

ARTICLE

CREATING WORKABLY COMPETITIVE WHOLESALE MARKETS IN ENERGY: NECESSARY CONDITIONS, STRUCTURE, AND CONDUCT

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I. INTRODUCTION

The law has long sought to protect and promote competitive markets in many industries. Recently, it has begun the attempt to bring competitive market processes to the wholesale markets for natural gas and electricity. Historically, these industries both operated as regulated monopolies, and each has significant inherent monopoly components. Hence, moving to competition requires careful responses to market power and its potential abuse. Overall, there is apparent progress in the market for natural gas, but serious problems in the market for electricity. Even in the gas market, the limits of the reform process have left significant opportunities to engage in strategic behavior that have produced serious harms.

This article has two goals. First, this article examines the differences between natural gas and electricity markets and explains why reorientation in gas has worked reasonably well, while electricity has proven problematic. Second, the article draws on the learning and experience from competition law and policy to identify the policies needed to bring about a more workably competitive wholesale market for electric energy and improve the effectiveness of the wholesale market in natural gas. These suggestions are not made with an expectation that they would be implemented in electric markets. The kind of political commitment required to accomplish such results is impossible in the contemporary context. Rather, the contrast between these idealized prescriptions and actual policies suggest the potential failure to create a market structure and rules of conduct that

would serve the public interest in competitive electric markets. Indeed, the costs and policies necessary to bring about transition to a workably competitive market in electricity explain the re-emergence of interest in returning that industry to more direct regulation. There is justification for that pessimistic perspective, but, on the other hand, the potential gains in efficiency and avoided administrative costs of workably competitive wholesale markets should cause policy makers to do a careful balancing of the costs and benefits of seeking that objective.

To explicate the issues, this article employs in a modified way the conditions-structure-conduct-performance paradigm. This well known model of industrial organization posits that to understand the performance of markets, it is necessary to start with the conditions under which those markets operate (supply, demand, technology, and general institutional conditions). Conditions in turn define the kind of structural options that are institutionally, economically, and technologically feasible. Given a market structure, a range of individual and collective conduct options to produce and distribute the goods or services in question are then possible. The performance of a market can then be evaluated. Performance is measurable along at least four lines: static efficiency, dynamic efficiency (progressiveness), fairness, and interpersonal equity.¹ As a matter of description, this paradigm identifies the interaction of conditions, structure, and conduct that produce more or less desirable performance, depending on the variable used for measurement.² The paradigm also facilitates normative judgments and prescriptions for public policy informed by a sense of the initial target and expected effect of the intervention. If, for example, structural variations do not seem to have much consequence or are not technologically feasible, then the appropriate focus of policy is either on basic endogenous conditions or on regulation of market conduct. Hence, the paradigm is used here as an organizing device that identifies in a relevant sequence the components of economic activity.

The paradigm has an apparently deterministic quality:

1. See CARL KAYSEN ET AL., ANTITRUST POLICY 11–20 (1965).

2. The preference of the evaluator among the performance values will strongly influence both the evaluation and any prescription for the structure and conduct of the market being examined. In recent times, many have opted for static efficiency as the primary goal of the economic system. The proponents of this perspective have called this “consumer welfare” or “allocative efficiency.” As a matter of economic history, concerns for fairness and equity have been very strong forces in defining legal duties. Others, including the author of this article, have taken the position that a primary goal in market regulation should be facilitating dynamic efficiency. See Peter Carstensen, *Antitrust Law and the Paradigm of Industrial Organization*, 16 U.C. DAVIS L. REV. 487 (1983).

conditions set the parameters for structure; structure is the basis for conduct; and conduct determines performance. However, the paradigm actually has a strong dynamic character.³ Changes in conduct can and often do affect structure as well as the underlying conditions. The most obvious example is when the conduct involves research and innovation.⁴ Similarly, performance can result in legal intervention in the market that changes specific conduct. The result is a change in incentives that can alter the relative value of different structural options. Once the system is understood in dynamic terms, legal intervention is more likely to effect the ultimate performance of the market, but the effects are harder to predict because of uncertainty about the ways in which conditions, structure and conduct will interact. For this reason, unintended consequences are likely to result from any intervention. As Lindblom has argued, rational public policy proceeds in an incremental fashion responding to the consequences of prior interventions.⁵

Antitrust law focuses on the structure and conduct of markets. But it is important to recognize that the basic conditions under which markets operate are crucial to their functioning. While many of those conditions are exogenous, others are the result of social and legal choices that are endogenous to the society. Whether or not an economy has a viable law of contract greatly influences the relative efficiency of alternative modes of integrating production and distribution. The weaker the law of contract, the greater is the benefit from ownership integration—assuming a workable law of property rights.

It follows that when making a transition from one set of legal conditions, e.g., direct regulation of price and service, to a market system, policy makers should closely evaluate the full range of endogenous conditions under which the proposed market will operate and modify them as much as possible to facilitate the new methods of doing business. One central lesson from “deregulation” of various regulated industries is that the failure to pay attention to the conditions of these markets has resulted in significant problems for the evolution of desirable competitive conduct.⁶ The thesis of this article is that an appreciation of the

3. *Id.* at 499.

4. New technology can change the efficient scale of production, up or down, and the relevant inputs.

5. DAVID BRAYBROOKE ET AL., A STRATEGY OF DECISION 83, 83–84 (1963).

6. See, e.g., Richard Pierce, *The State of the Transition to Competitive Markets in Natural Gas and Electricity*, 15 ENERGY L.J. 323 (1994); Peter Carstensen, *Evaluating "Deregulation" of Commercial Air Travel: False Dichotomization, Untenable Theories, and*

dynamics of the interaction among conditions, structure, and conduct is essential for successful reform. Many market conditions are endogenous to the legal-economic system that created them. As such they will be dysfunctional or counterproductive if the market is to operate in a radically different way. Moreover, such endogenous conditions are ones that the legal and social system created. Consequently, they are amenable to modification within the constraints set by the exogenous conditions of technology, supply, and demand.

Part II of this article reviews some of the salient conditions, under which energy markets operate and are now expected to operate as competitive markets. These conditions are both exogenous and endogenous. A central observation is the inherent difference between gas and electricity markets in a variety of exogenous dimensions. These dimensions contribute features that either facilitate or make more difficult the transformation of the market process. This discussion also highlights some of the key endogenous conditions that are amendable to change.

