markets because of the complicated physical properties of transmission networks, the subtle interplay between generation and transmission, and the temporal nature of markets for electric energy. Today, policy makers reviewing merger applications and industry restructuring plans are being offered not only market power analyses based on traditional tools such as market shares and concentration indices but also analyses using computer simulations of regional electric power markets. In this report, we will examine the range of techniques used for assessing market power and make suggestions regarding which are likely to be most useful for regulators and legislators.

ABOUT THIS REPORT

The purpose of this report is to provide guidance to legislators, regulators and other industry players who share an interest in assuring that electric power markets function efficiently and free from significant market power. In sum, we examine the causes of and remedies for market power in electric power markets and attempt to answer the following questions:

- *What is market power and how can it be assessed?*
- *How do mergers affect market power?*
- *What tools do policy makers need to mitigate market power?*
- *How must restructuring plans treat market power to ensure consumer benefits?*
- *How can federal legislation affect the issue of market power?*

Following this Introduction, this report contains nine additional chapters and two appendices. Chapter 2 is an Executive Summary with our findings and

recommendations. Chapter 3 sets the stage for addressing market power issues by examining some of the recent developments in the electric industry. Chapter 4 explains what market power is and why it matters. Chapter 5 explains the characteristics of electric power that make assessments of market power complex, and then explains how market power may be exercised in the electric industry. Chapter 6 goes on to explain how to assess whether suppliers are likely to have market power.

Chapter 7 discusses how legislators, regulators and antitrust authorities can deal with market power in the electric industry, and discusses the distinction between structural and behavioral approaches to mitigating market power. Chapter 8 addresses the types of mergers that may create or increase market power in the electric industry and explains regulatory and antitrust policies toward mergers. Chapter 9 discusses market power issues that arise in restructured retail electricity markets. Chapter 10 examines the earliest federal attempt to mitigate market power in the electric industry, the Public Utility Company Holding Act of 1935, and considers the implications of market power issues for federal legislation addressing electric restructuring. Finally, Appendix A contains a bibliography and list of sources, and Appendix B details three examples of evasion of regulation intended to prevent the exercise of market power.

THE AUTHORS

RONALD J. BINZ is the President and Policy Director of the Competition Policy Institute (www.cpi.org). For eleven years until 1995 he was Consumer Counsel for the State of Colorado. In that capacity, he represented the interests of residential and small business utility consumers before state and federal regulatory agencies and the courts. He is a frequent speaker and expert witness on consumer and competition issues before state public utilities commissions, federal regulatory agencies and state legislatures. Mr. Binz has been invited to testify before committees of the United States Congress on more than a dozen occasions. He is the principal author of the report *Navigating a Course to Competition: A Consumer Perspective on Electric Restructuring* (Competition Policy Institute, 1997). Mr. Binz holds an M.A. in Mathematics from the University of Colorado.

MARK W. FRANKENA is a senior vice president at Economists Incorporated, a Washington, D.C., consulting firm (www.ei.com). He is a former deputy director for antitrust and assistant director for consumer protection in the Federal Trade Commission's Bureau of Economics. Dr. Frankena specializes in analysis of market power in the electric power industry, a topic on which he has a number of publications, including *Electric Utility Mergers: Principles of Antitrust Analysis* (Praeger, 1994). He has provided testimony at the Federal Energy Regulatory Commission (FERC), at state commissions, and in federal court on electric power restructuring and mergers. His testimony on behalf of intervenors was extensively

cited in FERC's 1997 decision rejecting the Primergy merger as proposed (79 FERC ¶61,158), and the analysis in his testimony on behalf of applicants was relied upon in FERC's 1998 decision approving the Louisville Gas & Electric/Kentucky Utilities merger (82 FERC ¶61,308). His recent clients include investor-owned utilities of all sizes, municipal utilities, industrial users, ratepayers, state attorneys general, a United States federal antitrust agency, a state commission staff, a European competition authority, and a European regulatory commission. Dr. Frankena received a Ph.D. in economics from the Massachusetts Institute of Technology.

THE COMPETITION POLICY INSTITUTE

THE COMPETITION POLICY INSTITUTE (CPI) is an independent non-profit organization that advocates federal and state policies to bring competition to energy and telecommunications markets in ways that benefit consumers. CPI is funded by grants from a broad range of telecommunications and energy interests and is advised by a panel of consumer advocates from across the country. CPI's policy positions are set by its senior staff and do not necessarily reflect the positions of its sponsors or consumer advisors. Complete information about CPI, including a list of its sponsors and consumer advisors, is available at <www.cpi.org>.

2

FINDINGS AND EXECUTIVE SUMMARY

Restructuring of the United States electric power industry is underway. Economic and political changes as well as technological advances are reshaping the industry's organization and its regulation. A restructured industry can benefit consumers if policy makers can ensure that deregulated markets are truly competitive and free from the exercise of significant market power.

In this report we address the following questions to assist policy makers as they consider the next steps on the way to a competitive electric industry:

- *What is market power and how can it be assessed?*
- *What are the connections between mergers and market power?*
- *What tools do policy makers need to mitigate market power?*
- *How should restructuring plans address market power?*
- *How can federal legislation affect the issue of market power?*

OVERALL POLICY RECOMMENDATIONS:

GREATER RELIANCE ON COMPETITION IN THE ELECTRIC POWER INDUSTRY will benefit consumers. However, these benefits are threatened when market power can keep the price of electricity above competitive levels. Policy makers must act to eliminate or mitigate significant market power in newly deregulated electricity markets at the same time that restructuring plans are being developed. To accomplish this task, regulators need appropriate analytical tools to assess market power and the authority to deal with market power in an effective manner.

STATE COMMISSIONS AND THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) should assess market power using methodologies that are consistent with the sound antitrust principles outlined in the DOJ/FTC Merger Guidelines and should give increased attention to transmission market power when analyzing mergers and other issues.

FEDERAL ENERGY LEGISLATION offers the opportunity to equip regulators with additional authority to address market power concerns. Federal legislation should *increase or clarify* the authority of FERC to:

- condition merger and market-based pricing approval on requirements of divestiture;
- order divestiture of generation or transmission facilities to cure market power concerns;
- require electric utilities to create or join appropriately structured ISOs to mitigate market power;
- address retail market power concerns if a state regulatory agency lacks the authority to do so.

SUMMARY OF FINDINGS:

- The Consumer Benefits of Electric Restructuring Depend Critically on Generation and Retail Markets Actually Being Competitive.
- State Regulators Should Deal With Market Power Concerns at the Same Time Restructuring Plans Are Being Developed.
- In Assessing Market Power, Regulators Should Use Methods Based on Sound Antitrust Principles, Supplemented by Computer Simulation Models.
- FERC Should Improve Its Analytical Techniques for Evaluating the Effects of Proposed Energy Company Mergers on Market Power.
- Policy makers Should Use Structural Solutions for Market Power Concerns in Preference to Behavioral Remedies.
- Measures Adopted for Stranded Cost Recovery Can Be a Barrier to Entry and Must Be Considered by Policy makers When Assessing the Ease of Market Entry by Competitors.
- Federal Legislation Should Equip Regulators with the Unambiguous Authority to Address Concerns Arising from Generation, Transmission and Retail Market Power.
- PUHCA Repeal Should Be Linked to Comprehensive Federal Energy Legislation.

***Finding:* The Consumer Benefits of Electric Restructuring Depend Critically on Generation and Retail Markets Actually Being Competitive.**

The electric power supply industry is undergoing fundamental changes in technology, regulation and market structure. Regulatory changes at both federal and state levels are being driven by a recognition that the old paradigm of vertically integrated monopoly utilities shielded from competition does not serve the public interest.

State restructuring plans and federal regulatory proceedings in the electric power industry raise two central questions for competition. First, how can public policy assure that potentially competitive activities such as generation and marketing are structured so that competition will in fact be vigorous? Second, how can public

policy deal with potential abuses of remaining market power: the market power arising from ownership of transmission and distribution facilities with geographic monopolies, as well as remaining market power in generation?

If society relies on competition to determine prices, service offerings, output levels, investments and entry, then public policy must assure that relevant markets are structured so that competition will be vigorous. *Removing undesirable regulation is not sufficient.* Policy makers must also remove and prevent avoidable barriers to entry by new competitors. And if barriers to entry persist, policy makers must ensure that the market shares and concentration of incumbents are not so high that competition will be muted.

In short, when legislators and regulators deregulate potentially competitive activities, they should take steps to ensure that concentration and entry barriers are sufficiently low so that competition will be vigorous. If policy makers want consumers to benefit from electric restructuring, there is no substitute for such vigilant efforts.

Finding: State Regulators Should Deal With Market Power Concerns at the Same Time Restructuring Plans Are Being Developed.

If legislators and regulators do not get market structures “right” as current restructuring plans are being developed, it is unlikely they will have an opportunity to go back and fix structural problems at a later date. The principal levers available to states to bring about divestitures are the timing of restructuring and the *quid pro quo* of allowing utilities to recover some portion of stranded costs. This is how California and several northeastern states have induced utilities to divest generating capacity.

It is not uncommon to hear the argument that market power problems can be dealt with adequately by enforcement of the antitrust laws. This argument is not correct. First, while the Sherman Act makes anticompetitive agreements and exclusionary conduct unlawful, a company with market power does not violate the antitrust laws merely by charging monopoly prices or limiting its output. Also, competitors in a concentrated market may be able to coordinate their pricing, output and other decisions in anticompetitive ways that are not susceptible to challenge under the antitrust laws.

Second, illegal behavior is not easily detected, and this would certainly be the case in complex electricity markets. Even when illegal behavior is detected, it is expensive, time consuming, and sometimes perhaps impossible to carry the burden of proving illegality to a court. In the meantime, much injury may have been done to consumers by firms exercising market power. One should also recognize that antitrust enforcement does not deter all illegal anticompetitive behavior, even of a criminal nature, as revelations of dramatic price fixing conspiracies demonstrate.

Third, while the antitrust laws permit legal challenges to certain types of anticompetitive conduct, antitrust authorities generally cannot change existing market structures that are not conducive to competition. Issues of market structure must, therefore, be addressed primarily in restructuring legislation or proceedings. (See insert).

From the United States assistant attorney general for antitrust:

“[T]o whatever extent restructured electric power markets are too highly concentrated to yield pricing at or near competitive levels, the antitrust laws provide no remedy.” (Klein 1998, p. 5).

Fourth, certain anticompetitive conduct may be immunized from antitrust challenge by the state action doctrine, which shields anticompetitive behavior that is specifically authorized and actively supervised by a state.

Finding: **In Assessing Market Power, Regulators Should Use Methods Based on Sound Antitrust Principles, Supplemented by Computer Simulation Models.**

It is not sufficient for policy makers to focus attention on potential market power problems. Policy makers must also use sound methodologies to assess market power in order to avoid incorrect diagnoses and treatments. Methodologies to assess market power should track the framework laid out in the U.S. Department of Justice and Federal Trade Commission (DOJ/FTC) *Merger Guidelines*.

Under the *Merger Guidelines*, to analyze market power, one identifies the products in the market and the geographic scope of the market. Next, one computes market shares and concentration and evaluates conditions for entry into the market. Finally, based on market shares, concentration, entry conditions and additional information about competitive conditions, one makes inferences about the likelihood that prices would exceed competitive levels.

This traditional approach to assessing market power can be supplemented by analyses based on simulation models. Relevant models use regional data on generation capacity and costs, transmission capacity and costs, and demands for electric power. With these data, models can be used to determine the geographic scope of markets and whether the existing (or a proposed) ownership pattern for generating plants is likely to lead to energy prices significantly above competitive levels. Simulation models capture market characteristics and interactions that are neglected by simpler traditional analytical methods.

For example, the most difficult issue in traditional analyses of generation market power is to determine the geographic scope of competition. It is generally recognized that historic sales data do not provide a reliable basis for measuring the

scope of geographic markets in electric energy for several reasons. First, public data on sales are annual aggregates while there are separate markets for energy during different times of the year. The fact that Utilities A and B both sold energy to Utility C during 1997 would not demonstrate that Utilities A and B were competing, since Utility A's sales may have occurred during winter off-peak hours while Utility B's sales occurred during summer peak hours.

Second, sales data often do not allow one to determine ultimate origins or destinations of transactions. A large share of electric energy is sold by generating companies to power marketers or to other utilities that resell to other wholesale buyers. A third problem is that generators that have not supplied a market may yet belong in a relevant market because they could provide supplies in response to a small price increase, and thus play a significant role in constraining prices.

Because one cannot rely on sales data to define the geographic scope of competition for electric energy, one must use data for the underlying determinants of competition — generating capacities and costs, transmission capacities and costs, and demands for energy in different areas. The most satisfactory way to employ such data is to build a model — a simplified representation — of the electrical system over a relatively wide region, such as the eastern half of the United States. Such a model can be used to estimate the geographic scope of competition during each time period, such as summer peak hours.

***Finding:* FERC Should Improve Its Analytical Techniques for Evaluating the Effects of Proposed Energy Company Mergers on Market Power.**

FERC's 1996 *Merger Policy Statement* adopted the DOJ/FTC *Merger Guidelines* as the appropriate methodology for use in analyzing the effects of mergers on market power. However, FERC's detailed methodology for defining geographic markets and measuring market shares for use in merger analysis — known as Appendix A — is inconsistent in important respects with the sound economic principles of the *Merger Guidelines* and therefore is of uncertain reliability. Moreover, in evaluating applications from individual utilities for market-based pricing, FERC uses a different, and also unreliable, methodology — known as a hub-and-spoke analysis — to define geographic markets.

***Finding:* Policy makers Should Use Structural Solutions for Market Power Concerns in Preference to Behavioral Remedies.**

Approaches to dealing with market power fall into two categories: structural and behavioral. Structural measures change characteristics of a market so that firms no longer have market power. That is, firms no longer find it profitable to reduce their output and take other steps that raise prices. Rather than removing market

power, behavioral measures attempt to prevent companies with market power from acting anticompetitively.

Behavioral remedies allow market power — or anticompetitive incentives — to continue but attempt to prevent companies from behaving in anticompetitive ways that increase their profits. Behavioral remedies are inherently regulatory. Typically, there must be administrative mechanisms for monitoring behavior, adjudicating complaints, imposing sanctions, and overriding company decisions on prices, outputs, services and investments. Behavioral remedies typically involve regulation or conduct rules.

Several reasons for preferring structural to behavioral remedies have been explained by the director of the FTC's Bureau of Competition:

“A behavioral approach...has several drawbacks. First, it does not eliminate the incentive and opportunity to engage in exclusionary behavior. Rules can try to limit the opportunity, but few rules are invulnerable to evasion. Second, detection of violations can be very difficult. For example, discrimination in access could take the form of a subtle reduction in quality of service, whose effects could be difficult to identify and measure. Third, behavioral rules can require long-term monitoring of compliance, which can be a costly process.... Fourth, it may be difficult to know whether we have selected the right rules. Even a simple cease-and-desist order, which is commonly used in antitrust cases, can be difficult to frame, because we do not want to prohibit too little or too much. More complex orders, especially those that try to guide conduct through affirmative requirements, can be more difficult to frame properly” (Baer 1997).

The choice between structural and behavioral remedies is not a pure one. The issue is largely the extent to which reliance is placed on behavioral remedies. Even if primary reliance is placed on structural remedies, there may be little alternative to reliance on behavioral remedies to deal with residual market power, including some problems that arise from monopolies over transmission and distribution.

Finding: **Measures Adopted for Stranded Cost Recovery Can Be a Barrier to Entry and Must Be Considered by Policy makers When Assessing the Ease of Market Entry by Competitors.**

In antitrust parlance, even if a firm has a large market share or a market is highly concentrated, sellers will not have significant horizontal market power if it is easy for new sellers to enter the market. But, for entry to be easy in the antitrust sense, that entry must be not only feasible but both timely and profitable as well.

Frequently, market power analyses incorrectly conclude that entry is easy because it *could* occur. However, the important question is not whether it could occur but whether it *would* occur in a timely manner in response to an attempt to exercise market power. For entry to be sufficiently easy to alleviate concerns about exercise of market power by incumbent sellers, new competitors must be able to enter a market quickly and make a profit doing so.

While customer choice programs may remove certain entry barriers into retail marketing, accompanying retail rate freezes and mechanisms for stranded cost recovery may erect new barriers by making even efficient entry unprofitable for a number of years. The existence of a sizable surcharge (e.g., a “competition transition charge”) to recover stranded costs may make it impossible for new sellers to enter a market and compete with the incumbent provider. The recent announcement that Enron Energy Services was abandoning efforts to market to residential customers in California and Massachusetts bears witness to this effect.

***Finding:* Federal Legislation Should Equip Regulators with the Unambiguous Authority to Address Concerns Arising from Generation, Transmission and Retail Market Power.**

Continued progress toward fully competitive electric markets will require regulators to intercede to eliminate significant market power. At present, however, the scope of regulators’ ability to deal with market power is limited both by legal authority and regulatory practice. FERC explicitly assesses *existing* market power only when deciding on applications for market-based pricing, including associated proceedings dealing with independent system operators. FERC and the antitrust authorities also assess whether proposed electric utility mergers would *create or enhance* market power, but regulators do not address market power that already exists when they deal with mergers. And even when FERC has market-based pricing and merger applications before it, FERC has not been active in pursuing divestiture remedies.

Some recent divestitures have been brought about by the states. However, the states typically must use the occasion of hearings on a restructuring plan — particularly stranded cost recovery — to induce “voluntary” changes in market structure.

Clearly, in important situations, these federal and state arrangements are not adequate to the challenge of creating fully competitive electric markets. Policy makers must have and use adequate tools to address market power if market power is not to deny consumers the benefits of restructuring.

The “Comprehensive Electricity Competition Plan” offered by the Clinton administration directly addresses this issue by equipping FERC with authority to

deal with existing market power. Other pending legislation also contains some of these features.

The Administration's Plan proposes to expand FERC's powers so that it could remedy existing market power in *wholesale* electric power markets, if necessary by ordering divestiture of generating capacity. In addition, FERC would be authorized to remedy market power in *retail* electric power markets upon petition from a state that is implementing retail competition and has insufficient authority to remedy a market power problem — for example, because the market power is a result of concentrated ownership of generating capacity in a regional market extending beyond the state's borders. Again, FERC would be authorized to order divestiture of generating units to mitigate market power.

Under the Administration Plan, FERC would also be given the authority to require that transmitting utilities turn over operational control of their transmission facilities to an ISO. In addition, FERC would be given the authority to oversee reliability, and hence to regulate industry rules and practices governing transmission systems that could impact grid access and transmission market power.

This proposal and similar proposals appear to be a reasonable approach to ensure that consumers realize the benefits of a competitive electric industry.

***Finding:* PUHCA Repeal Should Be Linked to Comprehensive Federal Energy Legislation.**

The Public Utility Company Holding Act of 1935 (PUHCA or 1935 Act) was enacted during the Roosevelt administration to restructure the United States electric utility industry and remedy perceived market power abuses by electric utility holding companies. Ownership of generation facilities was far more concentrated at that time than now, with three holding companies controlling 49% of the nation's investor-owned generation.

The 1935 Act itself detailed market power abuses that had occurred. The abuses fill out many of the categories identified in this report: cross-subsidization, improper pricing of affiliate transactions, and vertical market power. More generally, the holding company structures evidently provided the opportunity for the companies to evade effective regulation. The size and complexity of the holding companies made it difficult for states to regulate utilities, whose transactions often involved subsidiaries outside the reach of those regulators.

Today, critics of PUHCA offer cogent arguments that the specific provisions of that law were designed for an era in which competition in generation and retail services was not envisioned. For example, costs may be lower and competition greater in some circumstances if companies are organized as holding companies *and* their operations are not limited to a single interconnected electric system. Such

companies may be able to attain economies of scope and scale without having shares in any individual markets that would give rise to market power. Steps holding companies may be required to take artificially to integrate their systems to comply with the 1935 Act may raise costs without serving any useful purpose.

Others argue that it would be a serious public policy mistake to repeal PUHCA without adopting consumer protections and measures designed to prevent recurrence of the market power abuses that PUHCA sought to eliminate. These advocates point out that clear authority must be given to FERC to review holding company mergers and that regulators need to have enhanced ability to inspect books and records of affiliates of utilities within a holding company. More generally, policy makers need new tools to eliminate significant market power in the 1990s. Finally, they argue, statutory changes should be made in a comprehensive fashion. At the same time that registered holding companies are released from the strictures of PUHCA, regulators should have increased authority to deal with market power.

In Chapter 3 we note that hearings on restructuring plans give regulators a one-time opportunity to make structural changes in a state's electric market. A state commission might be able to achieve "voluntary" divestiture of generation or transmission facilities at the same time it was determining whether to permit recovery of stranded costs. In a similar way, federal lawmakers may have a one-time opportunity to give regulators meaningful legal authority to deal with market power. It is reasonable that lawmakers should pair PUHCA reform with the adoption of appropriate consumer protections and the assignment of greater authority to FERC to address market power issues. In the spirit of PUHCA, these tools could include the unambiguous authority to order divestitures and to require companies to create or join an appropriately structured ISO to mitigate generation and transmission market power.

Besides this tactical reason, there is another rationale for linking PUHCA reform to these other regulatory changes. We can assume that PUHCA repeal will result in more proposed electric mergers and acquisitions. The PUHCA requirement that a registered holding company operate only an integrated electric (or gas) system would be removed, making possible mergers that are today not permitted. Mergers can be good or bad, pro-competitive or anticompetitive, pro-consumer or anti-consumer. The potential for more proposed mergers following PUHCA repeal is not a reason to oppose repeal. However, this potential suggests that PUHCA repeal will add to the changing character of the electric industry. Under these circumstances, it is reasonable to accompany repeal with the reinstatement of PUHCA's consumer protections and the adoption of measures to make it less likely that market power will reduce consumer benefits in the newly organized industry.

3

DEVELOPMENTS IN THE ELECTRIC POWER INDUSTRY

The electric power supply industry is undergoing fundamental changes in technology, regulation and market structure. Regulatory changes at both federal and state levels are being driven by a recognition that the old paradigm of regulated vertically integrated monopoly utilities shielded from competition does not serve the public interest.

It has also become clear that if the generation, transmission, distribution and marketing activities of incumbent utilities are unbundled or further separated, competition can be introduced into generation and marketing. The thrust of recent regulatory changes has been principally to replace reliance on regulation with reliance on competition to determine prices, service offerings, output levels, investments and entry relating to generation, and to prepare the way for such competition in the retail marketing of electric power (Binz, Feiler and McFadden 1997).

NOT SIMPLY DEREGULATION

While deregulation of certain activities is an important aspect of restructuring, it would be misleading to characterize current developments as simple deregulation of the electric power supply industry. While generation and marketing are being opened to competition, new forms of regulation are being applied to the transmission and distribution (wires) sectors. In the wires business, competition has been absent traditionally or is now being eliminated with the introduction of new institutions such as regional transmission system operators.

New regulations are also being imposed to deal with problems that arise from vertical integration. Common ownership of regulated transmission and distribution monopolies, on the one hand, and competitive generation and marketing activities, on the other, may permit a host of affiliate abuses that would undermine competition in generation and marketing. New regulations are also being imposed on the numerous generating units that have market power because they must run for system reliability, as well as on generating companies that may have market power for other reasons.

Other new regulations are affecting the development of competition. While customer choice programs may remove certain entry barriers into retail marketing, accompanying mechanisms for stranded cost recovery and retail rate freezes may erect new barriers by making even efficient entry unprofitable for a number of years.

In response to the new opportunities that arise with the opening of competition, changes in technology, and changes in regulation and institutions, many electric power companies are restructuring — reorganizing, downsizing and expanding, diversifying into new product lines or geographic areas, divesting and acquiring assets, and merging with competitors and suppliers. Such developments characterize all industries in which technology and regulation are changing. Other examples abound — telecommunications, mass media, banking, airlines and surface transportation.

NEW PUBLIC POLICY CHOICES

From a public policy perspective, the key development in the ongoing restructuring of the electric power supply industry is increased reliance on competition for activities that can be organized competitively. Greater reliance is being placed on competition because of the very strong evidence that competition leads to results that are superior for society to those achieved by regulation (Winston 1993, Crandall and Ellig 1998). Competition, and even the prospect of competition, is driving electric utilities to improve customer service and to reduce costs by eliminating excess staffing and improving generator performance.

State restructuring plans and federal regulatory proceedings in the electric power industry raise two central questions for competition. First, how can public policy assure that potentially competitive activities such as generation and marketing are structured so that competition will in fact be vigorous? Second, how can public policy deal with potential abuses of remaining market power: the market power arising from ownership of transmission and distribution facilities with geographic monopolies, as well as remaining market power in generation?

If society relies on competition to determine prices, service offerings, output levels, investments and entry, then policy makers must assure that relevant markets are structured so that competition will be vigorous. *Removing undesirable regulation is not sufficient.* Policy makers must also remove and prevent avoidable barriers to entry by new competitors. And if barriers to entry persist, policy makers must ensure that the market shares and concentration of incumbents are not so high that competition will be muted. In short, when legislators and regulators deregulate potentially competitive activities, they should take steps to ensure that concentration and entry barriers are sufficiently low so that competition will be vigorous. If policy makers want consumers to benefit from electric restructuring, there is no substitute for such vigilant efforts.

Market power exists when incumbent suppliers can increase their profits by raising prices significantly above the levels that would prevail under vigorous competition. Market power is not a hypothetical problem in the electric power supply industry. Existing market structures that society has inherited from the past era of

regulation are, in many cases, not conducive to competition. Agreement on this fact in California resulted in commitments for substantial “voluntary” divestitures of generating capacity as part of the state’s restructuring program. Similar problems exist in a number of other parts of the United States, particularly where there are transmission constraints. Examples are northern and southern Nevada (Frankena 1997a), and New York City and Long Island (New York Department of Public Service 1996). Transmission constraints affect many other areas as well.

IMPORTANCE OF STRUCTURAL CHANGES IN THE ELECTRIC POWER INDUSTRY

If legislators and regulators do not get market structures “right” as current restructuring plans are being developed, it is unlikely they will have an opportunity to go back and fix structural problems at a later date. The principal levers available to states to bring about divestitures are the timing of restructuring and the *quid pro quo* of allowing utilities to recover some portion of stranded costs. This is how California and several northeastern states have induced utilities to divest generating capacity.

Once a state has made commitments for recovery of stranded costs, the chance to induce “voluntary” divestitures will have passed. Therefore, careful studies of market power and a determination to fix competitive problems should underlie each action to restructure the electric power supply industry.

Restructuring proceedings are not the only context in which it is important to evaluate market power. A public policy of relying on competition brings with it a responsibility to preserve competition that is threatened by structural changes such as mergers and acquisitions as well as by anticompetitive agreements and exclusionary conduct. It is particularly important for federal and state regulators and antitrust authorities to use sound methodologies to evaluate the effects of mergers on market power.

Evaluating market power in the electric power industry is challenging because of the unusual characteristics of electricity, particularly the unique properties of the network used to transmit power. Also, retail customer choice and stranded cost recovery programs may have important effects on the incentives of firms to raise prices.

In conclusion, restructuring of the electric power supply industry offers opportunities to improve service offerings, reduce costs, make pricing more efficient and lower average prices. However, it is not at all certain that consumers will see these benefits. Consumer benefits from greater reliance on markets depend critically on whether markets are actually competitive.

Legislators and regulators must take considerable care to analyze existing market power in the electric power supply industry and to evaluate how restructuring and mergers will affect market power. In some cases, assessments of market power will be easy, either because the problems are obvious or because no problem is likely given the structure of a specific market. In many other cases, however, assessments of market power will require thorough analyses because of the complicating characteristics of electric power and remaining regulations. It goes without saying that policy makers must have not only the tools to evaluate market power but also the authority to remedy market power.

4

WHAT IS MARKET POWER?

As background for the discussion of market power in the electric industry, this chapter introduces the economic principles of competition and market power. This introduction explains how competitive markets benefit consumers, the nature of market power, and why market power matters.

CONSUMER BENEFITS FROM COMPETITIVE MARKETS

In a competitive market, sellers take market prices as given and expand production and sales as long as the cost of producing and delivering an additional unit is less than the market price. Sellers behave in this way because they cannot profitably raise the market price by reducing the output they supply. A market is likely to be competitive if there are many sellers or if entry of new sellers is easy.

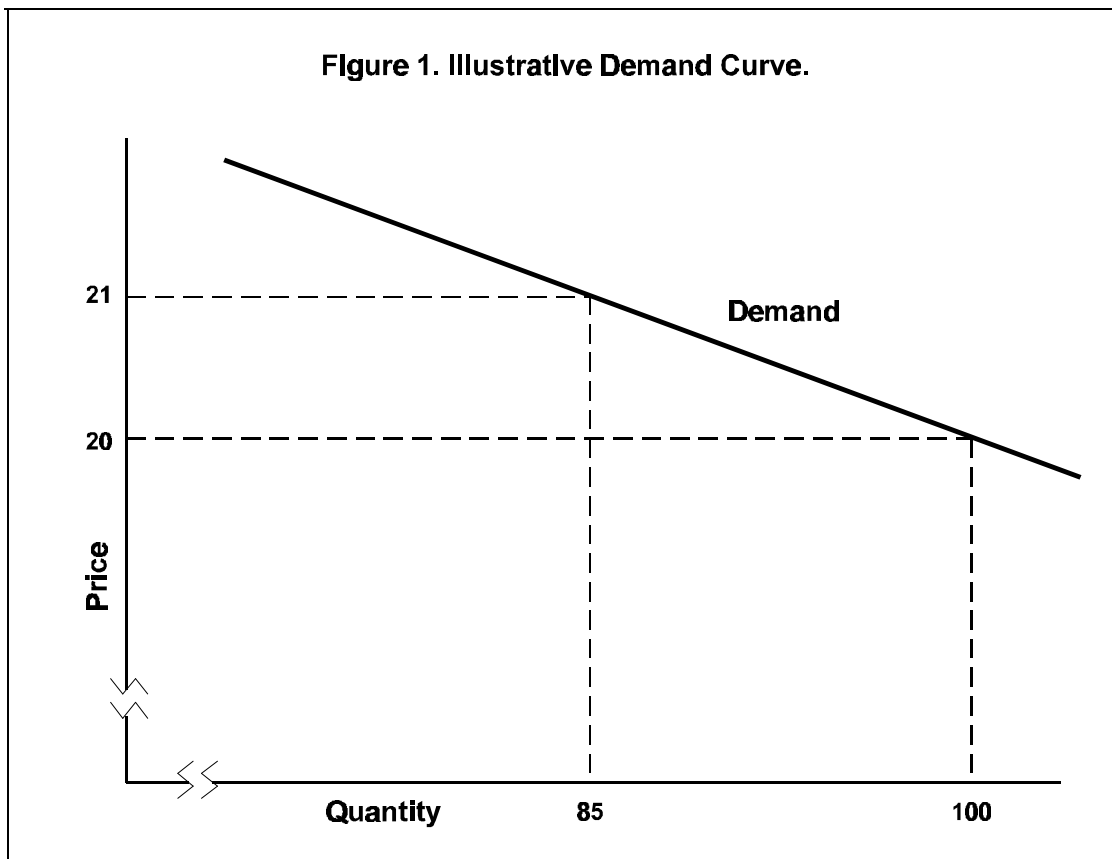
In the United States, there is a public policy preference for competitive markets. Competitive markets generally lead to an efficient allocation of resources and the highest possible level of economic well being for society as a whole. The “invisible hand” of the market leads sellers who are pursuing profits to be responsive to consumers and to supply the goods and services that have the greatest value to them, given limited resources. Prices, profits and losses provide sellers with appropriate incentives to enter or exit markets, expand or contract capacity, and increase or reduce output in response to continuing changes in consumer preferences and incomes, technology, and resource costs. The benefits to consumers from competitive markets provide the rationale for restructuring the electric power industry and deregulating segments of the industry that are, or that can be made, competitive.

While competitive markets have many virtues, there are situations in which society may not prefer unfettered competitive markets. This may be the case when activities have effects outside markets as they are traditionally defined. For example, competitive markets may not maximize consumer economic well being without government intervention when activities have serious environmental effects. Adverse environmental effects may be brought within the market through appropriate assignment of property rights, such as rights to air quality. Absent action to induce companies to take environmental effects into account, companies in an industry that causes pollution are likely to produce each unit of output in a manner that causes too much pollution and, under competition, to produce too many units of output.

MARKET POWER DEFINED AND ILLUSTRATED

The key feature of competitive markets is that sellers cannot profitably raise prices by reducing the amounts they supply. Market power is defined as the ability of one or more sellers profitably to raise prices above competitive levels for a significant period of time. A market is not competitive when sellers have market power.

The first step in understanding market power is to recognize that a supplier will sell fewer units of output if it charges a higher price, because some buyers will decide to do without the product or switch to substitutes. The demand for a supplier's output can be represented by a Demand curve, such as the one in Figure 1. Referring to the graph in Figure 1, we see that, if the seller offers its output at a price of \$20 per unit, it will sell 100 units; at a price of \$21, it will sell 85 units.



This example assumes that the seller starts by quoting a price. However, one could also think of the same seller as starting by delivering some number of units of output to the market and selling them for the highest price at which all would be

purchased. In Figure 1, if the seller delivered 100 units of output to the market, the seller could obtain \$20 per unit. If the seller instead delivered only 85 units to the market, the price would be \$21.

To determine whether a seller has market power, one can perform the following experiment. Start with the level of output the seller would supply if it behaved competitively. Now suppose the seller began to reduce its output. If it could reduce output to zero without bringing about an increase in the market price, clearly the seller has no market power; this would be the case if the Demand curve were horizontal.

Now suppose a seller faces a demand curve like the curve in Figure 1. In this case, if the seller reduced its output, the market price would increase. But this fact alone is not sufficient to demonstrate that the seller has market power. To conclude that the seller has market power, one must determine that the effort to raise the market price would *increase the seller's profits*. And this depends on whether the profit on sales of fewer units at the higher price exceeds the profit on sales of more units at the lower price.

We can make that calculation in this example. Referring again to Figure 1, suppose the seller would sell 100 units at a price of \$20 per unit if the seller behaved competitively. Let's assume that the cost of producing each of these units is \$16. To raise the market price by one dollar to \$21, the seller would have to reduce its output to 85 units. In this case, the seller would earn an additional \$85 on the output it would continue to sell, that is, an extra dollar on each of 85 units. However, it would forego profits of \$60 on the output that it would no longer sell, that is, a \$4 profit (the competitive price of \$20 minus the unit cost of \$16) on each of 15 units. Thus, the net effect of the price increase and the output reduction would be to increase the seller's profits by \$25, i.e., \$85 minus \$60.

In this hypothetical example, the seller can *profitably* raise prices above competitive levels, and therefore the seller has market power. However, if the demand curve in the hypothetical were changed so that the seller had to reduce its output to 75 (rather than 85) in order to raise the price by \$1, the seller acting alone would not have market power. In this case, the seller's profits would decline by \$25 if it tried to raise the market price by withholding twenty-five units, and hence the seller would not have an incentive to raise prices. One conclusion that can be drawn from this discussion is that the existence of market power depends on several factors, including the cost structure of the seller and the demand curve of the buyers.

In order to analyze market power correctly, it is important to understand that companies cannot simply insist upon high prices by virtue of being big. The quantity of a product purchased by consumers depends on the price. Therefore, a

company that charges a higher price will sell fewer units of output and may earn lower profits.

In sum, a firm with a large market share that attempts to raise the price of a product may find it profitable to take one of the two following actions, which are equivalent:

- Reduce its output (below the competitive level) in order to raise the price (above the competitive level).
- Raise its price (above the competitive level), even though this involves a reduction in sales (below the competitive level).

If a firm finds such actions profitable, we say it has **market power**.

UNILATERAL MARKET POWER AND COLLUSION

Market power may be exercised by a single company or by two or more companies acting simultaneously. Companies may exercise market power simultaneously without an agreement to limit competition, or they may reach an agreement to *collude*. Collusion is *tacit* if the agreement is reached without overt communication or sharing of profits. A colluding company forgoes profitable opportunities to increase sales because it understands that, if it were to cheat on the agreement, other colluding companies would punish it by taking steps that would lower its profits.

The following hypothetical illustrates how tacit collusion could operate in a market for electric energy during some hours of the year. Suppose that Utility A and Utility B each have a 500 megawatt (MW) generator with variable costs of \$25 per megawatt-hour (MWh), as well as other generators with lower variable costs. Assume that these two 500 MW generators are the only units in the market with variable costs between \$25/MWh and \$28/MWh.

Even without overt communication, Utility A and Utility B could arrive at a mutually profitable understanding that each would withhold the output of these generators from the market until the market price reached \$27.95/MWh. The result of such a tacit agreement would be that, during hours in which these 500 MW generators would be the marginal (highest variable cost) units operating in the market, the market price would be nearly 12% above the competitive level of \$25/MWh.

It is worth repeating that this understanding does not require an explicit agreement. If Utility A was a slow learner, or cheated on the understanding, and produced energy from its 500 MW generator when the market price was, say, only

\$27/MWh, Utility B could teach Utility A a lesson by running its own 500 MW generator at an even lower price, reducing Utility A's profits. Utility A would quickly conclude that it would achieve higher profits by withholding supply. Acting in this way, Utilities A and B would be tacitly colluding to exercise market power.

WHY MARKET POWER MATTERS

When an electric generating company exercises market power, buyers pay higher prices for electric power. Consumption patterns are distorted — too little electric power is consumed. In addition, costs of generation are increased for society because some efficient generating units belonging to the company exercising market power are not used while less efficient units owned by others are used instead. Also, companies that do not face vigorous competition are apt to be less vigilant about cutting costs and to have lower productivity. Such companies are also less responsive to consumers.

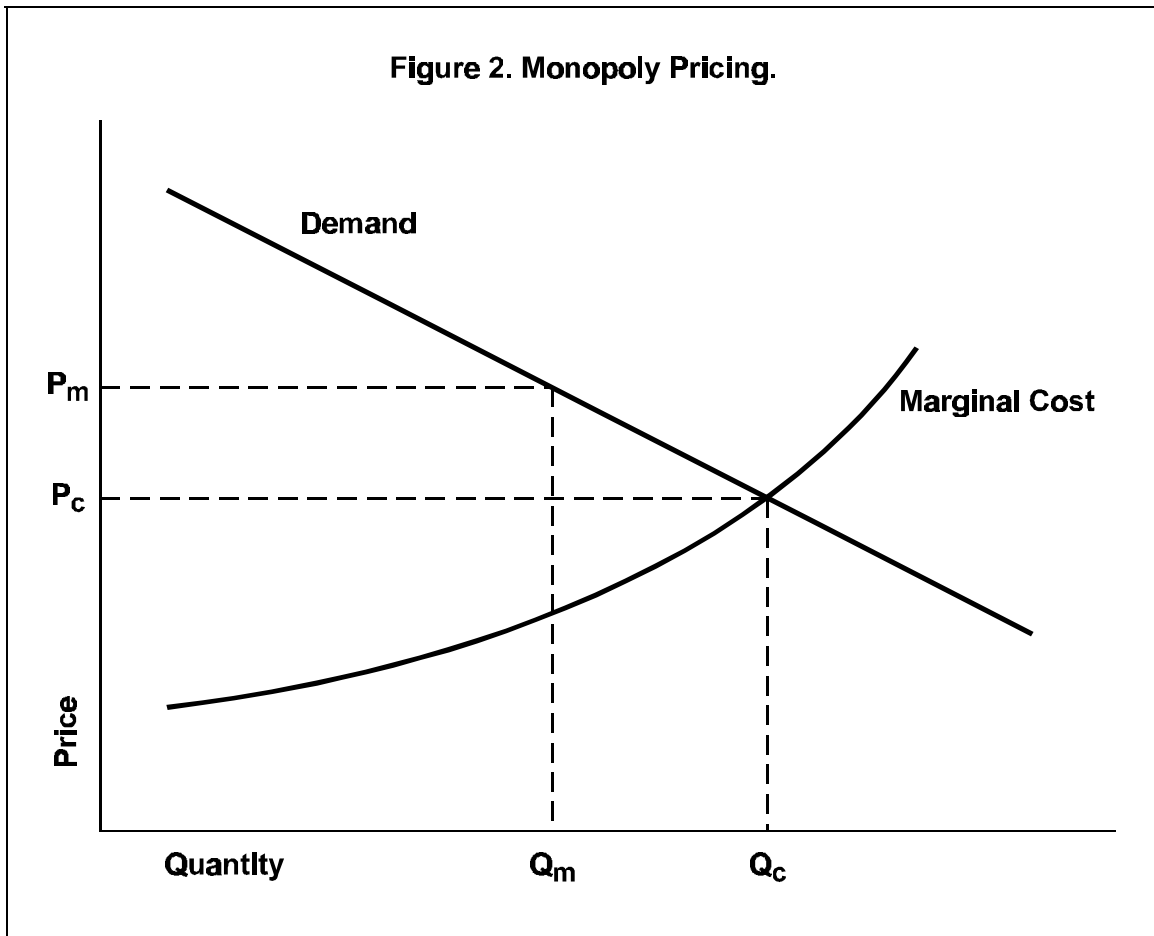
When Firms Have and Exercise Market Power

- Prices are too high
- Consumption is distorted
- Firms have lower productivity
- Firms are less responsive to consumers

Market power in the electric power industry is a critical public policy issue because of the role of the industry in the economy. The electricity sector is the nation's most capital intensive industry; the book value of capital investment was nearly \$700 billion in 1994. Retail expenditures on electricity amount to \$212 billion annually in the United States. (DOE 1998) Purchases of electricity are a major budget item for consumers, businesses, government and others. As a result, market power injures consumers who pay higher electric bills, higher prices for goods and services produced using electricity, and higher taxes to pay for government services.