Part III discusses the structure of these markets. Despite assertions to the contrary, market power is omnipresent in both industries. The decision to rely on competition ought to have led to the restructuring of control of the assets devoted to the production of electric energy, its transmission and distribution, as well as a more complete separation of gas pipeline operation from participation in the market for natural gas. Structural reorganization is a key element in both eliminating market power and facilitating workably competitive wholesale markets. Structures created for one set of conditions are not well adapted to a market oriented system.

Part IV examines the ability of conduct regulation to implement market competition. This part suggests that even with current structures, it is possible to draw on experience in enforcing antitrust and other competition laws to identify rules and policies that might reduce the risks of opportunistic behavior and so, potentially, induce the gradual transformation of market structure toward a more workably competitive one. But reliance on conduct remedies alone is unlikely to yield workable competition in electric markets.

Part V revisits the goal of competitive wholesale markets in gas and electricity in reiterating that changes in the conditions, structure, and conduct under which these markets operate are necessary to develop and retain viable competitive wholesale markets. To achieve the long run benefits of competitive

wholesale markets in electricity will require major changes in the endogenous conditions, as well as the structure and conduct of that industry. Those changes are much more dramatic and fundamental than those required to create workably competitive markets in natural gas. Given the political realities of policy development, it is a close question whether it is in the public interest to continue to pursue a vision of competition as a central method for the marketing of electric power.

II. THE CONDITIONS OF ENERGY MARKETS: INDUSTRIAL, TECHNOLOGICAL AND INSTITUTIONAL ISSUES

The conditions under which energy is produced, distributed, and sold to consumers are central to the structural and conduct options that exist for the constituting of competitive wholesale markets. This part reviews key conditions with a particular emphasis on the differences between gas and electricity.

A. *Production of Gas and Electricity*

Natural gas production is a highly dispersed activity involving limited economies of scale or scope. Although gas needs to be processed to make it useful, there is little differentiation in the product once that process is complete. Gas was initially a byproduct of oil wells and only with the development of large scale pipelines did it emerge as a separate energy source of significance.⁷ There are vast reserves throughout the world that can be shipped if the price is right and key investments are made in liquification plants and receiving facilities. The discovery and production of gas is responsive to price changes. When prices increase, new gas comes on line. When prices decline, supply declines as marginal producers exit the market. Moreover, given a pipeline system, gas can be easily moved in discrete quantities from one location to another. Thus, buyers at one end of a pipeline can transact with sellers at the other end without the need for elaborate balancing of the entire network of pipelines.

Such a production system is not amenable to utility rate regulation. Indeed, in its disastrous Permian Basin decision, the Supreme Court imposed an unworkable regime of utility price regulation on gas at the well head.⁸ The ultimate, and entirely predictable, result of this changed legal condition was chaos in

7. See FRED BOSSELMAN ET AL., ENERGY, ECONOMICS AND THE ENVIRONMENT 432, 438 (2000).

8. Phillips Petroleum Co. v. Wisconsin, 347 U.S. 672, 685 (1954).

the gas supply market.⁹ Ultimately, Congress sought to restore competition in the sale of gas, but adopted a highly regulated transition period based on the false assumption, endorsed by the industry itself, that supplies were very limited and new gas would be very costly to produce.¹⁰ In fact, but entirely predictably given the nature of the production process, modest price increases resulted in substantial new supplies entering the market. The result was the collapse of the regulated supply market and significant economic problems for producers and buyers.¹¹ Today, gas prices are rising again because of the lack of new production despite substantial increases in demand. New supplies will come with changes in infrastructure, i.e., pipeline connections to Alaska and expansion of capacity to handle liquefied natural gas.

In the case of production of electricity, the conventional wisdom up to the 1970s was that there were economies of scale as generation facilities got larger and larger.¹² This is still true up to a size of 250 megawatts (MW) to 500MW in conventional generation, but technological advances in both combined cycle, gas fired generation, micro turbines, and fuel cells have resulted in generation capacity with much smaller minimum efficient scales of operation.¹³ The fact that the scale economies were not continuous led to recognition that generation can have a competitive structure.¹⁴ The prospect of such competition stimulated innovation that has resulted in the emergence of the newer, smaller scale efficient methods of production. Instead of a single producer operating a single huge plant, multiple plants with different owners are now technically feasible.

This opens a path to competition in supply if the demand for electricity is sufficiently large relative to the scale of the entering plant. If the available market consumes 15,000MW, and the new entry would produce 300MW, then the addition does not significantly alter supply in the market and competition is possible. If the relevant total demand is only 2,000MW, then the

9. See BOSSELMAN, *supra* note 7, at 466.

10. Natural Gas Policy Act of 1978, 15 U.S.C. §§ 3341–348 (1978); See WRT Energy Corp. v. FERC, 107 F.3d 314, 321 (5th Cir. 1997).

11. JAMES GRIFFIN ET AL., ENERGY ECONOMICS AND POLICY 301–03 (1979).

12. Joseph Tomain, *Whither Natural Monopoly? The Case of Electricity*, in THE END OF NATURAL MONOPOLY: DEREGULATION AND COMPETITION IN THE ELECTRIC POWER INDUSTRY 114–18 (Peter Grossman, Daniel Cole, ed., 2003); Peter Grossman, *The Zenith of the Natural Monopoly System*, in *id.* at 98–101.

13. INT'L ENERGY AGENCY, DISTRIBUTED GENERATION IN LIBERALIZED ELECTRICITY MARKETS 27–28 (2002).

14. See James Meeks, *Concentration in the Electric Power Industry*, 72 COLUM. L. REV. 64 (1972).

addition of such a plant is very significant and would be likely to result in significant disruption of the market. Thus, the size of the demand for which a specific plant might compete is a central issue determining the potential for competing suppliers of electricity. Thus, the capacity of the transmission system to deliver power is a crucial element.¹⁵

Other aspects of electricity, however, further complicate the basic proposition that multiple generators could exist and compete in a market with sufficiently large demand. First, electricity, unlike gas, cannot be stored. So as demand varies over a day and over the year, generation needs to come on line or be taken off line. Indeed, from an economic perspective, each time period is a separate market because both demand and supply conditions in each period are largely independent of those defining other time periods. Moreover, generation facilities themselves need to vary in their productive capacity—some are needed short term and others long term (base load). A peak load generator will have no effect on the market for base load electricity, but can, despite modest production, have a significant impact on peak load prices. To the extent that new technology allows plants to serve different segments of demand efficiently, this serves to expand the size of the market and make competition more feasible.¹⁶ Hence, while the product, electricity, is a very standardized good as a result of the legal definition necessary for its widespread distribution and consumption,¹⁷ its production is highly differentiated.