Figure 2 illustrates the problem of monopoly pricing. The height of the Demand line at any output level expresses how much consumers are willing to pay for an additional unit of service. The height of the Marginal Cost curve represents the incremental cost of producing an additional unit. If the industry were competitive, the price would equal P_C and output would equal Q_C . That is, the price would equal the incremental cost of the last unit of output produced. Because no consumer would be willing to pay enough for another unit of service to cover its costs, the "right" output is produced.

In contrast, a monopolist charges a price of P_m and produces an output of Q_m . The units of service between Q_m and Q_c are not produced by the monopolist even though the amount that consumers are willing to pay for each of these units (the height of the Demand line) is greater than the incremental cost of supplying them (the height of the Marginal Cost curve). In short, the monopolist does not produce enough output and charges too high a price.



Electric restructuring should lead to lower costs, better customer service, and lower average prices for electric power. However, the extent of these benefits depends on whether restructuring programs produce competitive markets or tolerate market power.

5

MARKET POWER IN THE ELECTRIC POWER INDUSTRY

Electricity prices — and therefore the benefits that are anticipated from electric restructuring — depend importantly on whether restructured markets for electric power are competitive. Consequently, it is critical for legislators, regulators and antitrust authorities to evaluate market power using sound methodologies. While the basic principles of market power analysis apply to all industries, the application of these principles depends on the individual characteristics of an industry. This chapter discusses characteristics of the electric power industry that make market power analyses complex, and then addresses ways in which market power may be exercised in the electric power supply industry.

WHAT MAKES ELECTRIC POWER MARKETS COMPLEX?

Assessment of competitive conditions in markets for electric power is complicated by a number of characteristics of the industry (Frankena 1996):

- Competitive conditions — including the geographic scope of competition, which types of generating units can compete, and price levels — differ substantially across seasons of the year and hours of the day. As a result, an accurate assessment of market power typically requires separate analyses for several representative periods during the year.
- Electric power is a network industry in which some activities have natural monopoly characteristics and other activities have competitive characteristics. In today's electric power industry, there are substantial amounts of common ownership between these vertically related monopoly and competitive activities.
- Networks that are used to transmit electric power have unique properties. Unlike the telephone network, the electric transmission grid is not a “switched” network; energy cannot be directed from a generator to a buyer along a particular path. Instead, energy flows along multiple paths without regard to ownership or contracts. Also, the capacity of the grid to transmit energy is subject to constraints imposed by system reliability requirements. Attempts to define and measure transmission capacity and to regulate its availability to third parties face great difficulties. In addition, some generating units must operate to maintain voltages on the transmission system to ensure system reliability.
- The ability and incentives of vertically integrated utilities to raise wholesale prices during a “transition” period lasting for at least several years will depend

on the details of state restructuring programs. The effects of higher wholesale prices on a utility's profits will depend on the timing and extent of retail customer choice, provisions for retail rate reductions and freezes, and mechanisms adopted for recovery of stranded costs.

These complicating characteristics of the electric power industry help to explain why methodologies used to assess market power in the industry are constantly being improved.

HOW MARKET POWER MAY BE EXERCISED IN ELECTRIC POWER MARKETS

In this section we describe the variety of incentives and opportunities electric utilities may have to act in an anticompetitive manner. The purpose of this exploration is not to indict the industry, but rather to suggest the range of market power problems with which legislators, regulators and antitrust authorities must grapple.

Horizontal Market Power

For expository purposes, it is useful to begin the discussion of how market power may be exercised with the assumption that companies in the electric power supply industry are not vertically integrated. (Issues that arise because of vertical integration will be considered below.)

Absent vertical integration, the companies involved at each step of production and delivery — fuel supply, generation, transmission, distribution, and marketing — would be independent. In such an industry, a company would generally exercise any market power it might have by reducing its output below the competitive level (or raising its offer prices above the competitive level) in order to bring about an increase in the market price. The term *horizontal market power* refers to this way of exercising market power.

Of the various stages of production and distribution of electric power, generation receives the greatest attention in assessments of horizontal market power. The Federal Energy Regulatory Commission (FERC) focuses heavily on horizontal market power in generation — also called *generation market power* — in evaluating applications for market-based pricing and for approval of mergers. Generation market power is exercised when a company that owns generating plants brings about an increase in market prices for electric power by reducing the output of its generators or — equivalently — by raising the prices at which it offers to supply wholesale power.

When a company reduces the output of its generators, market prices will increase until other companies with higher-cost generators find it profitable to supply

additional output to replace output withheld by the company exercising market power, or until buyers sufficiently reduce their consumption. A company may achieve the same result by raising the prices at which it offers power — for example, the prices it bids into a power pool. If a company raises its prices, it will sell less, and market prices will increase until other suppliers (with higher costs) find it profitable to supply additional output to replace the power no longer being supplied by the company exercising market power.

Recall that a firm will withhold output in this manner only if doing so increases its profits. The underlying condition for generation market power is this: a company that owns a large share of the generating capacity in a market may have an incentive to reduce the amount it sells in order to raise the prices at which it sells its remaining output.

While evaluation of horizontal market power in generation often receives careful attention in restructuring proceedings and merger evaluations, it is now typical for regulators simply to assume that transmission and distribution companies are natural monopolies and hence have horizontal market power. It is also typical to assume that, absent vertical integration, an adequate way to deal with horizontal market power in transmission and distribution is to regulate prices for wires services. This current approach to horizontal market power represents a change from several years ago. At that time, generation market power was largely ignored and attention was focused on the effects of electric utility mergers — such as the abandoned merger of Southern California Edison (SoCal Edison) and San Diego Gas & Electric (SDG&E) — on competition in transmission (Frankena and Owen 1994, Chap. 4).

A different issue of horizontal market power is raised by mergers between electric and gas distribution utilities with overlapping retail territories, and also when an electric distribution utility proposes to merge with a gas pipeline that can influence the price of gas sold to customers of the electric company. Electricity and natural gas compete for some uses, such as space heating and cooling, water heating, and cooking. By reducing competition between electricity and gas, electric-gas mergers may increase horizontal market power over energy, defined broadly to include both electricity and natural gas (*Id.*, pp. 130-33).

Vertical Market Power

A number of additional potential market power problems arise when a company operates at two or more stages — fuel supply, generation, transmission, distribution, and marketing — in the production and delivery of electric power. These additional problems are termed *vertical market power* because they involve two or more stages in the supply chain. For expository purposes, vertical market power will be discussed in the context of a parent company that owns subsidiaries

that are engaged in different stages of production and delivery. (Other organizational forms, such as unified companies operating at more than one stage, as well as joint ventures, can also give rise to concerns about vertical market power. However, the essential issues can be illustrated with the parent/subsidiaries model used here.)

Vertical market power can arise when one subsidiary has a monopoly (usually a regulated monopoly) at one stage and a second subsidiary is engaged in a competitive (usually unregulated) activity at another stage. Three vertical combinations that may raise concerns are shown in Table 1.

Table 1. Vertical Combinations that May Raise Competitive Problems.	
Monopoly Activity	Related Competitive Activity
Electric transmission	Generation, wholesale marketing
Electric distribution	Retail marketing
Natural gas pipelines, coal mines	Electric Generation

These and some other vertical combinations raises concerns about several interrelated forms of potential affiliate abuses, particular the following:

- Discrimination in access to monopoly facilities.
- Other actions to raise costs and reduce availability of inputs used by non-affiliated competitors.
- Improper information sharing.
- Cross-subsidization and self-dealing.

Such abuses may increase market power or the extent to which market power is exercised, in addition to raising other concerns. Some abuses may enable the company to bring about price increases in potentially competitive markets by raising rivals' costs and foreclosing competition. Cross-subsidization and self-dealing raise market power concerns because a firm engaging in such behavior may thereby evade regulations intended to prevent anticompetitive pricing for the monopolized activity, distorting conditions in two markets.

We begin the discussion of market power problems raised by vertical combinations by focusing on discrimination and other actions that adversely affect the price and non-price terms on which inputs are available to competitors. Following this discussion, we examine improper information sharing, cross-subsidization and self-dealing.

Transmission Market Power

When a company owns both (i) generating plants in a market and (ii) transmission facilities required by competitors to reach that market, the company may have an incentive to withhold transmission service from competitors in order to raise the prices at which the output of its generators can be sold. In effect, the company may be able to use its control over transmission to raise its rivals' costs or to exclude them from the market.

Transmission market power is exercised when a company that owns both generating plants and transmission facilities brings about an increase in the market prices at which it sells electric power by reducing the availability of transmission service required by competing generators to reach the market. Transmission market power need not involve ownership of generating plants: a similar problem may arise when a company owns both a wholesale marketer and transmission facilities.

One method of exercising transmission market power is a simple denial of transmission service needed by competing generators to reach a market. In light of FERC's open access requirements for transmission, utilities must, of course, have an explanation for denials, such as their own requirements for transmission capacity to serve native loads or to maintain reliability.

More subtle methods of exercising transmission market power include: (i) restricting the transfer capability of the transmission system by selectively limiting investments in facilities or failing to dispatch generators that supply reactive power; (ii) reducing the reliability of transmission service, for example, by calling for line loading relief that interrupts competitors' deliveries; and (iii) refusing to discount prices of transmission service when circumstances would warrant this. When a transmission system owner that was not vertically integrated might offer discounts to enable a power producer to reach a market, a vertically integrated company might refuse to discount prices, effectively raising prices for transmission service.

Distribution Market Power

A company that has a monopoly over distribution (wires) services and also offers retail supply and energy services is likely to have an incentive to discriminate against non-affiliated marketing companies (or retail customers that purchase from competing companies) in supplying wires services. Regulation is likely to constrain the prices that a distribution company can charge for wires services. Such regulation leaves a distribution company with an incentive to exercise its market power through discriminatory behavior: it can more fully exploit its distribution monopoly if it can force or induce retail customers to purchase power and energy

services from it at inflated prices. This potential problem will be referred to as *distribution market power*.

It is sometimes suggested that a distribution company may impede sales by non-affiliated marketers in ways that are more subtle than expressly denying service to competitors or tying its wire services and power and energy services. Such obvious tactics would, of course, likely run afoul of antitrust laws and regulations when competition is permitted. More subtly, a distribution company might provide superior regulated wires and backup services — for example, more reliable equipment, faster hookups, faster repairs, fewer service curtailments — to industrial customers that also purchase power or other energy services from the distribution company or its affiliates.

Fuel Supply Market Power

When a company owns both (i) generating plants in a market and (ii) fuel supplies used by competing generators, or pipelines used to deliver natural gas to competing generators, then the company may have an incentive to raise the prices of inputs delivered to its competitors. The resulting increase in costs may reduce the ability of these other generators to compete, with the effect that electric power prices are increased. In short, the company may be able to use its control over fuel supplies or delivery to raise its rivals' costs or to exclude them from the market (Frankena 1997b). This form of market power will be referred to as *fuel supply market power*.

In addition to the potential problems described as transmission, distribution, and fuel-supply market power, the vertical combinations described in Table 1 may also lead to abuses related to improper information sharing, cross-subsidization and self-dealing. These are discussed next.

Improper Information Sharing

In the normal course of business, a transmission company, a distribution company or a natural gas pipeline will typically obtain information that is valuable to companies engaged in competitive activities. For example, the profitability of entry by new generators or power marketers may depend in part on the availability of market information that a distribution company would collect. When the information is not confidential, a distribution company that is not vertically integrated would have an incentive to market such information. By contrast, a company that is engaged in both regulated and competitive activities may have an incentive to keep such information from non-affiliated companies — for example, new generators or marketers. Even when the information is confidential and cannot be sold, a regulated company may still have an incentive improperly to share the information with its affiliates.

Regulatory requirements for the handling of such information may be only partially effective in alleviating this problem. For example, if a vertically integrated distribution company is obligated to provide affiliates and nonaffiliates with equal information, it may then have an incentive to impede entry of nonaffiliates by not disclosing such information at all. As the incumbent in the competitive market, it may gain from withholding such information to raise entry barriers.

Here are two examples of potential anticompetitive use of information:

- A distribution company may have detailed information about loads in its service territory that would reduce costs of location selection and risks for new generators. Similarly, a distribution company may have detailed information about specific customers that would reduce costs and risks for energy services companies. A distribution company that is affiliated with a generation or marketing subsidiary would have an incentive to withhold even non-confidential information from entrants with which it is not affiliated.
- If consumers can choose among suppliers of power, the distribution company will obtain information about competitors' sales each time customers change their suppliers of power. The distribution company may also obtain information on the characteristics of the power supplied, including load profiles and interruptions. This information could allow the distribution company or its affiliates to target their retail marketing of power, and to engage in price discrimination among retail customers, in ways that other competitors could not.

Evasion of Regulation

Vertical integration between monopoly activities that are subject to cost-based regulation, on the one hand, and deregulated competitive activities, on the other, may permit a regulated company to evade regulation and increase the exercise of market power in the monopoly activity. A vertically integrated company may have incentives to cross-subsidize its competitive activities by underpricing goods and services supplied by the monopoly units to the competitive affiliates, and overpricing goods and services supplied by the competitive units to the monopoly affiliates. Such abuses would lead to inefficient prices and to transfers of monopoly profits to the unregulated units of the company. Ultimately, these abuses can lead to foreclosure of sales by more efficient competitors in the competitive activities, while raising prices of the monopoly activities.

Cross-Subsidization. Regulation of prices in the electric power industry is intended to constrain the exercise of market power. But cost-based regulation typically permits an increase in regulated prices when costs increase. The combination of cost-based regulation and an affiliation between monopoly and competitive enterprises gives rise to incentives to cross-subsidize competitive activities. Such a combination may allow the monopoly firm to evade the regulatory constraint on its exercise of market power. For example, by inappropriately allocating costs of nonregulated competitive activities to the regulated activity, the firm may obtain regulatory approval for an increase in cost-based prices for the latter, and thereby earn monopoly profits. Furthermore, cross-subsidization of competitive activities may cause more efficient rivals to be displaced. (See insert.)

A serious cross-subsidization problem can arise even “*when a regulated utility acquires a firm that is not vertically related. The use of common facilities and managers may create an insoluble cost allocation problem and provide the opportunity to charge utility customers for non-utility costs, consequently distorting resource allocation in the adjacent as well as the regulated market.*” (DOJ 1984, n.35.)

As one illustration of the problem of cross-subsidization, consider the situation of a distribution utility that enters into various competitive activities. When a competitive activity succeeds, the distribution utility would have an incentive to spin it off to an unregulated affiliate at less than its market value. When the competitive activity fails, the distribution utility would have an incentive to allocate the costs to ratepayers. Such behavior would improperly shift both costs and risks to the monopoly customers and would be possible only because the firm does not face competition in the monopoly enterprise.

Under and Overpricing in Affiliate Transactions. Market power problems relating to underpricing of monopolized goods and services supplied to competitive affiliates of the company, as well as overpricing of goods and services supplied by competitive affiliates to monopoly units, may arise when (i) activities with market power are subject to cost-of-service regulation and (ii) revenues and costs for the activities with market power are computed using affiliate transactions prices that differ from market prices.

When they purchase from their unregulated affiliates, regulated monopoly companies have an incentive to pay their affiliates prices that exceed market prices. For example, a distribution utility with captive retail customers may have an incentive to inflate the prices at which electric power is purchased from a power marketing affiliate. The distribution company may then be able to increase the regulated prices at which it sells to captive customers to recover the inflated prices paid to the affiliate. If so, the distribution company will exercise market power, and

the resulting monopoly profits will appear as income for its affiliate. As a second example, a regulated transmission system operator may have an incentive to pay inflated prices for ancillary services, such as voltage control, purchased from affiliated generating plants.

Similarly, when they sell to their unregulated affiliates, regulated monopoly companies have an incentive to charge their affiliates prices below the market prices of the goods and services in question. For example, regulated monopolies have an incentive to give brand names, customer lists and other market and customer information to their unregulated affiliates free of charge.

Problems also arise in connection with non-price terms of transactions. For example, a regulated monopoly buyer may refrain from enforcing terms in a contract with an unregulated affiliate even though the same buyer would enforce such terms in a contract with a company that is not affiliated.

Regulation can seek to prevent such abuses by careful consideration of cost allocation methods and careful auditing of transactions between monopoly companies and their unregulated competitive affiliates. However, such regulation is costly and time-consuming. And, as a practical matter, regulators have strictly limited resources and cannot be expected to detect many attempts to evade regulation in this way.

DO ELECTRIC COMPANIES EXERCISE MARKET POWER?

Market power is a genuine problem in important parts of the United States electric power supply industry, in part because of the market structures that society has inherited from the past era of regulated vertically integrated utilities shielded from competition. Transmission constraints and costs narrowly limit the geographic scope of competition for electric power in a number of areas of the country. Where relevant geographic markets are narrow, ownership of generating capacity is likely to be highly concentrated in the hands of incumbent utilities. Entry barriers for new generators are often substantial, particularly where there is excess capacity. When high concentration in ownership of generating capacity and entry barriers are combined, generation market power is likely. In addition, various forms of vertical market power are important problems because of vertical integration into potentially competitive activities by firms with monopoly power in transmission and distribution.

Market power abuses in electric power markets are not hypothetical. For example, since its 1990 restructuring, the electric power industry in England and Wales has been plagued by anticompetitive conduct by two generating companies, National Power and PowerGen, according to numerous reports (Kwoka 1997). The market power of these companies has been based on high shares of generating capacity, the

limited amounts of coal-fired generating capacity in the hands of competitors, control of generating units that must run to maintain the reliability of the electric system, and transmission constraints.

Also, there are well-known examples of self-dealing by vertically integrated companies in the electric power and other regulated industries. Such problems led to the breakup of AT&T in the early 1980s, to disallowances for SoCal Edison in the late 1980s, and to customer refunds by NYNEX in the 1990s (see Appendix B).

CONCLUSION

Assessments of market power in the electric power industry are challenging both because of the unusual characteristics of the industry and because of the range of ways in which market power may be exercised. The next chapter of this report provides an explanation of methods used to assess market power in the industry, with particular attention to generation market power.