Second, new generation involves major sunk costs to construct and staff a plant. Day to day markets create major risks for investors because of the potential for fluctuating prices.

15. FERC has on sought to create larger areas for integrated transmission, but it has also adopted “locational marginal pricing” (LMP) which imposes separate prices for zones or nodes based on constraints on transmission. The result is that the small markets for power are recreated and often uncompetitive. ANDREW OTT, *LOCATIONAL MARGINAL PRICING-BASED ENERGY MARKET MODEL* (Aug. 25, 2003), <http://www.caiso.com/docs/2003/08/25/200308251009179503.pdf>.

16. Specifically, combined cycle generators can ramp production up or down quickly and with little impact on marginal operating costs. Thus, such generation can compete at both the peak and mid-range demand levels. POWER GENERATION SERVS. DEP’T, *GENERAL ELECTRIC GAS TURBINE FOR ENTRY LEVEL TRAINING* (2000).

17. The fact that different countries have different standards for electricity including voltage demonstrates that the uniformity of electricity in a market is a result of overt public decision. Absent such a decision, however, it would be impossible for different systems to exchange power and it would seriously undermine the capacity of manufacturers of electric products to manufacture standardized goods based on a uniform standard for electricity. Indeed, some uses of electricity in computing rely very much on the specific cycles in the system and can be harmed if there is much deviance from the specifications. See Conrad H. McGregor, *Electricity Around the World*, available at <http://users.pandora.be/worldstandards/electricity.htm> (last visited Feb. 28, 2006).

Generally, one would expect that investors would match long term sunk costs with long term contracts to buy the output of such facilities. This behavior reduces risk by assuring a market for the production. This is particularly true when, as in electricity, the volume of sales from a new plant may be substantial relative to the most immediate market opportunities for the type of power being produced. Hence, new investment in generation can be lumpy where the relevant market is modest in size relative to the amount of power a new plant will need to sell.

Third, the lack of storage means that at all times the system must have a reserve source of power available. This includes both the spinning reserve that can be turned on very quickly and additional reserves that are standing by for use on relatively short notice if demand changes or an existing generator must shut down.¹⁸ The system must continue to deliver power to satisfy demand or it will collapse, and someone must contract for, manage, and pay for the provision of these services. The strongest version of this condition assumes that the demand for power is very price inelastic. This is in part a consequence of current endogenous pricing systems that use average costs rather than marginal costs to set rates during the day. If time-of-day pricing were available, buyers would have more incentives to vary use in response to price as well as invest in their own production of power to reduce or eliminate use of outside power in periods of highest price (i.e., demand). But even if demand were much more responsive to prices, the lack of storage would still require back up sources.

Fourth, unlike gas, electricity will not follow a path defined by contractual commitments; it flows along the line of least resistance. Hence, a generator adding power to the transmission system will serve those users along the line of least resistance even if the contractual commitment is to another user. Given the homogenous nature of electricity, absent other transmission issues, each wholesale buyer must simply arrange for the delivery of an amount of power equal to its usage for consumption to balance production. But when and where power is added and taken off the network can result in congestion on the transmission system creating load pockets and isolating generators from their potential markets. It introduces another strategic variable in the market for electric power that is much

18. Reserves consist of the spinning and non-spinning reserve that must be ready within ten minutes and a quick-start reserve that can come on line within thirty minutes. See California ISO, *California ISO Glossary*, <http://www.caiso.com/aboutus/glossary/> (last visited Oct. 12, 2005).

more salient than in the case of gas because of the ability to store gas at various points along the system.

Finally the electric delivery system has to be in balance at all times. Addition or withdrawal of power anywhere in the system creates a need to re-balance the system immediately to avoid overloads or deficits. The need for balance, the potential for congestion, and the need to maintain ready reserves to respond to sudden increases in demand or declines in expected supply mean that a competitive electric generation market presupposes a transmission system that is highly coordinated and designed to handle the range of inputs and withdrawals in such a market.

B. Transmission

Transmission involves the moving of bulk gas or power to the point of distribution for consumption. This is comparable to shipping goods to market. For most commodities, a generic transportation service such as trucks or railroads or ships provide this service. In the case of trucking and shipping, the government provides or oversees the pathway¹⁹ for the vehicles while railroads tend to own their own lines, but were statutorily constrained not to carry their own products.²⁰ Thus, the means of transportation—water, road and rail—are kept separate from the ownership of the goods passing along these systems. The early history of antitrust litigation in railroading showed that it was not feasible to allow railroads to deal in their own products, usually coal, because they had incentives to discriminate and exploit the market.²¹ Thus, in competitive markets, the infrastructure necessary for the delivery of the goods is separate from the producer and wholesale buyer using that system.²² Historically, neither gas nor electricity transportation employed that distinction. The integration of ownership of these transmission systems and the commodities carried on them is not a technological necessity, but rather an endogenous policy choice.²³

19. Pipelines and transmission wires are similar to highways, waterways, or railroad lines. They are the paths or mediums through or on which the actual commodity moves.

20. See Anti-Pass Acts, ch. 3591, § 1, 34 Stat. 584, 585 (1906) (repealed by omission 1994; formerly codified at 49 U.S.C. § 1(8) (through 1978); 49 U.S.C. § 10746 (through 1994).

21. See *United States v. Reading Co.*, 226 U.S. 324, 359 (1912).

22. Highways and waterways are inherently open access systems in which the infrastructure provider, the government, is not a significant user.

23. The fact that some forms of organization are or appear to be more efficient forms of organization does not mean that they are not endogenous. The key question is

Like highways, waterways and rail lines, gas pipelines and electric transmission grids have characteristics that make an integrated system (network) the logical form of organization. There are significant economies of scale. With gas pipelines, a bigger diameter pipe involves less material relative to its capacity than a smaller diameter one. Hence, there is a clear incentive to build as large a pipeline as necessary to serve existing and projected demand.²⁴ Once built, capacity can be increased to some extent by increasing the pressure under which the gas is moved, modest remodeling to eliminate bottlenecks, and the development of storage areas near end users that can receive gas during off-peak periods.

Similarly, in electricity, a single transmission system using higher voltage lines is substantially more cost effective than building duplicate facilities. Moreover, in the case of electricity, the needs to provide balance and reliability argue in favor of using a single integrated transmission system. Indeed, under present technology, it is impossible to have competing transmission systems that are connected to the same buyer because of the physics of electricity.²⁵

To facilitate workable competition, again like other transportation modes, gas or electric delivery systems should connect as many producers with as many customers as possible. This yields network effect gains and implies a grid like structure to the delivery system so that goods can move between as many buyers and sellers as possible.²⁶ But both the gas and electric delivery systems were initially built primarily to deliver energy to specific sets of buyers from specific sources. Thus, neither was built to provide a network serving multiple places for inputs and withdrawals in the way that highway, rail, and water delivery systems operate. The nature of gas is such that it is relatively easy to interconnect existing pipelines where they cross or where

whether the organization is a conscious choice of policy or whether the technology commands that result.

24. Of course, once a pipeline is in place, further growth in demand beyond projections might well warrant additional entry because it is also very difficult to increase the size of a line that is already in place.

25. It is possible to use direct current transmission lines that have a unidirectional flow to deliver power from a source to a buyer. Some such lines exist currently in the United States including recently developed lines linking Connecticut to Long Island. Another similar line links New Jersey to Long Island. On the other hand, recent efforts to develop such a line in New York floundered on the uncertainty of the profitability of such an investment. See Rick Stouffer, *Merchant Transmission Developers See Financing Crunch, Delay of Projects*, POWER MARKETS WEEK, July 29, 2002, at 1.

26. See Daniel Spulber and Christopher Yoo, *On Regulation of Networks as Complex Systems: A Graph Theory Approach*, 99 NW. U. L. REV. 1689 (2005).

they are in close proximity. Such linkages do not create an overall need to rebalance the entire pipeline system. They simply allow the movement of gas from one line to another much as traffic moves from one highway to another. Moreover, major buyers who are end users of gas could also easily connect with the major pipelines directly without creating an imbalance in the system.

Another important aspect of gas is that it can be stored at various places along a system of transmission so that variations in demand can be balanced much more easily. Indeed, each gas pipeline can vary the amount it transports without affecting other pipelines. Thus, gas pipelines are more like waterways, highways, or rail lines and can be used in varying quantities without disrupting the entire network. This again makes it more feasible to transact in a market because there is less need for elaborate scheduling, balancing and backup.

The key constraint on developing new gas supplies is the infrastructure necessary to collect, process, and move the gas to the markets in which it will be consumed. The development of pipeline technology within the North American continent has facilitated the movement of gas from production to consumption. Gas can be directed to specific destinations along the pipeline network by simply opening or closing off lines. This facilitates contracting between producers and consumers or other buyers. Thus, while an integrated network is essential to a competitive market in gas, the monopoly facility, the pipeline system, is easily separated from the competitive market transactions that employ this system.

Electricity grids have strong reason to interconnect because of the economies in reliability, but they face a more difficult task. The lack of storage, the need for backup supplies, and preserving balance at all times require strong management of the flows of electricity. In addition, congestion on an electric line has much more impact on the entire system than excess demand in some part of a gas pipeline. This also means that new suppliers or adding individual large buyers to the transmission system will create challenges for the overall balance and congestion in the system. Thus, electricity requires a closely integrated network. If a line is congested and cannot carry the power needed to a specific destination, then all other lines connected to that line face potential disruption as the power seeks the path of least resistance. At the same time, the fact that there is no storage capacity means that a ready reserve must exist at all times if the system is to be able to deliver electricity as it is demanded. The implication is that someone must pay for some generators to be

on standby in order to maintain the system effectively.

In order to have a workable wholesale market, the transmission system needs to be configured so that it serves a large demand relative to the supply from any one seller, and has the capacity to balance supply and demand for power from a variety of sources. Technologically, such a system is feasible, but it requires careful design and management.

The physical configuration of electric transmission facilities in the United States does not conform to that which a competitive wholesale market would require. Because of the public policy decision to permit vertical integration of the production, transmission and retailing of electricity, transmission lines were built primarily to move power from specific generation sources to specific areas of use. These focused transmission systems were linked in order, initially, to provide more sources of backup power and so increase reliability. Modifying these transmission grids to serve a more open, competitive generation and sale of power from multiple sources involves substantial and costly reconfiguration.

C. Distribution—Retail

Like transmission, the technology for delivery of gas and electricity imposes substantial limits on competition. Basically, both commodities need to have a continuous connection to the consumer to be useful. This is an aspect of the network requirements of this system. Moreover, the costs of building duplicate delivery systems makes such an option impractical. Hence, physical distribution is monopolistic for most customers. However, large volume consumers can, if properly located, connect directly to the transmission system itself and avoid dealing with the local distribution system. This ability, if the buyer can legally make such a direct connection, gives such a buyer bargaining power with the local distribution system as to its charges for the services provided. But the vast majority of consumers lack the ability to avoid use of the local distribution system. Moreover, each user requires its own connection to the transmission-distribution system which makes possible significant differentiation among customers in terms of price and service unless controlled by regulation.²⁷

The only other constraint on the ability of the distribution

27. Arbitrage is possible for immediately adjacent buyers if they can link their delivery systems. Then the buyer with the lower prices can resell to the buyer facing higher prices. Current regulation tends to forbid such efforts and reinforce the monopoly of the local utility.

system to differentiate among customers (this is often called “discrimination”) comes from the potential to employ alternative sources of energy. In the case of gas and electricity when used for heating or other similar energy uses, there is potential for substitution of other energy sources. Specifically, oil and coal can provide heat and so limit the ability of any source to control consumers. However, for illumination, electricity has no viable substitute. Moreover, current technology makes self-generation uneconomic for most users in most locations. However, when a customer has the scale to make self-generation a realistic option, it again obtains some bargaining power. This bargaining power advances the specific economic interest of the customer with the capacity to negotiate. It can also affect positively the market price for electricity by making demand more price elastic.²⁸

The technology of delivery, therefore, sets important constraints on both the structure and conduct that is feasible in energy markets—wholesale or retail. Contemporary technological constraints basically require a pipeline system for delivery of gas.²⁹ At the same time, it is easier to separate the physical delivery of gas (the costs and operation of the transmission-distribution component) from the purchase of gas itself. The presence of numerous producers at one end of the transmission-distribution network and a substantial number of buyers at the other end (including a number of large consumers who can buy directly) makes it easier to create a wholesale market in gas. Indeed, the existence of multiple buyers is itself an important element in the development of a workable market. The number of buyers needs to be substantial in order to get the benefit of price competition. Due to large industrial buyers’ ability to participate in the gas market directly, this helps to preserve larger numbers of buyers.

Electric technology provides alternatives to obtaining power outside the transmission-distribution network. The potential for distributed generation is the subject of ongoing policy discussion.³⁰ Small generators are feasible using a variety of energy sources including solar panels, wind generation and fuel cell technology. The distributed energy model calls for such

28. Introducing more demand response to energy prices is a very important aspect of overall public policy. This article will advert to some of the key issues related to demand, but its primary focus is on the supply side.