6

ASSESSING MARKET POWER

Assessing market power in the electric industry is complicated for several reasons, including the inherent characteristics of electric power, the legacy of vertical integration, inherited forms of regulation and the many changes occurring in the industry. Nonetheless, the basic framework that is appropriate to analyze market power in electric power is the same as that used in other industries.

This chapter begins with a discussion of how generation market power is assessed using traditional antitrust principles. Next, we discuss the contributions that simulation models can make to evaluation of generation market power. Finally, we address principles for assessing other types of market power, such as transmission and fuel supply market power.

To analyze horizontal market power using traditional antitrust principles, one identifies the products in a market and the geographic scope of that market. Next, one computes market shares and concentration and evaluates conditions for entry into the market. Finally, based on market shares, concentration, entry barriers and additional information about competitive conditions, one makes inferences about the likelihood that prices would exceed competitive levels.

IDENTIFYING RELEVANT MARKETS

Before one can measure market shares and concentration, one must identify the scope of the market. Suppose the issue at hand is to assess the extent that any market power may affect market-determined prices for electric power in Wyoming. One of the electric power products sold in Wyoming is megawatt hours of electric energy delivered during summer off-peak hours (nights and weekends). To

define the market that is appropriate for a market power analysis relating to this product, one must determine whether the pricing of this product is so constrained by competition with other products that those other products should be included in the same market.

Steps in Assessing Horizontal Market Power

- Identify relevant product and geographic markets
- Measure levels of concentration in markets
- Evaluate the difficulty of entry by competitors into markets
- Conclude whether prices are likely to exceed competitive levels

We begin the analysis with a thought experiment. Suppose one company owned all the generating facilities that could be used to supply summer off-peak electric energy. Would that company be able profitably to raise the price of this energy significantly (say, by 5%) above the competitive level for a significant period of time? If so, summer off-peak electric energy would be a relevant product market for a market power analysis. On the other hand, if the company could not profitably raise the price of that energy because many buyers would switch to natural gas, then the relevant product market would include not only summer off-peak electric energy but also natural gas.

As a matter of fact, analyses of consumer behavior demonstrate that no other products sufficiently constrain the pricing of summer off-peak electric energy, and hence summer off-peak electric energy is a relevant product market for assessment of market power. Similarly, electric energy delivered during each of the other major periods of the year (for example, winter peak hours) is a separate relevant product market.

This distinction among product markets during different time periods is important because competitive conditions in energy markets may vary over time. For example, in many regions of the United States, dispatchable gas-fired generating units cannot supply energy at the relatively low prices that prevail under competitive conditions during off-peak hours, and hence these generating units are not included in computing off-peak market shares. By contrast, efficient gas-fired generating units are included in markets for on-peak energy.

In addition to product markets for electric energy, there are markets for certain other electric power products as well. In regions where utilities have obligations to maintain generating capacity reserves, there are markets for generating capacity rights. Also, there may be markets for ancillary services supplied by generators, such as voltage control and spinning reserves.

Geographic Scope of Markets

We now continue with our Wyoming hypothetical. Once relevant product markets have been defined, the next issue is the geographic scope of competition. Would a company that owned all the generating facilities in Wyoming that are able to produce and deliver energy at a competitive price during summer off-peak hours be able to raise prices significantly (say, by 5%) above the competitive level? If yes, only generators located in Wyoming are in the relevant geographic market.

Suppose, on the other hand, that this company could not profitably raise the price of that energy because many buyers would switch to energy generated in Montana. In this case, the relevant geographic market would include not only generators located in Wyoming but also those in Montana. To complicate matters further, the

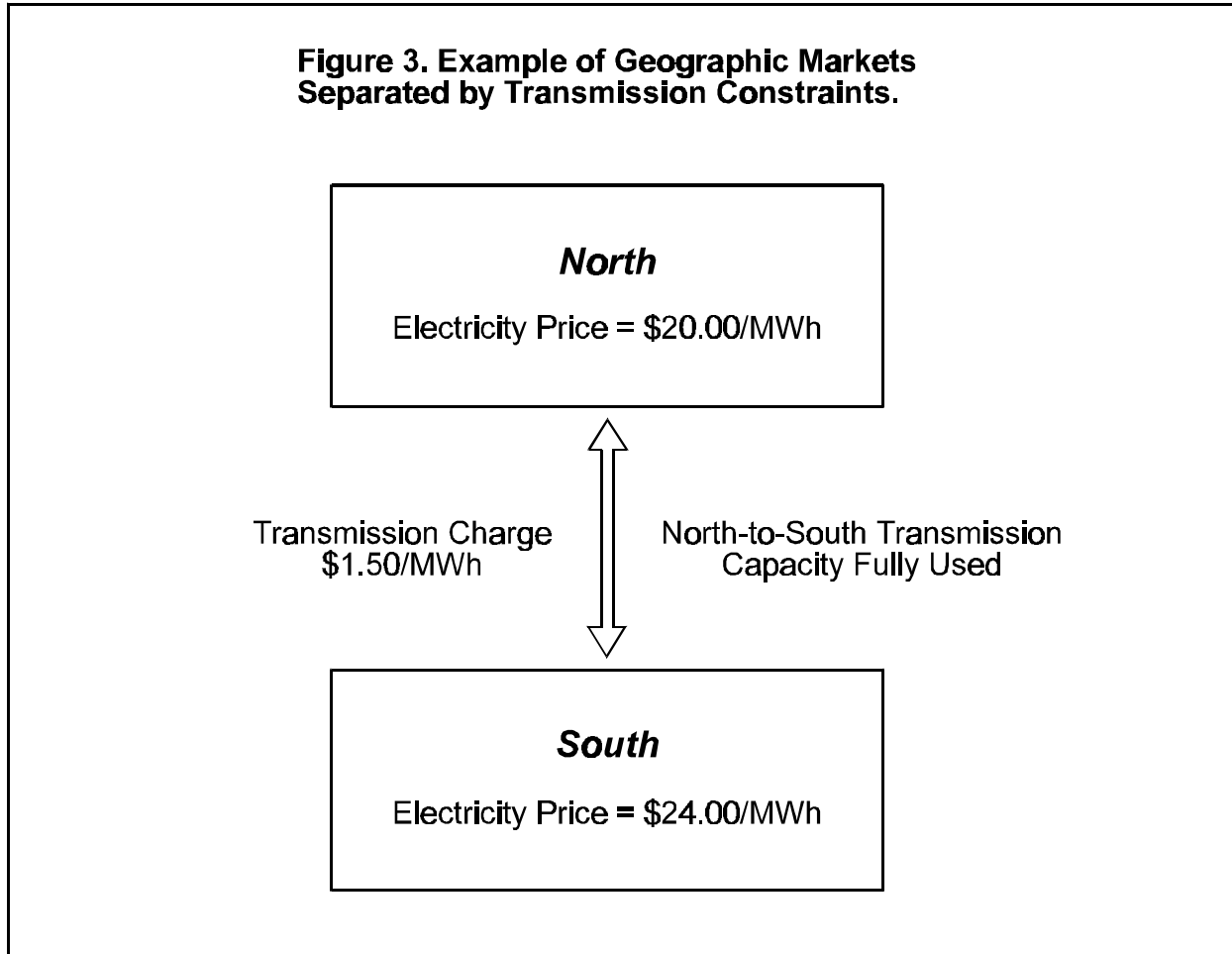
relevant geographic markets for energy in which generators in Wyoming compete may vary among time periods. While the markets might include states to the north of Wyoming during the summer, they might include states to the south of Wyoming during the winter.

Determining the scope of geographic markets is the most difficult and contentious issue in assessing market power in the electric power industry. FERC's 1996 *Merger Policy Statement* (FERC 1996) adopted the U.S. Department of Justice and Federal Trade Commission *Merger Guidelines* (DOJ/FTC 1992) as the appropriate methodology for use in analyzing the effects of mergers on market power.¹

Identification of geographic markets for electric energy is difficult because competition depends on numerous factors in the pertinent region. These factors include: (i) capacities and variable costs of generating units; (ii) demands for energy by end-users; (iii) contractual and legal obligations of generators that limit the amounts of energy they can sell at market prices; (iv) transmission charges; (v) limits on transfer capabilities of the transmission system; and (vi) utility practices and regulations regarding access to the transmission system. Because the geographic scope of competition depends on so many factors, economists are beginning to rely on simulation models of the electrical system to assist in the analysis (Frankena 1997a, Frankena and Morris 1997, 1998). These simulation models attempt to reflect the complex interplay of the numerous factors that affect the geographic scope of markets.

Transmission constraints play a particularly important role in defining geographic markets. Consider a hypothetical case in which there are two areas, North and South. Suppose that transmission capacity from North to South is fully utilized, the price of energy in the North is \$20/MWh, the charge for transmission service from North to South is \$1.50/MWh, and the price in the South is \$24/MWh. (See Figure 3.) In this case, North and South would be different geographic markets. For example, a 5% anticompetitive increase in the price of energy in the North (to \$21/MWh) would have no effect on energy transfers between North and South, on prices in the South, or on the output levels of generators in the South. As a result, generators located in the South would not be in the geographic market for purposes of evaluation of a merger in the North — even though transmission from the South

¹ However, FERC's detailed methodology for defining geographic markets for use in merger analysis — known as Appendix A — is inconsistent in important respects with the sound economic principles of the *Merger Guidelines* and therefore is of uncertain reliability (Frankena 1998a). Moreover, in evaluating applications from individual utilities for market-based pricing, FERC uses a different, and also unreliable, methodology — known as a hub-and-spoke analysis — to define geographic markets.



to the North would be available. Also, a 5% increase in electric rates in the South would not affect sales from North to South since the existing transmission capacity is fully used.

Load Pockets

In many cases, because of transmission constraints, during much of the year the total amount of energy that can be imported into a region is substantially less than the amount of energy consumed in the region. Such regions are known as *load pockets*. At least some of the generators located inside a load pocket must operate if local demand for energy is to be met. In that case, if a single company owned all generation in the load pocket, it would typically have market power.

Such a company could reduce the output of the generators inside the load pocket until imports filled the transmission capacity into the load pocket. At that point, the company could increase prices to a very high level, and users would have to pay

those prices unless they were prepared to do without energy. Unless there were some regulatory or political constraint on the ability of the company to reduce output or raise prices, the company could raise prices high enough to make such an anticompetitive strategy profitable. In such a case, the load pocket (or possibly a smaller area within the load pocket) would be a geographic market for analysis of the market power over energy of generators in the load pocket.

Load pockets are common. Examples of companies that own generating capacity that must operate in order to meet demands for energy in load pockets are Consolidated Edison of New York, Nevada Power, Pacific Gas & Electric (PG&E), SDG&E, Sierra Pacific Power, and Wisconsin Electric Power.²

MARKET SHARES AND CONCENTRATION

In assessing generation market power, market shares are normally based on generating capacity in a relevant product and geographic market. There is no simple rule about the levels of market shares that are likely to confer market power on a single firm acting alone. In various regulatory and antitrust contexts, there is some point between about 30% and 50% at which the potential for a single firm to exercise market power typically receives increased scrutiny. However, a firm with a lower market share may have market power when its competitors are not able to increase their output significantly in response to a price increase. Conversely, a firm with a higher market share may not have market power if entry is easy.

In markets where two or more firms have substantial market shares, inferences about the likelihood that market power will be exercised simultaneously by such firms, either unilaterally or in collusion, are typically based on seller concentration in the market measured by the Herfindahl-Hirschman Index (HHI). The HHI is an *index of concentration* in a market. To determine the HHI for a market, one computes the market shares for the companies in the market and then calculates the sum of the squares of those market shares.

Table 2 illustrates how to calculate an HHI and provides an example in which a market with four sellers has a HHI of 3,000. The federal antitrust agencies and FERC call a market with an HHI greater than 1,800 “highly concentrated.” An example of a market with an HHI of 1,800 is a market with five to six equal sized competitors.

² Sources: Consolidated Edison, New York Department of Public Service 1996; Nevada Power and Sierra, Frankena 1997a; PG&E, 81 FERC ¶61,122 at 195; SDG&E, Southern California Edison and San Diego Gas & Electric 1996, Chap. 3.

	Market Share	Share Squared
Company A	40%	1,600
Company B	20%	400
Company C	30%	900
Company D	10%	100
HHI		3,000

Now let us consider the effect on the HHI in this illustrative market if there is a merger between two companies. If Company C acquired Company D, the HHI would increase to 3,600. Table 3 illustrates the calculation of the HHI.

	Pre-merger Market Share	Pre-merger Share Squared	Post-merger Market Share	Post-merger Share Squared
Company A	40%	1,600	40%	1,600
Company B	20%	400	20%	400
Company C	30%	900	40%	1,600
Company D	10%	100		
HHI		3,000		3,600

In markets with an HHI of at least 1,800, mergers that increase the HHI by more than 50 may raise competitive concerns under the DOJ/FTC *Merger Guidelines*. However, in practice the antitrust agencies do not often challenge mergers that would increase the HHI by less than 200 points or that would leave the HHI below 2,000 post-merger. An example of a merger that would increase the HHI by 200 points is one between two companies with market shares of 20% and 5%, respectively.

FERC uses different methodologies for defining geographic markets and computing market shares in merger cases and in market-based pricing applications. Also, while FERC makes inferences based on HHIs in merger cases, in market-based pricing applications FERC looks only at the market share of the firm requesting market-based pricing authority.

As a matter of policy, FERC approves market-based pricing for companies whose shares are under 20%; in practice, FERC also commonly approves market-based

pricing when shares are between 20% and close to 30%. Most utilities are able to pass FERC's structural standards for market-based pricing for electric energy given the way geographic markets are defined, the way shares are measured, and the market share standards used.³ FERC may grant market-based pricing to an existing generating company in some cases in which the formation of that company as the result of a merger would raise substantial market power concerns.

While FERC's methodology for measuring market power in connection with market-based pricing applications is questionable, the notion that different structural thresholds are appropriate for merger and market-based pricing decisions is widely accepted. DOJ has suggested that in markets with HHIs below 2,500, it is likely to be in the public interest to deregulate prices in order to eliminate costs and distortions caused by regulation. (A market with four competitors, each having a 25% market share, has an HHI of 2,500.) Of course, a finding that the public would be better off without price regulation in a market with an HHI of 2,490 suggests that the public would be *even better off* if prices were deregulated *and* concentration were reduced below 2,490.

ENTRY CONDITIONS

In antitrust parlance, even if a firm has a large market share or a market is highly concentrated, sellers will not have significant horizontal market power if it is easy for new sellers to enter the market. But, for entry to be easy in the antitrust sense, that entry must be not only feasible but also must be both timely and profitable as well.

Frequently, market power analyses incorrectly conclude that entry is easy because it *could* occur. However, the important question is not whether it could occur but whether it *would* occur in a timely manner in response to an attempt to exercise market power. For entry to be sufficiently easy to alleviate concerns about exercise of market power by incumbent sellers, new competitors must be able to enter a market quickly and make a profit doing so.

Feasibility

Obviously, entry cannot constrain the exercise of market power if entry is not feasible. Thus, the first issue in an evaluation of entry conditions is whether entry would be prevented by regulations such as zoning rules, environmental permitting,

³ The Committee on Electric Utility Regulation (1998, p. 159) reports that, at the end of 1997, 62 investor-owned public utilities and 79 marketers affiliated with a public utility had received market-based pricing authority.

or requirements that an entrant demonstrate a “need” for additional capacity in a market with excess capacity.

Timeliness

Under the standards used by the federal antitrust agencies and FERC, entry is not easy if more than two years would be required from initial planning to significant market impact. Most types of generating units and significant transmission facilities require longer than two years for planning, approval and construction.

Profitability

If a new entrant cannot expect to cover its costs and earn a normal rate of profit by selling its output at competitive prices, then the threat of entry will not prevent an increase in prices above competitive levels. In areas of the United State that have excess generating capacity, entry that would prevent the exercise of significant market power may not be profitable for several years. Several years may be required for load growth to absorb existing excess capacity. Even where excess capacity does not exist at present, entry may not be profitable if the minimum efficient scale for a new generator would represent a substantial share of the market. In such a case, new entry could result in excess capacity that would depress prices below the level required to justify the entry.

Because of conditions relating to timeliness and profitability of entry, in most cases in which entry would take the form of new generating units, wholesale electric power markets do not presently satisfy traditional antitrust standards for easy entry. However, in some areas of the country there is no excess capacity, loads are growing quickly, and merchant gas-fired combined cycle generating plants are being set up with a gestation period of around three years. In such cases, the duration of concerns over generation market power for electric energy during peak periods might not exceed three years. Nevertheless, market power problems might last substantially longer during off-peak periods in areas where gas-fired combined cycle units would not be in the product market (because their variable costs of production would exceed competitive prices by more than 5%) and market power would hinge principally on ownership of nuclear and coal generators.

SIMULATION MODELS

The traditional approach to assessing generation market power can be supplemented by analyses based on simulation models. Relevant models use regional data on generation capacity and costs, transmission capacity and costs, and demands for electric power. With these data, models can be used to determine

the geographic scope of markets and whether the existing (or a proposed) ownership pattern for generating plants is likely to lead to energy prices significantly above competitive levels. Simulation models capture market characteristics and interactions that are neglected by simpler traditional analytical methods.

The most difficult issue for analyses of generation market power based on traditional antitrust methods is to determine the geographic scope of competition. It is generally recognized that historic sales data do not provide a reliable basis for measuring the scope of geographic markets in electric energy for several reasons. First, public data on sales are annual aggregates while there are separate markets for energy during different times of the year. The fact that Utilities A and B both sold energy to Utility C during 1997 would not demonstrate that Utilities A and B were competing, since Utility A's sales may have occurred during winter off-peak hours while Utility B's sales occurred during summer peak hours.

A second problem is that sales data often do not allow one to determine ultimate origins or destinations of transactions. A large share of electric energy is sold by generating companies to power marketers or to other utilities that resell to other wholesale buyers. A third problem is that generators that have not supplied a market in the past may yet belong in a relevant market because they could provide supplies in response to a small price increase, and thus play a significant role in constraining prices.

Because one cannot rely on sales data to define the geographic scope of competition for electric energy, one must use data for the underlying determinants of competition — generating capacities and costs, transmission capacities and costs, and demands for energy in different areas. The most satisfactory way to employ such data is to build a model — a simplified representation — of the electrical system over a relatively wide region, such as the eastern half of the United States. Such a model can be used to estimate the geographic scope of competition during each time period, such as summer peak hours.

For example, suppose one is interested in determining the appropriate geographic market in which to evaluate the potential effects on market power of a merger between Illinois Power and Central Illinois Light. One could use a simulation model of the eastern United States to test whether the state of Illinois would be a relevant geographic market.

To illustrate the analysis, we return to the “thought experiment” described earlier in this chapter. The model would be used to determine whether a hypothetical company that owned all generating capacity in Illinois would find it profitable to raise energy prices significantly above competitive levels. If the answer to this question is no, one could determine whether a hypothetical company that owned all generation in, say, Illinois, Missouri, and Indiana would find it profitable to raise energy prices.

To answer this question, the model would bring to bear information about the factors that would constrain an exercise of market power by the hypothetical owner of generation. For example, the model would use information on generating capacity and costs in Kentucky, transmission capacity and costs from Kentucky to Illinois and other potential markets, and demands for energy in Kentucky and other potential markets. Combining all this information, the model would determine whether increased imports from Kentucky and elsewhere would impose a significant constraint on the ability of a hypothetical monopolist of generation in Illinois, Missouri, and Indiana profitably to raise prices.

A simulation model can assist not only in analyzing the geographic scope of competition but also in determining whether companies would be able to increase their profits by taking certain types of anticompetitive actions. In a state restructuring proceeding, for example, a simulation model could be used to determine whether any one of the larger utilities in the market would be able to increase its profits by withholding output or raising the prices that it bids into a power pool.