29. It is imaginable that gas could be compressed as is done with propane and shipped by rail or barge to the user, the diseconomies of collecting, compressing, delivering, and uncompressing make such an alternative implausible with today’s technology.

30. BOSSELMAN, *supra* note 7, at 699–702.

sources to supply power to the owner of the generator and also contribute power to the network. The network provides the backup and reliability functions. Distributed generation might develop to the point where it could allow a consumer to disconnect from the electric network and still have a sufficient and reliable supply of power. Such autarky involves risk and costs because each individual system would then require backup capacity to ensure reliability and the ability to deliver variable loads which might necessitate significant excess capacity. Thus, even if distributed generation were to increase dramatically, most consumers would continue to be tied to the electric network. On the other hand, if large buyers had real time prices and the ability to switch off the network and generate their own power, this could create more demand elasticity. Such elasticity would reduce the incentives to increase prices to extraordinary levels.

The current pattern of integrated generation, transmission and retailing eliminates a large volume of business from the open market. Moreover, the refusal to allow large industrial users to buy electricity directly further limits the number of buyers who can participate.³¹ The barriers to such participation are as much a result of the structure of legal regulation, an endogenous condition, as they are of the complex nature of electric transmission and distribution. The technical needs of the electric network system may also make it difficult for resellers to exist independent of the delivery system. The result is that these conditions have deterred the development of a robust wholesale market in electricity.

In addition, there may well be significant economies of scale in the operation of larger retail networks with respect to the service and maintenance of such systems. If this is correct and if effective retail competition requires operation of the distribution system, then the potential for developing a significant number of wholesale buyers of electricity is further constrained. In New Zealand and Pennsylvania there are ongoing efforts to create a retail system separate from physical delivery. Institutional factors have combined with the technological characteristics of electricity to make this a daunting task.

31. Compare, e.g., *Praxair v. Florida P & L*, 64 F.3d 609 (11th Cir. 1995) (denying a request to have power wheeled to a large commercial user); *TEC Cogeneration v. Florida P & L*, 76 F.3d 1560 (11th Cir. 1996); see also *Columbia Steel Casting v. Portland General Elec.*, 111 F.3d 1427 (9th Cir. 1997), 523 U.S. 1112 (1998) (recognizing a right to get power wheeled in for a large buyer); *PrairieLand Energy, Inc.*, 88 F.E.R.C. ¶ 61,153 (1999) (rejecting effort by University of Illinois to create a specialized "wholesaler" to provide it with access to power).

D. Endogenous Institutional Conditions

Prior to the reforms of the 1990s, pipeline companies engaged in two activities: they provided delivery services, and they bought gas at the wellhead or collection point and resold it to local gas utilities. There was no technological reason for constituting the relationship in this way. Rather, it reflected an endogenous, political decision to allow these companies to be merchants rather than common carriers.³² In contrast, responding to the anticompetitive conduct of Standard Oil, Congress had long required that oil pipelines operate as common carriers.³³

What merits particular attention in terms of the potential to construct a workably competitive wholesale gas market is that the structure of ownership was a result of conscious legal choice among a set of viable options. On the other hand, major gas pipelines were largely unintegrated into either production of gas or its retail distribution. Historically, these companies purchased gas from producers and resold it to retailers. This organization made it much easier to move from a regulated market system to a more competitive one because the changes required in the fundamentals of the business were fewer. The two key changes were interconnecting existing pipelines and changing the identity of the buyer/owner of the gas on the pipelines.

Unlike gas, the great bulk of electric generation was and still is sold directly to retail customers of the vertically integrated firms that combine generation, transmission and retail. Some small distributors did buy power, but they were closely integrated with the large generators through long term contracts. In addition, the large integrated companies swapped power to balance their loads and cover short term demand peaks. Prior to deregulation, therefore, there were few active, broad, transactional markets for electricity. As a result, electricity required much more development of market institutions as well as more complex technological organization in order to give consumers access to the more competitive potential of electric generation.

In electricity, the institutional organization at least since the 1920s was one of vertical integration from generation to delivery

32. RICHARD PIERCE, *THE EVOLUTION OF NATURAL GAS REGULATORY POLICY*, NATURE RESOURCES AND ENVIRONMENT 53–85 (1995), *reprinted in part in* BOSSELMAN, *supra* note 7, at 458–64.

33. 34 Stat. 584 (codified at 49 U.S.C. § 1 to 27 (1976)); see William A. Mogel & John P. Gregg, *Appropriateness of Imposing Common Carrier Status on Interstate Natural Gas Pipelines*, 25 Energy L.J. 21 (2004).

to the final customer.³⁴ Ironically, in light of contemporary policy, the regulatory revisions of the 1930s sought to consolidate electric utilities on a regional basis through the Public Utility Holding Company Act (PUHCA) that in turn assumed the validity of a regulated monopoly model for electricity production and distribution.³⁵ As a consequence, the wholesale markets for electricity were fragmented and limited. Only in the late 1970s did development of independent generation sources create a larger and more active market in electricity.³⁶ This led to a new appreciation of the potential to manage supply without direct government regulation. But the technological constraints on electricity transmission and distribution made this a complex task. In addition, regulators and legislators in this period did not fully appreciate the challenges involved in converting these markets from ones overseen by performance regulation to ones governed by workable competition.

The legal framework within which deregulation was to occur creates another important institutional constraint.³⁷ Originally, administrative responsibility to oversee the production, transmission and distribution of energy resided in local units of government because of the need for access to streets to lay pipes and build electric distribution systems. Unhappiness with the results of such regulation led to control by state agencies that regulated entry, exit and pricing. The emergence of interstate markets in electricity that, under Commerce Clause constraints, the states could not regulate caused the entry of the federal government into regulating interstate, wholesale power transactions.³⁸

Because Congress was filling a regulatory gap and did not want to preempt any state regulation, it drew a distinction between wholesale and retail power that may have been sensible at the time.³⁹ However, the distinction is highly artificial in the contemporary world in which large consumers are treated as

34. Robert L. Bradley, *The Origins and Development of Electric Power Regulation*, in *THE END OF NATURAL MONOPOLY: DEREGULATION AND COMPETITION IN THE ELECTRIC POWER INDUSTRY* 43, 45–48 (Peter Grossman & Daniel Cole, ed. 2005).

35. Public Utilities Holding Company Act of 1935, 15 U.S.C. § 79 (2005); see Bradley, *supra* note 34, at 64–70 (repealed by the Energy Act of 2005).

36. Public Utilities Regulatory Policies Act, Pub. L. No. 95-617, 92 Stat. 3117 (1978).

37. See Richard J. Pierce, Jr., *The State of the Transition to Competitive Markets in Natural Gas and Electricity*, 15 *ENERGY L.J.* 323 (1994).

38. See *Pub. Util. Comm'n of Rhode Island v. Attleboro Steam & Elec. Co.*, 273 U.S. 83 (1927); Bradley, *supra* note 34.

39. See 16 U.S.C. §§ 791(a), 824–829(h) (2005).

“retail” customers⁴⁰ while the purchases by small resellers qualify as wholesale transactions.⁴¹ Moreover, to the extent that an integrated firm produces power for resale to its own customers that generation is outside the authority of the federal regulation.⁴² On the other hand, if a state separates generation from distribution and retail sales, as California did, it loses jurisdiction over the generating facilities within the state even when they primarily or exclusively sell to distributors in that state. In addition, most regulation that can affect final demand rests with the states. This is a highly dysfunctional separation of regulatory authority in electricity.

Moreover, the regulatory process itself created a separation for utilities from ordinary market procedures and rules. A particularly troublesome example is the use of the filed rate doctrine. That doctrine holds that when a regulatory agency has set a rate it can not be challenged in a collateral proceeding in which a court determines that some other rate would have been the appropriate one.⁴³ The doctrine had its origins in concern for discrimination among customers of rate regulated enterprises.⁴⁴ If some buyers could get a refund based on such claims, they would have a cost advantage over their competitors. Moreover, as a matter of administrative process, the regulatory authority should provide the forum for the review and evaluation of any claims that prices were unreasonable. It alone could offer a comprehensive remedy. These policy arguments cease to have much relevance when competition sets the prices in the market. The agency overseeing the market has deferred to a market process to set prices, yet the sellers still seek to claim that the resulting prices are “filed” rates and so not reviewable in any collateral way.⁴⁵ In market facilitating regulatory systems such as those governing securities, commodities and livestock, the law authorizes victims of unlawful manipulation to sue directly for damages.⁴⁶

40. See, e.g., *PrairieLand Energy, Inc.* 88 F.E.R.C. ¶ 61,153 (1999).

41. See, e.g., *FPC v. S. Cal. Edison Co.*, 376 U.S. 205 (1964).

42. *N. States Power v. FERC*, 176 F.3d 1090 (8th Cir. 1999), *cert. denied*, 528 U.S. 1182 (2000).

43. See, e.g., *Pub. Utility Dist. No. 1 of Snohomish County v. Dynegy Power Mktg. Inc.*, 384 F.3d 756 (9th Cir. 2004), *cert. denied*, 125 S. Ct. 2957 (2005); *California v. FERC*, 383 F.3d 1006 (9th Cir. 2004).

44. *Keogh v. Chicago & Nw. Ry. Co.*, 260 U.S. 156 (1922).

45. See, e.g., cases cited *supra* note 43.

46. See Securities Act of 1933, as amended, 15 U.S.C. § 77(a) (2005); Securities Exchange Act of 1934, as amended, 15 U.S.C. § 78(a) (2005); Commodity Futures Trading Commission Act of 1974, 88 Stat. 1389 (codified at 7 U.S.C. § 1); Packers and Stockyards Act of 1921, 42 Stat. 159 (codified at 7 U.S.C. § 181 (2005)).

The lack of collateral review combines with the traditional limits on the sanctions that the regulatory agency has with respect to approved rates that turn out to be unreasonable.⁴⁷ Again, the theory is clear enough. The agency regulates the rates at the time they are imposed, including a right of protest by buyers, hence there is little need for strong sanctions against unreasonable rates since they are unlikely under a prior review system. When prices are set in an unregulated market, the risks of manipulation and strategic conduct are very different and the role of sanctions as deterrents to such abuse takes on much more significance. The lack of effective and timely sanctions make it harder to have a fair and open market process because the participants have less incentive to behave appropriately. Thus, the regulatory institutions governing electricity at both the state and national levels are artifacts of their time and of the conceptions of the tasks that such agencies were to perform.

In contrast, natural gas could not be shipped until long distance pipeline technology was developed in the period around World War II.⁴⁸ At that point, natural gas replaced coal gas in local systems. From the outset, gas required a more pervasive federal regulatory scheme because the primary transactions were interstate. As a result, the statutory jurisdictional provisions conferred somewhat greater scope to the authority of the federal regulator.⁴⁹ This took on much greater significance at the point at which it was necessary to transform market conduct to facilitate greater use of competition. But even in this industry the filed rate doctrine constrains the sanctions that can be imposed.

F. Some Preliminary Inferences about the Achievement of Workable Competition

The foregoing discussion shows that any attempt to create and police a workably competitive wholesale market in electricity is fraught with challenges. The capacity to engage in strategic conduct on the part of many participants inheres in the fundamental conditions that define the technology, supply and demand characteristics of electricity. Further, the institutional framework within which that industry has evolved for more than 100 years has until recently not sought to nurture the kind of structure or conduct that would facilitate competition. Indeed, much of the legal institutional framework, as well as the

47. 16 U.S.C. § 824 (2005).

48. See BOSSELMAN, *supra* note 7, at 438.

49. 15 U.S.C. § 717 (2005); *Transcon. Gas Pipeline Corp. v. State Oil & Gas Bd. of Miss.*, 474 U.S. 409 (1986).

ownership of key assets, are very maladapted to developing competition without major changes.

The natural gas industry provides a useful and instructive contrast. Its inherent characteristics have continually facilitated some workably competitive production markets. Moreover, the technological constraints are much less binding. As a result, regulators within the framework of existing legal systems and ownership structures can move that industry toward workable competition in wholesale, i.e., large volume markets with greater ease and assurance that success is possible.

The next two parts will discuss in more detail the kinds of structure and conduct that are necessary to overcome market power and market abuse in both industries. Both analyses will repeatedly return to the difference in basic conditions between gas and electricity.