An analysis of the latter type is a valuable addition to a traditional market power analysis based on shares and HHIs. Suppose a traditional analysis shows that a company has a 35% market share. One still faces the question whether a 35% share is sufficient to give a company market power. The answer to this question depends on two issues that are not addressed by a market share analysis but that are taken into account by a simulation model:

- By how much would this company have to reduce its output to raise energy prices by, say, \$1/MWh? The amount of the output reduction depends on (i) the extent to which other generating companies would have the ability and incentive to expand output, and (ii) the extent to which customers would reduce consumption, in response to a \$1/MWh increase in energy prices. Other things equal, if competing generating companies would expand output substantially in response to a \$1/MWh increase in energy prices, then an attempt to exercise market power would be less profitable.
- How much profit contribution does the company that is raising prices give up on each MWh of sales that it must forego in order to bring about a price increase? The profit contribution is equal to the competitive market price of energy minus the incremental cost at the generating unit where output would be reduced. If the competitive market price were \$20/MWh and the incremental cost were \$19.90/MWh, the company would give up only \$0.10/MWh in profits on sales foregone. On the other hand, if the incremental cost were \$12/MWh, the company would give up \$8/MWh in profits on sales foregone. Other things equal, if the incremental cost is lower, the company would find an attempt to exercise market power less profitable.

The lesson from this example is that market power depends on matters that are not taken into account by simple market share calculations, and thus market share calculations can usefully be supplemented by analyses using a simulation model.

It is sometimes argued that, since simulation models take account of factors that are omitted from market share and HHI analyses, analyses using simulation models can entirely replace traditional analyses. This is not correct. Simulation models are particularly useful in analyzing *unilateral* exercise of *generation* market power over *electric energy*. However, simulation models appear to have limited ability to analyze issues relating to the likelihood of collusion and market power over capacity and ancillary services.

OTHER TYPES OF MARKET POWER

Both methodologies that are used to evaluate generation market power — the traditional methodology based on market shares and HHIs and simulation models — may be adapted and supplemented to analyze other types of market power. Problems that may arise because of common ownership of generating capacity and transmission systems, or common ownership of generating capacity and natural gas transportation systems, can be analyzed in these ways.

Suppose that Utility A owns 5,000 MW of generating capacity in a market. Suppose further that Utility A can significantly affect the availability of transmission service required to deliver 2,000 MW of energy to the market from generators outside the market that are owned by other companies. Finally, suppose that Utility A can significantly affect the price of natural gas delivered to 1,000 MW of generating capacity in the market that is owned by other companies. Under these assumptions, one way of reflecting Utility A's competitive role in the market would be to base its market share on the 8,000 MW (= 5,000 MW + 2,000 MW + 1,000 MW) of capacity over which it has competitively significant control. One could also use a simulation model to investigate the implications of assuming that Utility A owned the full 8,000 MW of capacity.

One type of market power that plays an important role in restructuring proceedings relates to what is called *reliability must run generation*. Because of properties of electric transmission and distribution systems, under certain conditions a particular generating unit may have to operate to prevent thermal, voltage or stability problems that would threaten system reliability (Jurewitz and Walther 1997). In such cases, there may be a relevant market that contains a single generator that has a 100% market share and substantial market power.

THE DIFFICULT TASK OF ASSESSING MARKET POWER STUDIES

Regulators, legislators and antitrust authorities face a difficult question: which market power studies proffered to them are based on reliable methodologies, assumptions and data? There is no simple answer, and thus no simple way for interested parties to avoid careful scrutiny of any study. The most reliable assessments of market power are likely to be based on a combination of traditional antitrust analysis following the DOJ/FTC *Merger Guidelines* and simulation modeling.⁴

⁴ For reasons indicated above, the methodology for evaluation of market power in the competitive analysis screens required by FERC's *Merger Policy Statement* is not reliable (Frankena 1998a). The same is true of FERC's hub-and-spoke methodology. Also, while simulation models can be useful, poorly designed models — such as those offered by applicants in the Primergy merger — obviously are not useful (see FERC's Primergy decision, 79 FERC ¶61,158 (1997)).

The preceding chapters of this report have discussed the nature of market power in the electric power industry and have described methods used to determine whether market power problems exist. In this chapter, we discuss approaches that may be used to eliminate, reduce and deal with market power problems.

In general, the preferred method for dealing with market power is to bring about changes in market structure that will eliminate the incentives for companies to behave in an anticompetitive fashion. Structural remedies, such as divestiture of generation or transmission facilities, will sometimes achieve this objective. Nonetheless, society cannot rely solely on structural remedies to deal with market power in the electric industry. Some industry activities have natural monopoly characteristics — examples include transmission, distribution and some ancillary services (or reliability must run generation). Where an activity is a natural monopoly, society may have no practical alternative to reliance on regulation of prices and other terms to mitigate market power.

Also, in some cases structural remedies for market power may sacrifice achievement of potential economies of scale and scope. For example, in small markets there may be a trade off between achieving economies of scale in production and having enough sellers for markets to be competitive. Also, it is frequently argued that potential economies of scope would be lost if some forms of vertical integration were prohibited.

STRUCTURAL VERSUS BEHAVIORAL APPROACHES

Approaches to dealing with market power fall into two categories: structural and behavioral. Structural measures change characteristics of a market so that firms no longer have market power. That is, firms no longer find it profitable to reduce their output and take other steps that raise prices. Rather than removing market power, behavioral measures attempt to prevent companies with market power from acting anticompetitively.

Structural Remedies

When generation market power is found to be significant, the obvious structural remedy is for firms with large market shares to sell generating units so that market shares and concentration are reduced. PG&E and SoCal Edison have recently been induced by state regulators to sell generating plants in a manner that will reduce

market shares and concentration. As we discuss later, provisions for incumbent generators to sell generating capacity should typically be included in comprehensive restructuring plans when significant generation market power is found to exist.

Sale of generating units is not the only potential structural measure to alleviate generation market power, however. If generation market power is likely to be temporary, it may be sufficient for companies to enter into long-term contracts to sell capacity or energy for the pertinent period. Another structural approach to dealing with generation market power is to change regional transmission pricing in ways that would broaden geographic markets and lower concentration.⁵ Along these lines, in its 1998 order approving the merger of Louisville Gas & Electric and Kentucky Utilities, FERC relied in part on commitments by the merging companies to sell energy for a period of years and to join the proposed Midwest independent system operator (ISO), which plans to provide transmission service under a regional tariff (82 FERC ¶61,308). Other utilities are now offering similar commitments as a *quid pro quo* for merger approval. In their successful merger application at FERC in 1997, Wisconsin Electric Power and Edison Sault Electric committed to make available to others a certain amount of transmission service to the Michigan Upper Peninsula. This commitment reduced their share in an Upper Peninsula market.

In principle, another structural remedy available to reduce generation market power is expansion of transmission capacity. FERC imposed requirements for expansion of transmission capacity to deal with market power issues raised by the FirstEnergy and Alliant mergers. In many cases, however, transmission system investments would take too long to provide a remedy, would be too costly, or would not in fact add significantly to the transfer capability of the grid.

To deal with transmission market power, one structural measure is to separate ownership of generation and transmission facilities. Such separation is clearly the most direct and effective method to prevent utilities from using control over transmission to foreclose competition faced by their generators. A number of foreign countries, including Argentina and Peru, have separated ownership of generation and transmission, and some northeastern states are doing so, at least insofar as non-nuclear generation is concerned.

Independent System Operators. An alternative to separation of ownership of generation and transmission is for a utility that owns generation to turn over to a regional independent system operator (ISO) control over pricing, scheduling,

⁵ Of course, transmission should be priced in a manner that provides the correct signals for use of transmission capacity and for location of new generating plants. Transmission pricing should not be distorted in an attempt artificially to broaden markets. Also, reductions in transmission prices may not broaden markets if increased use of transmission results in congestion on the grid.

curtailment, operation and maintenance, and expansion of its transmission system. ISOs have been set up in several United States regions with the encouragement of the states and FERC.

However, there are some difficulties with ISOs as remedies for transmission market power. First, there are concerns about whether ISO governance structures sufficiently curb the influence of incumbent utilities that continue to own generation and power marketing operations. An ISO may not eliminate the role of incumbent utilities in matters such as transmission expansion decisions.

Second, there are concerns about whether ISOs have sufficient responsibilities and powers. The powers of existing and proposed ISOs vary. For example, the Texas and Midwest ISOs do not serve as control area operators with responsibility for dispatch of generating units.

Third, there is a significant debate about how to provide the correct incentives so that an ISO will manage the transmission system so that its operation, pricing and expansion are efficient. Will ISO committees with representatives of many stakeholders make decisions that allocate resources efficiently? Will the managers and staffs of an ISO be rewarded if they make day-to-day decisions that promote efficient resource allocation, and penalized if they do not? One issue is whether non-profit ISOs can be expected to perform as well as for-profit ISOs. (See insert.)

“One potential difficulty with the nonprofit status of ISOs is the lack of profit incentives to operate efficiently and to make economically appropriate investment decisions regarding expansion of the transmission grid to address transmission bottlenecks. ISO governing bodies may be able to design the employment contracts of ISO managers to provide such incentives.” (FTC 1998b).

Finally, there are concerns about the process of establishing regional ISOs. With a few exceptions — for example, California, New York, and Texas — individual states do not have the authority to require ISOs that would qualify as *regional*. While FERC has required that certain merging companies join ISOs, it has not attempted to require establishment of ISOs outside areas of the country that have tight power pools (New England, Pennsylvania-New Jersey-Maryland).

Distribution and fuel supply market power may also be dealt with by divestitures. To deal with distribution market power, utilities and their affiliates could be prohibited from engaging in retail marketing of electricity to customers in the geographic areas in which they own distribution facilities. While this approach has not been used in the electric industry to deal with distribution market power, it has a parallel in the telecommunications industry: the local Bell phone monopolies are not permitted to provide long distance service within their regions, and will not be

permitted to do so until they demonstrate that they have sufficiently opened their local networks to competitors.

To deal with fuel supply market power concerns, SDG&E has been required to divest gas-fired generating plants and PacifiCorp was required to divest two of Peabody's coal mines (see Chapter 8 below).

Companies could also be prohibited from owning both regulated monopoly facilities and competitive facilities in order to eliminate the problems of discrimination, improper information sharing, cross-subsidization and self-dealing that sometimes arise when there is common ownership.

Behavioral Remedies

Behavioral remedies allow market power — or anticompetitive incentives — to continue but attempt to prevent companies from behaving in anticompetitive ways that increase their profits. Behavioral remedies are inherently regulatory. Typically, there must be administrative mechanisms for monitoring behavior, adjudicating complaints, imposing sanctions, and overriding company decisions on prices, outputs, services and investments.

Behavioral remedies typically involve regulation or conduct rules. Here are five examples of behavioral remedies:

Dominant firm regulation is sometimes used to limit the prices that can be charged by firms with market power. Typically, the dominant firm in a market will face price regulation even while other suppliers operating in the market are not regulated. This approach was used by the Federal Communications Commission to regulate AT&T's long distance prices until 1996, even as other long distance firms were taking market share. The FCC removed price regulation when it determined that AT&T no longer had market power.

Monitoring and mitigation plans are being put in place to deal with generation and transmission market power in California and other regions with electric power auction markets. Under these plans, ISOs will engage in market surveillance in an attempt to detect and deter anticompetitive behavior. Frankena (1998b) discusses the likely ineffectiveness of these ISO surveillance schemes in detecting and deterring exercises of market power, while Raskin (1998) addresses the high costs these schemes are likely to impose on electric power markets.

Restrictions on a Utility's Use of Transmission Capacity may be used in an effort to prevent foreclosure of other users. Merging companies have agreed to various limits on, and lower priorities for, their own use of their transmission systems.

FERC's Order 888 and 889 transmission open access rules, which are intended to address transmission market power. These rules mandate that public utilities unbundle generation and transmission and provide to others the same types of transmission services they use themselves — with comparable prices, terms, conditions and information for all.

Codes of conduct governing affiliate relations for companies that own both regulated monopoly and competitive facilities. These codes and related rules may restrict permissible organizational forms in order to separate monopoly and competitive activities; prohibit self-dealing; prescribe transfer pricing and other accounting methodologies to limit cross-subsidies; prohibit sharing of certain types of information; and mandate disclosure, reporting and equal access to information to facilitate oversight and prevent discrimination (Norton and Grabow 1998).

The choice between structural and behavioral remedies is not a pure one. The issue is largely the extent to which reliance is placed on behavioral remedies. Even if primary reliance is placed on structural remedies, there may be little alternative to reliance on behavioral remedies to deal with residual market power, including some problems that arise from monopolies over transmission and distribution.

DIFFERENCES BETWEEN ANTITRUST AGENCIES AND REGULATORS

The Department of Justice (DOJ) and the Federal Trade Commission (FTC) have traditions of preferring structural to behavioral remedies for market power — particularly for horizontal market power. In dealing with mergers in a wide variety of industries, the federal antitrust agencies commonly require divestitures to settle complaints. The agencies sometimes accept structural remedies that are intended to bring about new entry or lower entry barriers.

In the case of the electric power industry, the antitrust agencies have recommended primary reliance on structural remedies to deal with market power. Both agencies recommended that FERC require ISOs rather than rely on Order 888 to deal with transmission access problems (DOJ 1995, FTC 1995). Recently, the director of the FTC's Bureau of Competition noted that "Although FERC Order No. 888 mandates open access, there remains a concern that incentives and opportunities for discrimination may still be present, through either unilateral or collective action, and rival power generators could be disadvantaged" (Baer 1997).

In comments on the New England Power Pool's application for market-based pricing, the FTC staff as well as the Maine attorney general recommended against substantial reliance on market surveillance plans because of difficulties in detecting anticompetitive behavior and preventing it through behavioral rules (FTC 1998a, Frankena 1998b). Also, the United States assistant attorney general for

antitrust cautioned FERC against following “an overly regulatory approach to merger review.” (See sidebar.)

“While I recognize, of course, that the Commission is a regulatory agency, and that the electric power industry has long been highly regulated, restructuring obviously is intended to move away from that paradigm. We at the Department hope and expect that market forces will become the primary determinants of wholesale electric power rates. And, in that context, mergers that substantially lessen competition should be allowed to proceed only if a court-imposed consent decree, or set of Commission-imposed merger conditions, offers a permanent, preferably structural remedy for the anticompetitive effects of the merger. More specifically, I would urge the Commission to reject rate freezes or rate roll-backs as conditions for approval of mergers creating structural competitive problems in generation. Such remedies typically are short-term, and do not in any way address the real competitive effects of the merger. Even in the short term, there will often be reason to doubt that the frozen rates would be as low as competitive rates. Finally, based on a century of experience, I would further emphasize that the Department is also highly skeptical of any relief that requires judges or regulators to take on the role of constantly policing the industry. Relief generally should eliminate the incentive or the opportunity to act anticompetitively rather than attempt to control conduct directly. We are institutionally skeptical about code-of-conduct remedies. The costs of enforcement are high and, in our experience, the regulatory agency often ends up playing catch-up, while the market forces move forward and the underlying competitive problems escape real detection and remediation.” (Klein 1998, pp. 17-18).

FERC approved the Enova/Pacific Enterprises electric-gas merger subject to prohibitions on inappropriate sharing of information and discrimination, and provisions for separation and transparency of certain transactions. By contrast, DOJ required divestiture of SDG&E’s gas-fired generating plants. The director of the FTC’s Bureau of Competition observed that FERC’s “approach to remedies in this case illustrates the general inclination of regulatory agencies to use conduct remedies rather than structural relief” (Baer 1997, n. 25). However, it should be added that state commissions — notably California’s — have imposed structural remedies.

ADVANTAGES OF STRUCTURAL REMEDIES

Several reasons for preferring structural to behavioral remedies have been explained by the director of the FTC’s Bureau of Competition:

“A behavioral approach...has several drawbacks. First, it does not eliminate the incentive and opportunity to engage in exclusionary behavior. Rules can try to limit the opportunity, but few rules are invulnerable to evasion. Second, detection of violations can be very difficult. For example, discrimination in access could take the form of

a subtle reduction in quality of service, whose effects could be difficult to identify and measure. Third, behavioral rules can require long-term monitoring of compliance, which can be a costly process.... Fourth, it may be difficult to know whether we have selected the right rules. Even a simple cease-and-desist order, which is commonly used in antitrust cases, can be difficult to frame, because we do not want to prohibit too little or too much. More complex orders, especially those that try to guide conduct through affirmative requirements, can be more difficult to frame properly” (Baer 1997).

The principal economic rationale for relying on behavioral rather than structural remedies is that structural remedies may prevent achievement of economies of scale and scope. The antitrust agencies sometimes rely on behavioral remedies in an attempt to limit potential anticompetitive effects of vertical mergers without sacrificing economies of scope (Baer 1997, n. 12).

INEFFICIENT REGULATION

One obstacle faced by efforts to replace regulation with competition in potentially competitive markets is that society does not always acknowledge the costs and limitations of regulation. While this point applies to many types of regulation, the discussion here will focus on regulation of prices. Price regulation imposes substantial costs.

First, regulated prices are below the efficient level in many circumstances. This is particularly true in the case of electric power, since the value of a MWh of energy may vary by hundreds of percentage points over the course of a day. Regulators lack the resources to determine efficient price levels, and they lack the resources to change regulated prices as cost and demand conditions change. Furthermore, regulators may base regulated prices on incorrect economic analysis. For example, regulators often set prices based on the average historical cost of tangible assets. Prices set on this basis may have little relationship to the determinants of competitive or efficient prices.

Second, price regulation limits the ability of regulated firms to respond to changes in technology, cost and demand conditions, and deters new investments, quality improvements, introduction of new services, and entry by reducing returns on pro-competitive activities. This distortion is likely to be greatest in industries — including the formerly staid electric power industry — that are undergoing important changes and in which future risks will be substantial.

Third, it is also important to remember that government regulations involve substantial administrative costs both for the industries being regulated and for the government.

Fourth, special interests are often over-represented in the regulatory process, compared to the consumer interest, making predictable arguments to protect their parochial interest in continuing regulation. Consequently, prices and services in regulated industries depart, often considerably, from those that would have prevailed in the markets that regulators displaced (Peltzman 1989).

In addition to its costs, a serious deficiency of price regulation is that regulated prices may well be substantially above competitive prices in some circumstances, even if they are below competitive prices in others. In such cases, utilities selling at regulated prices may actually be exercising significant market power. Such regulatory price gaps may be significant in the case of off-peak services, in regions with excess capacity, and for utilities with high average historical costs.

The limits of regulation, including price regulation, imply that consumers will typically be better off with structural rather than regulatory measures to address market power when structural remedies are an option. It should be recognized, however, that the discomfort of some regulators with reliance on markets to determine prices does not stem solely from concerns about market power. Some regulators are concerned that, without price regulation, consumers may become the victims of price gouging by unscrupulous sellers. We suggest that price regulation is not the best response to potential deceptive and unfair trade practices. Rather than throwing out the benefits of the market, consumer protection concerns are more properly addressed by measures to improve the information received by consumers so that markets can perform efficiently.

RELIANCE ON ANTITRUST ENFORCEMENT

It is not uncommon to hear the argument that market power problems can be dealt with adequately by enforcement of the antitrust laws. This argument is not correct. First, while the Sherman Act makes

“...a company with market power does not violate the antitrust laws merely by charging monopoly prices...”

anticompetitive agreements and exclusionary conduct unlawful, a company with market power does not violate the antitrust laws merely by charging monopoly prices or limiting its output. Also, competitors in a concentrated market may be able to coordinate their pricing, output and other decisions in anticompetitive ways that are not susceptible to challenge under the antitrust laws.

Second, illegal behavior is not easily detected, and this would certainly be the case in complex electricity markets. Even when illegal behavior is detected, it is expensive, time consuming, and sometimes perhaps impossible to carry the burden of proving illegality to a court. In the meantime, much injury may have been done

to consumers by firms exercising market power. One should also recognize that antitrust enforcement does not deter all illegal anticompetitive behavior, even of a criminal nature, as revelations of dramatic price fixing conspiracies demonstrate.