III. STRUCTURE

The essential structural prerequisite to creating and retaining workably competitive wholesale markets in energy is a substantial body of buyers and sellers that can interact through a delivery system that is as neutral as possible.⁵⁰ Both buyers and sellers need access to a number of potential transactions on the other side of the market. Large numbers dilute the impact of any particular transaction, and limit the incentive and capacity to engage in strategic conduct either to exploit the market or exclude parties from the market. Technology sets some limits to the feasible numbers, but the legal conditions of the market may, as in the case of energy, unambiguously have shaped existing structures. So long as the marketing of electricity and gas was regulated, those structures made less difference because conduct and ultimate performance was subject to direct controls over price and service. With the change to greater reliance on market forces, the existing structures can be seriously counterproductive.⁵¹

50. Ferry County PUD, *Northwest Utilities Will Try Again On Grid Agreement...*, <http://www.fcjud.com/news.htm> (last visited Feb. 28, 2006). Commentators have differing views about the minimum number of buyers and sellers necessary to create a workably competitive market. It is, however, indisputable that increasing the numbers on both sides increases the capacity and probability that the market will be robustly competitive.

51. *FERC Manages to Please Nobody on Rate Pancaking Issue*, at http://www.platts.com/Magazines/Platts%20T&D/News%20Archive/120704_4.xml (last visited Jan. 17, 2005). The RTO policy of FERC seeks to create larger market areas for electricity by eliminating rate pancaking—each separately owned part of the transmission system charging a separate rate. The congestion in the system and the use of LMP pricing for transmission service make markets small again.

The basic lessons from antitrust law's concern with market structure are that some structures are conducive to exploitative and exclusionary conduct. When a single firm dominates a market, it has strong incentives both to exploit its customers or suppliers and to exclude new entry. Markets with few competitors are prone to tacit or explicit collusion that can raise prices or exclude marginal competitors. Successful collusion is much more feasible when there are only a handful of firms that must cooperate to exploit the market.

In addition, barriers to entry are important to the longer term survival of such exploitative arrangements. If new entry is easy and quick, then even if there are only a handful of firms in the market, they will have less incentive to raise prices because of the threat of entry. Similarly, investments in exclusionary conduct are unlikely to have much effect. Thus, the basic idea is that markets should have as many competitors as is technologically feasible and as few barriers to entry as conditions will permit.

The vertical integration of markets raises further concerns. Although some have argued that the only relevant measure of power is the horizontal share of a market,⁵² a more realistic evaluation shows that vertical linkages can greatly affect the durability and strength of market power. Vertical organization can create significant barriers to entry especially when one level is a bottleneck with substantial capacity to favor or disfavor unintegrated firms with respect to access to supply or demand.⁵³

Thus, the structural prescriptions for creating workably competitive markets is to deconcentrate each stage to the greatest extent possible and vertically disintegrate the industry if there are serious bottleneck type problems.⁵⁴ If deconcentration is not feasible for some stage for technological reasons, but that stage presents serious bottleneck problems, then ownership of that stage needs to be so constituted and regulated that the

52. See, e.g., Robert Bork, *Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception*, 22 U. CHI. L. REV. 157 (1954).

53. In the context of partially regulated industries, there is the further recognition that a firm with a monopolistic position in the regulated part of the market may find vertical integration very attractive because such integration may well allow the firm indirectly to exploit its monopoly power. See William Baxter, *Conditions Creating Antitrust Concerns with Vertical Integration by Regulated Industries - For Whom the Bell Doctrine Tolls*, 52 Antitrust L.J. 243 (1983).

54. Expanding the geographic or product dimension of a market is an alternative way to dilute the power of firms. Specifically, if transmission grids in electricity can be expanded and congestion eliminated, this adds capacity to the expanded market and thereby dilutes the market power of all participants.

incentives to exploit the market are reduced or eliminated.⁵⁵

Against this backdrop, it is possible to identify the kinds of structures that should be employed to achieve workable competition.

A. Gas markets

In many respects, the move to wholesale gas markets required only modest structural reorganization. There were already a substantial number of producers and wholesale buyers because the pipelines were not vertically integrated into retail distribution in any significant degree. Although the pipeline companies often owned substantial gas production, there were also a large number of other producers so that this vertical integration did not seriously interfere with the transition of a more active wholesale market. Indeed, the primary changes required were in the identity of the wholesale buyer and the role of the pipeline company. By separating the provision of pipeline service from the purchase and sale of the gas sent through the pipeline, it is possible to take a dramatic step toward a competitive wholesale market in which the primary wholesale buyers are either distribution companies or large consumers. Such buyers can act directly in the market or can use the services of agents (merchants).

Achieving the result of workably competitive markets, however, required a response to the fact that pipeline owners were the major buyers of gas. Given rate control over the charges for pipeline services, if these firms remained in the merchant gas business, they would have a structural incentive and opportunity to manipulate their pipeline capacity available to other merchants.

The FERC imposed two structural remedies. First, it required separation between the two aspects of the pipeline business.⁵⁶ The theory is that these two units, despite common ownership and joint interest in profit maximization, would behave independently. This is a very naive idea and reminiscent of some of the early twentieth century conceptions that underlay the divestiture remedies in *Standard Oil* and *International Harvester*.⁵⁷ In those cases, the government required the return of

55. Cf., *Verizon Communications, Inc. v. Law Office of Curtis Trinko*, 540 U.S. 398, 509 (2004) (discussing the role of the FCC in regulating access to monopoly components of the telephone network).

56. See *United Distribution Co. v. FERC*, 88 F.3d 1105 (D.C. Cir. 1996) (upholding in general FERC Order 636).

57. See *United States v. Standard Oil*, 221 U.S. 1 (1911); *United States v. Int'l*

stock in the affiliated companies to the original owner. But, in the case of *Standard Oil*, the owners were basically the Rockefeller group. As a result, the Standard Oil combine retained ownership coordination into the 1930s or later.

Second, FERC in effect attempted to divest and disperse ownership of pipeline capacity itself by requiring the pipeline owner to sell transferable rights to use the pipeline to buyers, sellers, and speculators.⁵⁸ The basic price had to be capped to ensure sales, but within that range the pipeline owner could lock in its operating revenue by the sale of such access rights. The risk that the right would lose value moved to the potential user of the capacity. This meant that a market in capacity itself could develop because in times of short supply buyers who owned rights could sell them at a profit while in times of excess capacity the rights would be likely to lose value. The significance of this strategy is that it greatly reduced the pipeline owner's incentive to manipulate supply of capacity—so long as the pipeline remained strictly a capacity supplier. Having sold all or most of the right to use its capacity, the owner's interest was in providing as cost effective a transportation service as possible because its reward was in the difference between its costs and the contractually guaranteed revenue.

This system also reduced the need for extensive rate regulation. Basically, a market price should exist for different levels of pipeline service that would measure the value of those services to customers. Given a cap on the price the pipeline could itself charge and a requirement that it sell capacity for a price under that cap, this combination reduced the need for more focused rate setting and provided a useful indicator of demand for pipeline services. Whenever the rates reached or exceeded the cap price, that was a signal of the need for more capacity or for other solutions to the problem of providing supply to the area that the pipeline in question served.