From the United States assistant attorney general for antitrust:

“[T]o whatever extent restructured electric power markets are too highly concentrated to yield pricing at or near competitive levels, the antitrust laws provide no remedy.” (Klein 1998, p. 5).

Third, while the antitrust laws permit legal challenges to certain types of anticompetitive conduct, antitrust authorities generally cannot change existing market structures that are not conducive to competition. Issues of market structure in the electric industry must, therefore, be addressed primarily in restructuring legislation or proceedings. (See insert.)

Fourth, certain anticompetitive conduct may be immunized from antitrust challenge by the state action doctrine, which shields anticompetitive behavior that is specifically authorized and actively supervised by a state. For example, the director of the FTC’s Bureau of Competition has raised the possibility that the state action doctrine may shield the operations of ISOs (Baer 1997).

Notwithstanding the limits on antitrust enforcement, as greater reliance is placed on markets rather than regulation to determine prices and allocate resources, the importance of protecting competition in electric power markets through enforcement of the antitrust laws will increase. Both federal antitrust agencies are therefore devoting increasing attention to this industry. Aside from mergers, in 1996 DOJ sought to enjoin an Oklahoma city from refusing to extend or connect water and sewer lines to consumers unless they also bought their electric power from the city. DOJ alleged that this conduct constituted *per se* unlawful tying and that it reduced competition between the city and an electric cooperative.

In 1997, DOJ challenged an agreement between Rochester Gas & Electric and a university. DOJ charged that RG&E used financial threats and rewards to induce the university to abandon its plan to build a generating plant that would have competed with RG&E (Klein 1998, pp. 5-6). After a judge ruled that the agreement between RG&E and the university was not protected by the state action doctrine, DOJ’s complaint was settled by invalidation of the agreement and a prohibition on RG&E from entering into similar agreements with competitors.

OPPORTUNITIES FOR STRUCTURAL REMEDIES

As a practical matter, the ability of policy makers today to bring about divestitures is limited to situations in which companies agree to “voluntary” divestitures to

obtain approval for something they very much want — such as recovery of stranded costs, approval of mergers, or approval of market-based pricing. The ongoing divestitures of generation in California and the northeast states are occurring principally because divestiture is the *quid pro quo* for stranded cost recovery.

A lesson that should not be missed is that the states may have only one chance to bring about divestitures in the electric power industry — namely, as a price for whatever stranded cost recovery will be allowed. If a deal for stranded cost recovery has been struck without adequate divestiture provisions, the opportunity will be gone. It should be noted that some state legislatures have even discarded the divestiture option before evaluating market power.⁶

In Chapter 10 we will discuss whether policy makers have adequate authority to deal with market power and how federal legislation might provide additional authority for states or FERC to address market power directly with structural remedies, instead of indirectly as a result of merger reviews or market-based pricing decisions.

CONCLUSIONS

For numerous reasons, policy makers should look first to structural remedies to shape the electric power industry into a competitive marketplace in generation and retail services. Notwithstanding a preference for structural remedies, a number of rationales can be offered for using behavioral remedies as well — mainly to deal with natural monopolies and other situations where structural remedies would cause unacceptable losses in economies of scale and scope. The next two chapters of this report will discuss remedies for market power in the context of mergers and retail restructuring proceedings.

⁶ The Pennsylvania Electricity Competition Act specifically precludes divestiture of generation assets as a requirement for restructuring (66 Pa. C. S. §2804(5)).

The techniques described earlier for assessing market power are used in a variety of settings — for example, to evaluate proposals for deregulation, divestiture requirements, and mergers. This chapter reviews recent experience with electric utility mergers, discusses how such mergers may increase market power, and finally considers how regulators and antitrust authorities have approached the market power issues raised by these mergers.

RECENT ELECTRIC UTILITY MERGERS

Electric utility mergers are not a new phenomenon, but the number of completed mergers between large electric utilities has increased in recent years. For investor-owned utilities large enough to appear on a standard wall map, one or two mergers were completed in almost every year from 1986 through 1996, with the result that the number of independent utilities on the map declined by 15 (12%). The number of utilities on the map then declined by another 4 during 1997 and will decline by 5 to 10 more by mid-1999, depending on the outcomes of the pending Western Resources/Kansas City Power & Light, Allegheny Power System/DQE, American Electric Power/Central & South West, Sierra Pacific/Nevada Power and Consolidated Edison/Orange & Rockland mergers. Even if all pending mergers are completed, the number of larger independent utilities visible on the map will stand at 92. Thus, we may expect further mergers to be proposed.

But the number of completed mergers is only part of the story. While a majority of announced electric utility mergers have eventually been completed, in the past ten years 14 mergers have been abandoned in the face of opposition and delays by target companies, stockholders, bankruptcy courts, and state and federal regulators. Table 4 lists the mergers and takeovers between investor-owned electric utilities that were proposed from 1994 through May 1998.

A major development on the merger front since 1995 has been the announcement of a dozen “convergence” mergers involving electric utilities and companies engaged in the transportation or retail distribution of natural gas. These are listed in Table 5.

Table 4. Investor-Owned Electric Utility Mergers, 1994 to Present.		
Utilities (Survivor in Bold)	Year (Announcement to Outcome)	Outcome
MidAmerican Energy Midwest Resources Iowa-Illinois Gas & Electric	1994-95	Merged
New England Electric System Nantucket Electric	1994-96	Merged
Altus Washington Water Power Sierra Pacific Resources	1994-96	Terminated by WWP
Primergy Northern States Power Wisconsin Energy (Wisconsin Electric Power)	1995-97	Rejected by FERC
PECO Energy PPL Resources (Pennsylvania Power & Light)	1995	Rejected by PPL
Ameren Corp. Union Electric CIPSCO (Central Illinois Public Service)	1995-97	Merged
New Century Energies Public Service Co. of Colorado Southwestern Public Service	1995-97	Merged
Constellation Energy Baltimore Gas & Electric Potomac Electric Power	1995-97	Abandoned
Alliant WPL Holdings (Wisconsin Power & Light) IES Industries Interstate Power	1995-98	Merged
MidAmerican Energy IES Industries	1996	Rejected by IES shareholders
Maxim Energies UtiliCorp United Kansas City Power & Light	1996	Rejected by KCPL shareholders
Western Resources Kansas City Power & Light	1996-98	Pending
Conectiv Delmarva Power & Light Atlantic Energy	1996-97	Merged
FirstEnergy Ohio Edison Centerior Energy	1996-97	Merged
Allegheny Energy Allegheny Power System DQE (Duquesne Light)	1997-	Pending
Wisconsin Energy (Wisconsin Electric Power) ESELCO (Edison Sault Electric)	1997-98	Merged
LG&E Energy (Louisville Gas & Electric) KU Energy (Kentucky Utilities)	1997-98	Merged
WPS Resources (Wisconsin Public Service) Upper Peninsula Energy	1997-98	Approved by FERC
American Electric Power Central & South West	1997-	Pending
Sierra Pacific Resources Nevada Power	1998-	Announced
Consolidated Edison (of New York) Orange & Rockland Utilities	1998-	Announced

Table 5. Convergence Mergers.

Electric Utility	Gas Company	Years (Announcement to Outcome)	Outcome
Puget Sound Power & Light	Washington Energy	1995-97	Merged
Texas Utilities	Enserch	1996-97	Merged
Portland General Electric	Enron	1996-97	Merged
Houston Industries (Houston Lighting & Power)	NorAm Energy	1996-97	Merged
Enova (San Diego Gas & Electric)	Pacific Enterprises (Southern California Gas)	1996-98	Approved
TECO Energy (Tampa Electric)	Lykes Energy (Peoples Gas System)	1996-97	Merged
Duke Power	PanEnergy	1996-97	Merged
Long Island Lighting	Brooklyn Union Gas	1996-	Pending
PG&E (Pacific Gas & Electric)	TECO Pipeline	1996-97	Merged
PacifiCorp	TPC (Tejas Power)	1997	Merged
PG&E	Valero Energy	1997	Merged
NIPSCO (Northern Indiana Public Service)	Bay State Gas	1997-	Pending

HOW MERGERS AFFECT MARKET POWER

Mergers involving electric power companies may increase generation, transmission and fuel supply market power, as well as increase or create opportunities for various affiliate abuses. Mergers between electric and gas companies may raise fuel supply market power issues and retail market power issues. For these reasons, mergers deserve close scrutiny by regulators and antitrust authorities.

Mergers between Electric Utilities

Mergers between electric utilities may increase generation and transmission market power, and in reviewing these mergers antitrust authorities consider effects on both. By contrast, in evaluating the competitive effects of these mergers, FERC now focuses exclusively on generation market power. FERC generally ignores effects of mergers on transmission market power because the agency assumes that such market power is eliminated by its Order 888, which requires open access

nondiscriminatory transmission service, and Order 889, which requires electronic posting of available transmission capacity and standards of conduct.⁷

However, it is obviously one thing to tell companies to behave in a certain way and quite another actually to get them to forgo opportunities to increase their profits. Surfacing complaints relating to how transmission capacity is defined, measured, reported, reserved for native load uses, scheduled and curtailed (*Foster Electric Report*, April 29, 1998, p. 1) suggest that FERC's reliance on the regulatory prescriptions in Order 888 is not warranted.

While ignoring effects of mergers on transmission market power, FERC shows concern for such market power in other contexts. For example, FERC found that Washington Water Power apparently violated numerous rules in providing transmission service to its affiliated power marketer (*Foster Electric Report*, May 13, 1998, pp. 4-6). Also, FERC recognizes that new industry reliability rules and practices could be used to reduce access to transmission, and FERC commissioners and staff are promoting use of ISOs to reduce transmission market power as well as for other reasons.

To appreciate the potential effect of a merger on transmission market power, suppose that GenCo owns a large share of generating capacity in the Peninsula region. Suppose that TransCo has the ability to influence the terms on which competing generators outside Peninsula are able to transmit energy to buyers in Peninsula. As long as TransCo owns no generation in Peninsula, TransCo has an incentive to sell transmission service to generators desiring to sell energy in Peninsula. Now suppose that GenCo and TransCo merge. The merged company may now have both the ability and the incentive to restrict the availability of transmission service to reach Peninsula in order to raise the prices at which it can sell energy from the GenCo generators.

The proposed merger of Northern States Power and Wisconsin Electric Power to form Primergy raised important concerns about both generation and transmission market power. FERC chose to dismiss concerns about transmission market power in light of the assumed efficacy of Orders 888 and 889, but decided that the merger raised serious generation market power problems. Two days after FERC's decision, Primergy was abandoned.

We do not mean to suggest that generation market power should take a back seat to transmission market power concerns at FERC when mergers are examined. As stated earlier, realizing the benefits of a restructured electric market depends

⁷ FERC does, however, consider whether a merger would enable the merged firm to reduce the availability of transmission service across congested interfaces for competing suppliers. See Committee on Electric Utility Regulation (1998), pp. 172-73.

“Non-horizontal mergers may be used by monopoly public utilities subject to rate regulation as a tool for circumventing that regulation. The clearest example is the acquisition by a regulated utility of a supplier of its fixed or variable inputs. After the merger, the utility would be selling to itself and might be able arbitrarily to inflate the prices of internal transactions. Regulators may have great difficulty in policing these practices, particularly if there is no independent market for the product (or service) purchased from the affiliate. As a result, inflated prices could be passed along to consumers as “legitimate” costs. In extreme cases, the regulated firm may effectively preempt the adjacent market, perhaps for the purpose of suppressing observable market transactions, and may distort resource allocation in that adjacent market as well as in the regulated market. In such cases, however, the Department recognizes that genuine economies of vertical integration may be involved. The Department will consider challenging mergers that create substantial opportunities for such abuses.” (DOJ 1984, Section 4.23, footnote omitted).

critically on the elimination or mitigation of significant market power both in generation and transmission. It is simply the case that FERC should examine both vertical and horizontal market power when considering mergers between electric utilities.

Convergence Mergers

If a single company owns both generators and natural gas pipelines that supply gas to competing generators, it may have the ability and incentive to raise the price of gas delivered to competing generators. DOJ, FERC and the California commission concluded that the proposed merger of Enova (owner of SDG&E’s generating plants) and Pacific Enterprises (owner of Southern California Gas’s transportation facilities) would result in fuel supply market power. To resolve such problems, DOJ and the California commission required that the merged firm divest SDG&E’s gas-fired generators. The California commission also required the merged firm to divest options to purchase two gas pipelines. Both the California commission and FERC also imposed a number of behavioral restrictions.

A fuel supply market power issue arose in 1997 in connection with the proposed merger between PacifiCorp and the corporate parent of Peabody Coal, which supplies coal to large generating plants in the southwestern United States. The FTC reasoned that as a result of the merger PacifiCorp was likely to have the ability and incentive to raise prices of coal from two Peabody mines to competing generators because this action would raise market prices for electric energy during

off-peak hours. The FTC therefore required that PacifiCorp divest the two Peabody mines to avoid an antitrust complaint.⁸

Convergence mergers may raise additional competitive concerns related to information sharing, cross-subsidization and self-dealing (see Insert). The FTC reasoned that PacifiCorp might gain access, through Peabody's coal contracts and coal supply relationships, to highly sensitive data about competitors' costs and to information about the operating conditions of competing generators. The FTC was concerned that such information would enable PacifiCorp to identify situations in which it could raise prices because it did not face competition.

In addition, a horizontal market power issue is raised by mergers between electric and gas distribution utilities that have overlapping retail territories, and also when an electric distribution company proposes to merge with a gas pipeline that can influence the retail price of gas sold to customers of the electric company. In such cases, a merger may increase horizontal market power by reducing competition between electricity and gas.

Some customers can choose between gas and electricity for some of their energy requirements, and a merger between gas and electric utilities with overlapping retail territories is therefore likely to eliminate some price and non-price competition. For example, such a merger might eliminate competition to reduce costs and prices, to provide superior customer service, to provide incentives for developers of all-electric housing, and to provide discounts for customers with gas air conditioners and electric heat pumps. Some studies have concluded that costs are actually lower when electric and gas utilities are separately owned than when there is a combination utility (Frankena and Owen 1994, pp. 130-33). Nonetheless, FERC typically leaves consideration of the effects of mergers on retail competition to state regulators, and the federal antitrust agencies have not challenged electric-gas mergers based on concerns over retail electric-gas competition.

There are a number of possible explanations for why the antitrust agencies may have concluded that they would not prevail in court in a merger challenge based on reduced retail competition between electricity and gas. Merger applicants may have argued:

- At present and forecast prices for electricity and gas in some parts of the country, electricity is not competitive with gas for uses such as space heating.
- The reduction in competition will not be significant if there is open access to the electric or gas distribution system.

⁸ Ultimately, PacifiCorp was outbid by Texas Utilities, which had arranged to sell Peabody Coal.

- Requirements for uniform service territory tariffs will prevent a merger involving a partial overlap of customers from having a significant effect.

Also, if state regulators believe they can protect retail ratepayers from the exercise of market power by combination utilities, political considerations may weigh against a federal challenge. Because convergence mergers are likely to continue to be proposed, this heightens the importance of scrutiny of such mergers by state regulators.

EVOLUTION OF FERC'S MERGER POLICY

FERC's concern over the competitive effects of mergers was initially heightened by three large mergers proposed in the late 1980s — PacifiCorp's acquisition of Utah Power & Light, SoCal Edison's attempt to acquire SDG&E, and Northeast Utilities' acquisition of Public Service Company of New Hampshire. Each of these mergers was the subject of FERC and state proceedings that lasted for over two years. The California commission rejected the SoCal Edison/SDG&E merger because of its effects on competition as well as other concerns, while FERC imposed conditions on the PacifiCorp and Northeast Utilities mergers to mitigate transmission market power.

By contrast, during the early 1990s FERC approved all merger proposals — including transactions as large as Entergy's acquisition of Gulf States Utilities — without serious analysis of competitive effects. FERC did not analyze competitive effects when the merging companies agreed to provide open access transmission service, as all did. FERC's reasoning was that the pro-competitive effects of open access under a single-system tariff were sufficient both to prevent an increase in transmission market power and to offset any increase in generation market power.

By 1994, some FERC commissioners were speaking out on the weaknesses of FERC's merger policy in an era in which increasing reliance was being placed on competition. Also, after Order 888 imposed open access on all public utilities in 1996, it was no longer possible for merging companies to avoid scrutiny of competitive effects by offering open access. In 1996, FERC formally changed its approach to merger evaluation by issuing its *Merger Policy Statement*. In 1997, FERC's adverse finding regarding the competitive effects of the proposed Primergy merger was quickly followed by abandonment of the transaction. FERC also found that the Enova/Pacific Enterprises merger raised significant fuel supply market power problems.

More recently, FERC has decided that some merging utilities must provide greater transmission access in order to overcome concerns about market power over municipal and cooperative utilities located in the merging companies' territories. FERC has also required that some merging companies turn control of their

transmission systems over to a regional ISO, typically after the merging companies have offered to do so. By the first half of 1998, as a *quid pro quo* for avoiding hearings on market power, it was becoming routine for applicants to offer commitments to join an ISO and to sell a few hundred megawatts of energy for a few years to offset potential generation market power problems.

FERC has stated that it will leave to states the task of evaluating the effects of mergers on retail competition while FERC focuses on effects on wholesale competition. However, when states open some or all retail sales to competition, utilities have more electric power that they are free to sell — either at wholesale or retail — at market prices. As a result, the introduction of retail competition will change market shares, concentration and market power at the wholesale level. It follows that the effect of a merger on future wholesale competition cannot be evaluated without taking into consideration future changes in retail customer choice. In any case, FERC requires two analyses of the effects of mergers on wholesale competition in electric energy, one based on “available economic capacity,” which assumes existing levels of retail competition, and a second based on “economic capacity,” which assumes that all native load customers have the ability to choose among energy suppliers.

STATE REGULATORY COMMISSIONS

Regulatory commissions of states in which retail customers are served by a merging utility typically must approve a proposed merger. There are exceptions, for example, when the structure of a merger transaction does not change control over the jurisdictional assets in a state. For a number of mergers, state commissions have considered the same competitive issues that FERC has evaluated, as well as additional issues such as retail competition. This was true of the California commission in the SoCal Edison/SDG&E merger, the Wisconsin commission in the Primergy merger, and the Pennsylvania commission in the Allegheny/DQE merger. The California commission’s rejection of the first of these mergers caused that merger to be abandoned. Commission staff in Wisconsin opposed the Primergy merger, which was rejected by FERC before the Wisconsin commission reached a decision. The Pennsylvania commission approved the Allegheny/DQE merger only on condition that the utilities join a functioning ISO, while that merger is still pending at FERC.

ANTITRUST AGENCIES

In addition to requiring approval by FERC and state commissions, utility mergers can be challenged in court by the federal antitrust authorities, state attorneys general, and private parties for violation of the Clayton Act, which prohibits mergers that may substantially lessen competition.

During FERC's evaluation of the proposed SoCal Edison/SDG&E merger, DOJ participated as an intervenor in the FERC proceedings. Since then, rather than participate in regulatory proceedings, the federal antitrust agencies have carried out independent investigations of utility mergers that raised potential concerns. However, with the exceptions of the Enova/Pacific Enterprises and PacifiCorp/Peabody vertical mergers, the antitrust agencies have not issued complaints or obtained remedies.

Antitrust action may in certain cases be deterred by concerns that the agencies will not succeed in carrying their burden of proof to persuade a federal district court to block a merger, particularly if a merger has been approved by FERC. The United States assistant attorney general for antitrust has suggested that even if DOJ concludes internally that a utility merger is likely to be anticompetitive, DOJ may be unable to convince a court to agree given the limited real world market transactions data available to demonstrate key points such as the geographic scope of competition. This concern led the US assistant attorney general to suggest either a moratorium for a few years on mergers between large directly interconnected utilities or a shifting of the burden of proof to the merging companies (Klein 1998, pp. 12-15).

State attorneys general have evaluated the competitive effects of a number of electric utility mergers and either participated in regulatory commission proceedings on those mergers or prepared to challenge them in court. Affected parties may also file antitrust suits in an attempt to convince courts to enjoin mergers. For example, Pittsburgh filed an antitrust suit against the Allegheny/DQE merger.

CONCLUSION

There is no facile "rule-of-thumb" that can be used by policy makers to determine whether a particular merger would be anticompetitive. Some mergers can increase efficiencies without producing undesirable effects on competition. Other mergers can create or increase market power to such a degree that they must be substantially modified or rejected. The lesson is that there is no substitute for careful analysis on the part of policy makers. In a later chapter we examine the implications for merger policy of proposals being considered for federal legislation.

This chapter addresses market power problems that may arise at the retail level, rather than wholesale level, of the electric power supply industry. Retail market power is likely to manifest itself in narrower choices among service and pricing options, inferior customer service, and higher prices for retail electric services for any given level of wholesale prices. For the discussion of these issues, the term *retail marketing* will be used to refer to the supply and marketing to retail customers of services such as procurement of power supplies from the wholesale market or generators, procurement of wires services from transmission and distribution utilities, metering and billing services, demand-side management services, and risk management services. The suppliers of these services are retail marketers, aggregators and energy services companies.

ORIGINS OF RETAIL MARKET POWER PROBLEMS

As discussed earlier, if entry into a market is “easy” in the antitrust sense, market power is unlikely to be a problem even if the market is highly concentrated. As we stressed, though, to be easy, entry by competitors must be more than simply possible. Entry must be feasible, able to occur on a timely basis, and profitable for the new entrant. As a result, in analyzing competition in retail marketing, it is useful to begin by asking what barriers to entry may exist. For the most part, there appear to be three potential types of entry barriers:

- Barriers that arise from vertical integration of the local distribution utility into retail marketing. Vertical integration may lead to exercise of distribution market power (see Chapter 5 above), improper information sharing and cross-subsidization.
- Barriers that arise from imperfect information and inertia when a market is opened to competition. Even though consumers have a choice of suppliers, they may not switch to a new supplier that offers a superior service, or an equivalent service at a lower price, if they lack information about relative services and prices, and because of inertia.
- Barriers created by government policies, such as provisions for recovery of stranded costs.

In order to demonstrate the importance of such entry barriers in explaining any retail market power problems that may exist, suppose that none of these three types of barriers are present but that nonetheless one company has a very large

market share. Suppose further that this company's share can be explained by the fact that its prices are lower than those of its smaller competitors, and that it is able to charge these lower prices because of various cost advantages. Its cost advantages might be a result of its years of experience in the industry, relatively large scale, or superior management. Should policy makers do anything about this situation? What in fact could public policy accomplish?

Public policies might be adopted to "level the playing field," but policies that would eliminate genuine cost advantages or prevent a seller from taking advantage of such cost advantages would not reduce prices to consumers; the opposite effect on prices is more likely. In short, absent entry barriers, public policies aimed at reducing the market share of the largest supplier may help smaller competitors, but such policies may actually hurt consumers. It is, therefore, important to assess entry barriers.

ENTRY BARRIERS ARISING FROM VERTICAL INTEGRATION

Competitive concerns raised by common ownership of monopoly distribution utilities and competitive retail marketing companies operating in the same geographic market are discussed in Chapter 5. Government regulators have followed several approaches to dealing with these concerns, including the following:

- *Prohibition of Common Ownership:* Distribution utilities and their affiliates could be prohibited from engaging in sales of power and energy services to retail customers who are able to choose among suppliers and who are located in the geographic area served by the distribution system. For a time, the New Hampshire commission's restructuring plan required that distribution utilities divest marketing services and prohibited distribution companies from marketing power in their franchise territories. These prohibitions would have barred Northeast Utilities from selling power in over half the state, but they were replaced in 1998 by behavioral regulations. In 1998, an Illinois court affirmed a state commission decision rejecting Commonwealth Edison's proposal for an affiliate that would supply energy support services to jurisdictional customers. The commission ruled that if Commonwealth Edison participated in both the energy and energy services markets, it would have an incentive to drive competitors from the latter.
- *Organizational Separation:* A state could require that regulated and unregulated businesses be conducted in separate subsidiaries of a holding company. For example, the subsidiary operating the distribution utility could be prohibited from engaging in retail marketing, which would have to be handled by a separate subsidiary. More limited forms of separation are unbundling of services, accounting separation, and the creation of firewalls between activities within a company. For example, England/Wales and Norway require that

distribution companies unbundle and keep separate accounts for wires services and retail marketing. However, the industry regulator in Norway reported that a number of problems persisted. (See insert.)

- *Prohibitions on Self-Dealing.* In some cases, regulators attempt to deal with competitive problems relating to affiliate abuse and evasion of regulation by prohibiting regulated companies from buying inputs from and selling outputs to unregulated affiliates. For example, a number of states prohibit distribution utilities from purchasing electric power from unregulated affiliated generators, and many states require competitive bidding.

- *Performance-Based Pricing.* Competitive problems relating to cross-subsidization and inappropriate transfer prices in affiliate transactions stem in part from incentives created by traditional cost-based regulation of monopoly activities. These problems may be reduced if regulated prices do not increase when a company's costs increase. A number of states, such as California, have moved away from cost-based regulation to various forms of performance-based regulation. These efforts have parallels in telecommunications, where the Federal Communications Commission and many state regulators are now using "price cap" regulation that breaks the direct link between costs and regulated rates.

- *Regulation of Discriminatory and Other Anticompetitive Behavior.* The default option for attempting to deal with competitive problems raised by common ownership of regulated monopoly and competitive businesses is the proliferation of behavioral regulations, codes of conduct and disclosure requirements aimed at preventing regulated monopolies from behaving anticompetitively toward rivals in competitive markets. Given such regulations, another option is to devote substantial ratepayer and taxpayer resources to monitoring the behavior of vertically integrated companies. An additional option is to subject abuses to

Most [distribution] utilities tried to establish barriers to traders entering their service area in the form of network restrictions on wheeling. In most cases these restrictions were discriminatory....

Some sort of cross-subsidization seems always to be possible in a vertically integrated company, which also works to the disadvantage of traders....

A major problem from a regulatory perspective is cross-subsidization from the wires business to final sales. Without this "extra" margin, the final sales business could be a problem for some utilities....

The challenge remaining for the reform and the regulator are to restructure the ownership (the wires and final sales) to avoid cross-subsidization and to lower wheeling costs. A major goal remaining is to split the final sales and wires into separate companies. (Moen and Hamrin 1996).

penalties (beyond disallowances) to increase deterrence. Regulatory approaches not only impose costs but offer mitigation that is incomplete. (See insert).

In fact, thus far states have rarely prohibited affiliates of distribution utilities from engaging in retail marketing (see Jaffe 1998). The principal economic rationale that is typically offered for avoiding structural remedies is that there are economies from vertical integration. In any event, as long as vertical integration is permitted, regulators will impose numerous behavioral rules in an attempt to limit potential abuses.

With regard to SoCal Edison's purchases from its unregulated generation affiliate at inflated prices during the 1980s (see Appendix B), the California attorney general stated:

"The fact that this proceeding took two years to get to an ALJ decision illustrates the limits of regulation in detecting and correcting abusive self-dealing practices."

(Opinion No. 90-507. 1990 Cal. AG LEXIS 57; 73 Op. Atty Gen. Cal. 366; 1991-1 Trade Cas. (CCH) P69, 427).

USE OF DISTRIBUTION COMPANY ASSETS IN RETAIL MARKETING

This section addresses one specific situation that arises in connection with vertical integration between distribution and retail marketing, namely: the use by a marketing affiliate of assets acquired by the distribution utility in the course of carrying out its regulated business. The discussion here will focus on use of the distribution company's brand name and logo by affiliated marketers. Another example would be use of the distribution company's databases on customer characteristics and consumption patterns.

As a starting point, it is important to recognize that brands are valuable assets that are recognized in stock market valuations. Companies typically build brand names by supplying products that satisfy consumers and by advertising, often at substantial cost. A brand name is valuable when it enables a company to sell more output, other things equal.

Furthermore, brands have important consumer benefits because they help consumers to overcome imperfections of information. The thrust of the substantial economics literature on the function of brands is that companies build brand names and associated reputations in substantial part to reduce search costs for consumers. Brands also serve as guarantees — or bonds — of product or service quality (Frankena 1992). It does not typically make sense for a company to spend millions of dollars building a brand name if the products the company sells will not satisfy consumers. Company investments in building a brand name are likely to be

worthwhile only if the brand helps in attracting and retaining *satisfied*, repeat buyers. If a company delivers shoddy products, it will not only lose customers but damage its brand — in short, it will forfeit its bond.

Because consumers tend to benefit from the existence of brand names, a policy of restricting the use of brand names has the potential of making consumers worse off. The ability to use the existing brand name of a distribution utility is likely to reduce the costs of an affiliated marketer, and also to increase the incentives of such a marketer to satisfy consumers. Those things will tend to benefit consumers. This is not, however, the entire story. A number of complications should be considered in reaching a conclusion regarding appropriate policies toward brands:

- If an affiliated marketer is allowed to use a distribution utility's brand name and logo, and if the distribution utility is subject to cost-based regulation, then the distribution utility may have an incentive to spend as much money as regulators will permit to build the brand name — even if such expenditures do not benefit its jurisdictional customers. Such expenses may be passed along in higher prices for regulated wires services while benefits will accrue to the affiliated marketer. Thus, regulators may have to decide how much advertising, if any, the distribution utility should do.
- If the distribution utility has been guaranteed recovery of its costs and a regulated rate of return for many years, should the value of its brand in new uses accrue to the jurisdictional customers, rather than to the utility's shareholders? In that case, should jurisdictional customers be paid for use of the brand? Downs (1998) reports that the weight of legal authority is that ratepayers have no property interest in a regulated utility's goodwill assets, including its brand and logo. However, at least in some cases, regulators would seem to have a reasonable case that jurisdictional customers have some claim to the value of a brand name.
- There may be a regulatory concern that an affiliated marketer could conduct its affairs in a manner that would reduce the value of a shared brand name to the distribution utility and its jurisdictional customers. Should jurisdictional customers be compensated for this risk?
- Use by a marketing affiliate of the distribution utility's brand name and logo has the potential to deceive consumers. For example, consumers might infer that the affiliated marketer can offer more reliable delivery because of its affiliation with the distribution company, or that the affiliated company is regulated by the state commission. To deal with potential deception, California has mandated disclosure requirements. A utility affiliate cannot use its parent's brand or logo in advertising unless it plainly reveals that the affiliate is not the same company as the utility, that the affiliate is not regulated by the state commission, and that a customer is not obligated to buy the affiliate's product to

receive regulated services from the utility. This would appear to be a reasonable requirement that achieves consumer protection without an outright ban on the use of the brand name.

In the end, theoretical economic reasoning alone appears to be insufficient to reach a conclusion on efficient policies toward affiliate use of brands. Regulators are put in the familiar position of attempting to protect consumers and provide the right incentives to the regulated companies while maximizing the value of the regulated assets. The correct solution to the brand name issue will likely vary somewhat from case to case, depending on the exact arrangements in the market, regulatory history, style of residual regulation and other factors.

IMPERFECT INFORMATION AS AN ENTRY BARRIER

Imperfect information probably enables former monopolists in deregulated markets to charge prices above those that would prevail if consumers had perfect information about the services and prices offered by competitors and if consumers responded quickly and dramatically to differences in relative prices. This is likely to be true in emerging retail electricity markets. The question is what public policy can usefully do about this situation.

Policy makers cannot in fact easily remove the problems that arise from imperfect information and consumer inertia in electric power or other markets. Two policy approaches may make sense. First, in some cases private parties may not have adequate incentives to provide information to consumers, and there may be a role for government in disseminating information. Some state public utility commissions have made consumer education a main feature of restructuring plans of electric utilities. Second, there is a role for government to pass and enforce consumer protection laws designed to prevent deceptive advertising and marketing.

Once again, the experience in telecommunications is relevant. Telephone consumers experienced a troublesome period as independent deregulated payphones were established. Consumers, many of them “transient” customers who were traveling, were accustomed to dealing with familiar monopoly providers when making collect or credit card long distance calls from payphones. New “operator service providers” (OSPs) found they were able to charge exorbitant rates for long distance calls made from these payphones, even as consumers used calling cards issued by their familiar local exchange company.

Information about the rates of OSPs was very difficult to obtain and billing was often delayed months, making it nearly impossible for consumers to understand the new arrangements and to react to prices. The situation was partially ameliorated only after Congress and many state legislatures passed laws requiring various forms of disclosure and refunds of excessive charges. In reaction to the price

gouging, the FCC and many state regulators adopted regulations for OSPs including disclosure requirements such as the requirement of “branding” announcements during the phone call, refunds of exorbitant charges and limits on commissions paid by OSPs to phone location owners. Some state commissions also undertook consumer education efforts of their own. At a time of significant change in this industry when *more* information was needed, imperfect information resulted in price gouging and poor service.

A second telecommunications example concerns long distance service. Although there are many competitors in the long distance industry, regulators have found it necessary to adopt and enforce regulations about how customers can be solicited by long distance companies. Customer inertia, complicated pricing plans and a poor consumer understanding of the rules in this newly competitive market have led to abuses. One purpose of these regulations is, in part, to stem the practice of *slamming*, the unauthorized switching of a consumer’s long distance carrier.

In both cases, less efficient providers displaced more efficient ones, to the detriment of consumers. Regulators and legislators adopted and began to enforce new consumer protection rules even as competition was introduced to this market.

GOVERNMENT POLICIES AS ENTRY BARRIERS

Government policies, such as provisions for recovery of stranded costs, may inadvertently erect entry barriers. For example, Enron recently announced that it would no longer compete for residential customers in California. According to *Foster Electric Report* (April 29, 1998, p. 10), “The company found it too difficult to compete in California under a state law requiring a 10 percent rate cut for all consumers and a competitive transition charge (CTC) designed to recoup California’s traditional utilities’ stranded costs.”

A hypothetical will illustrate this real problem. Suppose a state freezes retail prices at 8 cents per kilowatt-hour (kWh) and requires that consumers pay the incumbent utility 3 cents/kWh for use of its wires and 3 cents/kWh as a CTC if they purchase their electricity from a competing retail marketer. No competing retail marketer is likely to enter the market, because it would not be able to charge more than 2 cents/kWh for unbundled electricity — a price that is not likely to cover its costs. Incumbent utilities do not mind a low unbundled electricity price, since the low price inflates their claimed stranded costs while eliminating competition from retail marketers, and possibly also incentives for competitors to expand generation and transmission capacity (see Pierce 1998).

An implication of this example is that policy makers should attempt to remove avoidable entry barriers and avoid adopting new regulations that will impede entry into retail markets.

Previous chapters of this report have defined market power, illustrated its exercise in electricity markets and discussed methods for assessing and mitigating market power.

Of course, our discussion of market power is not occurring in a vacuum. Regulators are in the midst of examining restructuring plans and mergers and lawmakers are considering measures that will affect regulators' authority and ability to deal with market power. Since treatment of market power is central to the question of whether consumers will benefit from electric restructuring, policy makers must have the tools to assess market power and the authority to deal with it. Whether regulators have sufficient authority will depend largely on the status of state and federal laws affecting the industry.

In this chapter we consider the interplay between federal legislation and the ability of regulators to deal with market power. We examine the earliest federal law designed to deal specifically with market power in the electric industry, the Public Utility Holding Company Act of 1935 (PUHCA), and consider some of the issues raised by proposals to eliminate PUHCA

We also examine a proposal by the Clinton Administration to promote the continued restructuring of the industry while increasing the authority of FERC to deal with market power. Finally, we conclude with a list of issues that lawmakers should consider when formulating federal energy legislation.

THE PUBLIC UTILITY HOLDING COMPANY ACT

The Public Utility Company Holding Act of 1935 (PUHCA or 1935 Act) was enacted during the Roosevelt administration to restructure the United States electric utility industry and remedy perceived market power abuses by electric utility holding companies. Ownership of generation facilities was far more concentrated at that time than now, with three holding companies controlling 49% of the nation's investor owned generation (Michigan Public Service Commission 1997).

The 1935 Act itself detailed market power abuses that had occurred. The abuses fill out many of the categories identified previously in this report: cross-subsidization, improper pricing of affiliate transactions, and vertical market power. More generally, the holding company structures provided the opportunity for the companies to evade effective regulation. The size and complexity of the holding

companies made it difficult for states to regulate utilities, whose transactions often involved subsidiaries outside the reach of those regulators.

PUHCA's approach was to reform the industry structure by creating many more non-affiliated utilities, limiting the ability of large holding companies to recreate themselves and establishing new regulatory rules to prevent the remaining holding companies from evading regulation. Under PUHCA, the Securities and Exchange Commission (SEC) was given the responsibility for dismantling most of the holding companies and overseeing transactions among affiliates of the remaining holding companies. At the same time, Congress passed the Federal Power Act, establishing the authority of the Federal Power Commission (FPC, predecessor to FERC) over the rates for wholesale power transactions and transmission prices.

By 1955, the original 214 holding companies had been reduced to 25 and more than 80 percent of the subsidiaries formerly part of the holding companies had been divested (*Id.*) Following this initial round of disaggregation, the SEC and the FPC proceeded to regulate in parallel the remaining holding companies that were subject to PUHCA. In 1998, some of the nation's largest utility holding companies (e.g., Southern Company, American Electric Power, Entergy) are still regulated as "registered holding companies" by the SEC.

Responding to the perceived needs of the time, PUHCA sought to limit the exercise of market power by holding companies through regulatory requirements and legal prohibitions. These included review of inter-affiliate transactions by the SEC, limits on the subject utilities' investment in non-utility businesses and prohibition on the acquisition of "distant" utilities that are not interconnected with utilities owned by the holding company.

PUHCA was undoubtedly successful at improving the ability of regulators to regulate the industry, and the changes in market structure brought about by the act presumably reduced the exercise of market power. By eliminating the holding company structures in many cases, the new legislation permitted state commissions to regulate utilities directly and avoid the difficult job of sorting out affiliate power sales and fuel transactions. The limits on diversification and the prohibition on acquisition of non-integrated utility systems kept the remaining companies smaller than they otherwise would have been; the reforms also succeeded in keeping the disaggregated companies from recreating the large holding companies.

Much has change since 1935 and especially since passage of the Energy Policy Act of 1992. There has been a revolution in antitrust analysis and in views toward regulation. The nation is moving away from the previous assumptions about the electric power industry that justified monopoly service areas and regulated monopoly provision of electric generation. There is a legitimate question whether the prescription of PUHCA can serve a marketplace that relies on competition instead of regulation to determine the prices of electric power. The challenge to

lawmakers is to capture the essential purpose of PUHCA in a form that is consistent with present understanding of the benefits of competitive markets and the role of regulation.

PROPOSED FEDERAL ENERGY LEGISLATION

Today, critics of PUHCA offer cogent arguments that the specific provisions of that law were designed for an era in which competition in generation and retail services was not envisioned. For example, costs may be lower and competition greater in some circumstances if companies are organized as holding companies *and* their operations are not limited to a single interconnected electric system. Such companies may be able to attain economies of scope and scale without having shares in any individual markets that would give rise to market power. Steps holding companies may be required to take artificially to integrate their systems to comply with the 1935 Act may raise costs without serving any useful purpose.

Others argue that it would be a serious public policy mistake to repeal PUHCA without adopting consumer protections and measures designed to prevent recurrence of the market power abuses that PUHCA sought to eliminate. These advocates point out that clear authority must be given to FERC to review holding company mergers and that regulators need to have enhanced ability to inspect books and records of affiliates of utilities within a holding company. More generally, policy makers need new tools to eliminate market power in the 1990s. Finally, they argue, statutory changes should be made in a comprehensive fashion. At the same time that registered holding companies are released from the strictures of PUHCA, regulators should have increased authority to deal with market power.

In Chapter 3 we noted that hearings on restructuring plans gave regulators a one-time opportunity to make structural changes in a state's electric market. A state commission might be able to achieve "voluntary" divestiture of generation or transmission facilities at the same time it was determining whether to permit recovery of stranded costs. In a similar way, federal lawmakers may have a one-time opportunity to give regulators meaningful legal authority to deal with market power. It is reasonable that lawmakers should pair PUHCA reform with the adoption of appropriate consumer protections and the assignment to FERC of greater authority to address market power issues. In the spirit of PUHCA, these tools could include the unambiguous authority to order divestitures and to require companies to create or join an appropriately structured Independent System Operator to mitigate generation and transmission market power.

Besides this tactical reason, there is another rationale for linking PUHCA reform to these other regulatory changes. We can assume that the PUHCA repeal will result in more proposed electric mergers and acquisitions. The PUHCA requirement that a registered holding company operate only an integrated electric (or gas) system

would be removed, making possible mergers that are today not permitted. As our earlier discussion suggested, mergers can be good or bad, pro-competitive or anticompetitive, pro-consumer or anti-consumer. The potential for more mergers following PUHCA repeal is not a reason to oppose repeal. However, this potential suggests that PUHCA repeal will add to the changing character of the electric industry. Under these circumstances, it is reasonable to accompany repeal with the reinstatement of PUHCA's consumer protections and the adoption of measures to make it less likely that market power will reduce consumer benefits in the newly organized industry.

There are several strains of federal energy legislation proposed to further competition in the United States electric industry. These include stand-alone "PUHCA repeal" proposals that would eliminate the substantive provisions of PUHCA, removing limitations on the ability of registered holding companies to diversify or to acquire other utilities. Other legislative proposals seek to spur retail competition by mandating that states adopt retail competition plans by a date certain. Other proposals adopt the goal of retail competition, remove barriers and otherwise enable competition without mandating the outcome. One of the more comprehensive proposals was recently announced by the Clinton Administration.

THE CLINTON ADMINISTRATION'S "COMPREHENSIVE ELECTRICITY COMPETITION PLAN"

In March 1998, the Clinton Administration issued its Comprehensive Electricity Competition Plan (DOE 1998), which makes a number of proposals for federal legislation to address market power in electric power markets. The rationale offered for federal action is largely that electric power markets are typically broader than individual states.

Numerous utilities have significant generation market power under at least some conditions, based in large part on ownership concentration for generating capacity. With its current authority, there is little that FERC can do to reduce existing concentration. The principal tool at FERC's disposal is its ability to condition approval of market-based pricing on divestiture of generation or other structural measures. The Administration's Plan proposes to expand FERC's powers so that it could remedy existing market power in *wholesale* electric power markets, if necessary by ordering divestiture of generating capacity.

In addition, FERC would be authorized to remedy market power in *retail* electric power markets upon petition from a state that is implementing retail competition and has insufficient authority to remedy a market power problem — for example, because the market power is a result of concentrated ownership of generating capacity in a regional market extending beyond the state's borders. Again, FERC

would be authorized to order divestiture of generating units to mitigate market power.

While proposing that FERC be given the power to order divestitures to remedy existing market power, the Administration added a qualification: “Given that a requirement to divest assets is an extraordinary remedy, FERC should in the first instance consider proposals by the generators possessing market power on how to mitigate market power through less intrusive means.” Also, FERC would have the authority to order divestitures only if FERC was able to demonstrate market power. It remains to be seen whether either of FERC’s current methodologies for assessing market power — the hub-and-spoke method and the Appendix A method — could withstand a legal challenge by a utility that did not want to divest generating units, since both methodologies suffer serious infirmities.

Under the Administration Plan, FERC would also be given the authority to require that transmitting utilities turn over operational control of their transmission facilities to an ISO. In addition, FERC would be given the authority to oversee reliability, and hence to regulate industry rules and practices governing transmission systems that could impact grid access and transmission market power.

In the merger area, the Administration Plan proposes giving FERC authority over mergers between utility holding companies and mergers involving non-utility generating companies. In practice, utility holding company mergers are already reviewed by FERC.

The Administration’s Plan also contains a proposal and a suggestion that may be anticompetitive. First, the Plan proposes legislation to clarify that a state has the authority to preclude imports from an out-of-state utility with a retail monopoly unless that out-of-state utility permits customer choice. Such a provision may be pro-competitive if the result is to induce the out-of-state utility to open its service territory to competition. However, if the provision fails to achieve that objective, and the reciprocity requirement is then used to prevent imports into the first state, the result may be to increase market power and raise prices in the first state. At the same time, it is unclear how the provision would actually prevent imports of power into the first state, given opportunities for arbitrage in electric power markets. The out-of-state utility could sell its power to a power marketer, which could sell power in the first state.

Second, the Plan expresses concern that a state’s attempt to prevent low cost indigenous power from being sold to customers outside that state following implementation of retail competition might be prevented by a legal challenge based on the Constitution’s Commerce Clause. The Administration states: “We are considering whether states should be given specific authority to preserve such low-cost indigenous power following implementation of retail competition.” Such a

policy may reduce production of electric power in low cost areas and increase production in high cost areas, with the result that the total cost to society of producing electric power would be increased.

CONCLUSION

Continued progress toward fully competitive electric markets will require regulators to intercede to eliminate significant market power. At present, however, the scope of regulators' ability to deal with market power is limited both by legal authority and regulatory practice. FERC explicitly assesses *existing* market power only when deciding on applications for market-based pricing, including associated proceedings dealing with independent system operators. FERC and the antitrust authorities also assess whether proposed electric utility mergers would *create or enhance* market power, but regulators do not address market power that already exists when they deal with mergers. And even when FERC has market-based pricing and merger applications before it, FERC has not been active in pursuing divestiture remedies.

Some recent divestitures have been brought about by the states. However, the states typically must use the occasion of hearings on a restructuring plan — particularly stranded cost recovery — to induce “voluntary” changes in market structure.

Clearly, in important situations, these federal and state arrangements are not adequate to the challenge of creating fully competitive electric markets. Policy makers must have and use adequate tools to address market power if market power is not to deny consumers the benefits of restructuring.

The “Comprehensive Electricity Competition Plan” offered by the Clinton administration directly addresses this issue by equipping FERC with authority to deal with existing market power. FERC would also supplement state regulatory efforts by having the authority to address retail market power concerns when a state lacked the authority. This appears to be a reasonable proposal to increase the benefits for consumers from a competitive electric industry.

Of course, in addition to the authority to address market power problems, if they are to deal with market power appropriately, policy makers must use sound analytical tools to assess market power and proposed remedies.

A**SOURCES AND BIBLIOGRAPHY**

Baer, W. J. (Director, Bureau of Competition, FTC), "FTC Perspectives on Competition Policy and Enforcement Initiatives in Electric Power," Washington, D.C., Dec. 4, 1997. (<http://www.ftc.gov/speeches/other/elec1204.htm>)

Binz, R. J., T. Feiler, and M. J. McFadden, *Navigating a Course to Competition: A Consumer Perspective on Electric Restructuring*, Competition Policy Institute, April 1997.

Committee on Electric Utility Regulation, Federal Energy Bar Association, "Report of the Committee on Electric Utility Regulation," 19 *Energy Law Journal* 1998, pp. 139-80.

Crandall, R., and J. Ellig, "Electric Restructuring and Consumer Interests: Lessons from Other Industries," *Electricity Journal*, Jan./Feb. 1998, pp. 12-16.

Department of Energy (DOE), *Comprehensive Electricity Competition Plan*, March 1998. (<http://vm1.hqadmin.doe.gov:80/electric/>)

Department of Justice (DOJ), *Merger Guidelines*, 1984.

———, "Comments," *Promoting Wholesale Competition through Open Access Non-discriminatory Transmission Service by Public Utilities*, FERC Docket No. RM96-6-000, Aug. 7, 1995.

Department of Justice and Federal Trade Commission (DOJ/FTC), *Horizontal Merger Guidelines*, April 2, 1992 (*Merger Guidelines*). (<http://www.usdoj.gov/atr/Guidelines/merger.txt>)

Downs, C. E., "Whose Name Is It? Branding in Converging Energy Markets," *CCH Power and Telecom Law*, March/April 1998, pp. 43-49.

Federal Energy Regulatory Commission (FERC), *Inquiry Concerning the Commission's Merger Policy under the Federal Power Act: Policy Statement*, Order No. 592, III FERC Stats. & Regs. ¶31,044 (1996), order on reconsideration, Order No. 592-A, 79 FERC ¶61,321 (1997) (*Merger Policy Statement*).

Federal Trade Commission (FTC), "Comment of the Staff of the Bureau of Economics," *Promoting Wholesale Competition through Open Access Non-discriminatory Transmission Service by Public Utilities*, FERC Docket No. RM96-6-000, Aug. 7, 1995.

———, “Comment of the Staff of the Bureau of Economics,” *New England Power Pool*, FERC Docket Nos. OA97-237-000 and ER97-1079-000, Feb. 6, 1998a.

———, “Comment of the Staff of the Bureau of Economics,” *Market Structure, Market Power, Reliability, and ISOs*, Louisiana Public Service Commission Docket No. U-21453, May 15, 1998b.

Frankena, M. W., “Consumer Benefits from Advertising,” Economists Incorporated, Washington, D.C., 1992.

———, “FERC Must Fix its Electric Utility Merger Policy,” *Electricity Journal*, Oct. 1996, pp. 32-43.

———, “Prepared Testimony,” *In Re Commission Investigation into Issues Regarding Electric Restructuring*, Public Service Commission of Nevada Docket No. 95-9022, Jan. 31, 1997a.

———, “Competitive Issues in Mergers between Electric and Gas Companies,” in *Where Are We Now? Electric Power in Transition*, American Bar Association, Aug. 1997b.

———, “Analyzing Market Power Using Appendix A of FERC’s Merger Policy Statement: Rationale, Reliability, and Results,” *CCH Power and Telecom Law*, Jan./Feb. 1998a, pp. 29-34.

———, “Affidavit,” *New England Power Pool*, FERC Docket Nos. OA97-237-000 and ER97-1079-000, Jan. 23, 1998b.

Frankena, M. W., and B. M. Owen, *Electric Utility Mergers: Principles of Antitrust Analysis*, Praeger, 1994.

Frankena, M. W., and J. R. Morris, “Why Applicants Should Use Computer Simulation Models to Comply with the FERC’s New Merger Policy,” *Public Utilities Fortnightly*, Feb. 1, 1997, pp. 22-26.

———, “Competition Simulation Models Enter the World of Energy Litigation,” *Power*, American Bar Association, Section of Antitrust Law, Winter 1998, pp. 8-12.

Jaffe, K. G., “Emerging State Rules for Retail Marketing by Electric Utilities after Restructuring,” *CCH Power and Telecom Law*, May/June 1998, pp. 34-40.

Jurewitz, J. L., and R. J. Walther, “Must-Run Generation: Can We Mix Regulation and Competition Successfully,” *Electricity Journal*, Dec. 1997, pp. 44-55.

Klein, J. I. (Assistant Attorney General, Antitrust Division, U.S. Department of Justice), “Making the Transition from Regulation to Competition: Thinking about

Merger Policy during the Process of Electric Power Restructuring,” Washington, D.C., Jan. 21, 1998. (Available at <http://www.usdoj.gov/atr/speeches/index.html>)

Kwoka, J. E., Jr., “Transforming Power: Lessons from British Electricity Restructuring,” *Regulation*, Summer 1997, pp. 47-54.

Michigan Public Service Commission, Electric Division, *Staff Market Power Discussion Paper*, June 1998. (Available at <http://ermisweb.cis.state.mi.us/mpsc/>)

Moen, J., and J. Hamrin, “Regulation and Competition without Privatization: Norway’s Experience,” *Electricity Journal*, March 1996, pp. 37-45.

New York Department of Public Service, *Analysis of Load Pockets and Market Power in New York State*, New York Public Service Commission Case 94-E-0952, Oct. 1, 1996.

Norton, F. L., IV, and B. A. Grabow, “Deregulating the Electricity Industry: Information as a Source of Market Power,” *CCH Power and Telecom Law*, May/June 1998, pp. 23-27.

Office of Electricity Regulation, *Report on Pool Price Inquiry*, Birmingham, England, Dec. 1991.

Peltzman, S., “The Economic Theory of Regulation after a Decade of Deregulation,” *Brookings Papers on Economic Activity: Microeconomics*, 1989, pp. 1-41.

Pierce, R. J., Jr., “Conceptual Issues Raised by the PECO/Enron Dispute,” *Electricity Journal*, April 1998, pp. 26-38.

Raskin, D. B., “ISOs: The New Antitrust Regulators?” *Electricity Journal*, April 1998, pp. 15-25.

Southern California Edison and San Diego Gas & Electric, *Report on Horizontal Market Power Issues*, FERC Docket No. ER96-1663-000, May 29, 1996.

Winston, C., “Economic Deregulation: Days of Reckoning for Microeconomists,” *Journal of Economic Literature*, Sept. 1993, pp. 1263-89.

B**THE EVASION OF REGULATION**

Here are three illustrations of the evasion of regulation by vertically-integrated utilities with regulated monopoly and unregulated competitive businesses.

THE BELL SYSTEM

In *United States v. AT&T*, the antitrust suit that led to the breakup of the Bell System, the government charged that the Bell System had inflated prices paid by regulated monopoly local telephone service companies to unregulated affiliated companies, engaged in cross-subsidization, and discriminated against rivals. As a consequence, the Bell System had succeeded in charging anticompetitive service and equipment prices to the customers of its regulated local telephone services, and it had used its status as a regulated monopoly of local telephone service to foreclose competition in and monopolize the potentially competitive long-distance telephone service and telephone equipment markets. AT&T was vertically integrated into unregulated manufacturing of telephone equipment through its ownership of Western Electric.

In its antitrust suit, the government called as witnesses several former officials of the Federal Communications Commission (FCC) who testified to the ineffectiveness of regulation in preventing affiliate abuses. The government's view was that the Bell System could not be regulated adequately to prevent affiliate abuses if regulated monopoly and competitive activities were under common ownership. The Department of Justice (DOJ) stated at the time that:

*“At the heart of the government’s case in United States v. AT&T was the failure of regulation to safeguard competition in the face of the powerful incentives and abilities of a firm engaged in the provision of both regulated monopoly and competitive services. Neither of these problems [cross-subsidization and discrimination] has thus far proven amenable to successful regulatory solution. Indeed, the very basis for divestiture is that the anticompetitive problems inherent in the joint provision of regulated monopoly and competitive services are otherwise insoluble.”*⁹

⁹ U.S. Department of Justice, *Response to Public Comments on the Proposed Modification of Final Judgment*, 47 Fed. Reg. 23,320-336 (1982), quoted in *United States v. Western Electric Co.*, 673 F. Supp. 525, 568 (D.D.C. 1987).

Subsequent court decisions relating to the consent decree in *United States v. AT&T* expressed the same conclusions.¹⁰

The settlement of the *AT&T* case provided for separation of ownership for local telephone service, on the one hand, and long-distance service and equipment manufacturing, on the other.¹¹

NYNEX

In 1990, the FCC, DOJ, the New York Public Service Commission, and the New York attorney general all investigated evidence that NYNEX's nonregulated affiliate Materiel Enterprises had inflated prices charged to NYNEX's regulated telephone companies relating to telephone equipment. An FCC staff audit found apparent overcharges of \$118.5 million for 1984-1988, of which \$35.5 million was passed on in higher cost-based rates to interstate customers under FCC jurisdiction. The FCC entered into a consent decree requiring NYNEX to pay interstate refunds of \$35.5 million and a penalty of \$1.4 million.¹²

Following a lengthy and resource-intensive proceeding relating to these same transactions involving Materiel Enterprises, in 1997 the New York commission ordered NYNEX to refund \$53 million plus interest to its telephone service customers. At the same time, the New York commission ordered NYNEX to refund \$30 million plus interest to customers to offset the effects of underpricing access to subscriber lists sold to another nonregulated affiliate, NYNEX Information Resources Company (NIRC), a directory publisher. In addition, NIRC was required to transfer its subscriber listings database and its management back to a regulated subsidiary of NYNEX, which, in turn, was required to provide access to the subscriber listing information to all competing directory publishers, including NIRC, on the same terms.¹³

SOUTHERN CALIFORNIA EDISON

Bulk power purchases by Southern California Edison (SoCal Edison or SCE) from its affiliate Mission Energy provide an example of how a firm that owns a regulated

¹⁰ *United States v. Western Electric Co.*, 531.

¹¹ For further discussion, see Frankena and Owen 1994, pp. 106-09.

¹² *Telecommunications Reports*, Oct. 8, 1990, at 9-14.

¹³ "Commission Orders \$109.6 Million in Rebates to NYNEX Customers," New York State Public Service Commission, Press Release, 97011/92C0665.

monopoly and a vertically related nonregulated company may evade regulation and exercise additional market power. In the 1980s, SoCal Edison operated a local electric distribution company that was subject to state rate-of-return regulation. Mission Energy had a 50 percent interest in a number of qualifying facilities (QFs), including the Kern River Cogeneration Company (KRCC) and twelve other projects.

In 1990, the California commission reviewed the reasonableness of the negotiation, execution and administration during 1984-87 of a contract under which SoCal Edison purchased power from KRCC. In its decision in the case (D.90-09-088), the commission found that SoCal Edison unreasonably paid its affiliate for firm capacity while the contract provided only as-available capacity. The commission disallowed \$37.5 million plus interest. In a subsequent decision, the commission stated the following about its prior decision:

“The Findings of Fact in D.90-09-088 refer repeatedly to “acts of imprudence,” “management decisions . . . which did not adequately take into account the interests of its ratepayers,” and “actions taken by Edison which were at odds with specific Commission directions.” n. 96 Finding of Fact 188 states that Edison “may have considered the interests of its QF affiliates before its ratepayers and other QFs.” Taken collectively, the findings in D.90-09-088 demonstrate that Edison has unfairly favored KRCC over nonaffiliate QFs.”

n96. 37 Cal. PUC 2d 488 (1990); Findings of Fact 129, 132, and 138.¹⁴

Following several years of litigation over the reasonableness of Edison’s power purchase contracts with twelve other affiliated QFs, in 1993 the California commission approved a settlement agreement with SoCal Edison. One issue in dispute involved allegations by the commission’s division of ratepayer advocates that SoCal Edison engaged in self-dealing and/or anticompetitive favoritism toward these affiliated QF projects. Total monetary benefits of the settlement to ratepayers were estimated by the commission to have a present discounted value of \$250 million, which the commission described in Finding of Fact 3 as being “at the low end of the zone of reasonableness.” Also, SoCal Edison was prohibited from making further purchases from affiliated unregulated generators, aside from purchases under existing contracts.¹⁵

In a separate case involving SoCal Edison, the California commission rejected the proposed merger of SoCal Edison and San Diego Gas & Electric (SDG&E) partly on the grounds that the merger would facilitate evasion of regulation through the

¹⁴ D. 91-12-076. 1991 Cal. PUC LEXIS 911, 260; 42 CPUC 2d 645; 130 P.U.R. 4th 97.

¹⁵ D. 93-03-021. 1993 Cal. PUC LEXIS 161; 48 CPUC 2d 352. In approving this settlement, the CPUC rescinded the disallowance relating to the KRCC contract ordered in D. 90-09-088.

vertical integration of Mission Energy's nonregulated generation, on the one hand, and SDG&E's electric distribution franchise, on the other. On the anticompetitive potential of this vertical integration, the California attorney general stated:

“The heart of the issue is the claim that SCE has been guilty of favoritism in its dealings with its own affiliates to the disadvantage of ratepayers and competing firms. There is substantial evidence of such favoritism. ...

One consequence of this self-dealing has been for SCE to purchase so much power from its own unregulated affiliate that it had an oversupply of capacity The record indicates SCE contracted for capacity and power from Mission Energy projects when SCE already had excess capacity. ...

*Finally, we have concluded that the proposed merger would injure competition among QFs by giving unregulated affiliates of SCE increased opportunity to take advantage of their relationship to SCE to foreclose competitors.”*¹⁶

¹⁶ Opinion No. 90-507. 1990 Cal. AG LEXIS 57, 75, 76, 77, 87; 73 Op. Atty Gen. Cal. 366; 1991 Trade Cas. (CCH) P69, 427.