Unfortunately, the FERC also allowed pipeline owners to continue to be merchants of gas making sales for delivery along their affiliated pipelines.⁵⁹ As a result, it did not eliminate the structural incentive to manipulate the supply of capacity. The most notorious case involved El Paso's purchase of most of the capacity on its pipeline to California during the period of rising gas prices and excessive electric prices.⁶⁰ El Paso used its

Harvester Co., 214 F. 987 (D. Minn. 1914) (consent decree).

58. See *United Distribution*, 88 F.3d at 1149.

59. See *Tenneco Co. v. FERC*, 969 F.2d 1187 (D.C. Cir. 1992).

60. See ATTORNEY GENERAL BILL LOCKYER, ATTORNEY GENERAL'S ENERGY WHITE

ownership of pipeline capacity to restrict the flow of gas to California. The artificial shortage allowed El Paso to raise its resale prices substantially above what it had paid for the this gas. This illustrates both the incentive to exploit capacity constraints and how integrated ownership provides stronger incentives to engage in such activities including various capacity constraints created by reductions in capacity of the pipeline as a result of putative repair and service needs.

El Paso's conduct constituted an abuse of its monopoly pipeline position. The FERC's only response was to impose penalties. In addition, the victims have gotten some compensation from El Paso,⁶¹ but El Paso retains both its merchant and pipeline business. The structural lesson that antitrust should teach is that the appropriate remedy would be to terminate El Paso's right to act as merchant of gas at least to customers that its affiliated pipelines serve.

The situation is roughly similar to that in the motion picture industry in the 1930s and 1940s when it was the dominant source of entertainment. The distribution of motion pictures was integrated with the exhibition of pictures. The result was that the major distributors coordinated their sales, supported each other's first run exhibition theaters thereby excluding competition and entrenching their position in the production and distribution of motion pictures. The antitrust response was to order a vertical dissolution of the industry to separate the distribution business from the exhibition.⁶² With large changes in the technology for entertainment, those commands may now seem irrelevant, but it is likely that the growth of television and the development of other alternative means of distributing video material were in fact facilitated by this vertical disintegration.

Thus, the lesson for the gas industry from antitrust is that fuller separation of ownership between traders/buyers of pipeline capacity and the ownership of the pipeline itself would have served the goal of ensuring a workably competitive market structure. Such a separation is a modest intervention and would be relatively easily implemented by requiring a spin off of the merchant capacity of the pipeline company to sell gas for delivery through the affiliated pipeline.⁶³

PAPER (Apr. 2004) at 58, *available at* <http://ag.ca.gov/publications/energywhitepaper.pdf>.

61. *Id.* at 62.

62. *United States v. Paramount Pictures*, 334 U.S. 131 (1948).

63. A total ban on pipeline participation in merchant activities may be appropriate because of the risk, similar to that in the motion picture industry to reciprocal acquisition of capacity control. If pipeline operators have no stake in the wholesale market for gas, their economic incentive should be to seek maximization of the usage of the pipeline.

A closely related structural issue is the vertical integration of pipeline ownership and electricity production.⁶⁴ Here the problem, as in the motion picture case, is that the pipeline can constrain access to supplies with which to compete with its generator. Implementing such a strategy would be contingent on identifying a way to exploit the resulting market power. For example, if all generation is compensated at the marginal price, then a baseload generator will make additional profits if it can drive up the prices of the marginal generators. Control over the price or quantity of gas can be an effective means to accomplish this goal. Alternatively, if the pipeline owner is allowed to own the capacity on such a line, it might withhold supply and cut back its own baseload generation to create an artificial price for gas to fill the needs of intermediate and peak load generators.

To retain workably competitive gas markets strict merger enforcement is also essential. The focus of concern should be as much on the buying side of the market as the selling side. As discussed earlier, workably competitive markets require substantial numbers of buyers and sellers. As the market moves toward a more concentrated structure on either side, the danger of distortion grows. Indeed, buyer power can be a real problem even with relatively modest market shares.⁶⁵ Several recent antitrust cases have made this point as has some empirical work on the effects of mergers generally.⁶⁶ If the buyer's market share increases and such a buyer has the capacity to store gas so that it can vary its purchases, it would have the capacity to influence market prices downward.⁶⁷ The advantage to the buyer in doing this would arise only if the buyer can use cheap gas in reserve priced at the prevailing market rate. In such a situation, the buyer would be able to raise the price of the gas resold and make a higher profit. Although the cross linkage of pipelines reduces the capacity to engage in such strategic conduct because sellers are not confined to the buyers along the line of the pipeline

64. See, e.g., *United States v. Enova Corp.*, 107 F. Supp. 2d 10 (D.C. Cir. 2000).

65. See Albert A. Foer, *Introduction to Symposium on Buyer Power and Antitrust*, 72 ANTITRUST L.J. 505 (2005).

66. *Toys "R" Us v. FTC*, 221 F.3d 928 (7th Cir. 2000); *Knevelbaard Dairies v. Kraft Foods*, 232 F.3d 979 (9th Cir. 2000); *Todd v. Exxon Corp.*, 275 F.3d 191 (2d Cir. 2000); Edward C. Fee & Shawn Thomas, *Sources of Gains in Horizontal Mergers: Evidence From Customer, Supplier, and Rival Firms*, 74 J. FIN. ECON. 423 (2004). In energy markets, particular buyer power concerns exist with respect to Entergy, large vertically integrated utility serving Arkansas, Louisiana and parts of Texas and Mississippi.

67. Cf., *Knevelbaard Dairies*, 232 F.2d at 979 (Kraft allegedly sold cheese on the exchange in order to drive down the prices it paid for cheese in off exchange transactions); see also, WILLARD F. MUELLER, ET AL., WIS. DEP'T OF AGRIC., TRADE & CONSUMER PROT., *CHEESE PRICING: A STUDY OF THE NATIONAL CHEESE EXCHANGE* (1996).

system to which they connect directly, still, as buyers become larger factors in the market, they have greater capacity and incentive to engage in such strategic conduct.

The further implication of the potential for adverse competitive consequences from the combined impact of vertical relationships between pipeline ownership and merchant sales and between pipeline ownership and electric generation is that other kinds of mergers need strict scrutiny. In particular, combinations among pipeline operators that would also retain substantial merchant capacity increase the risk of manipulation of pipeline capacity (a regulated element) to advance the unregulated merchant interest. In the case of railroads, the abuse of such positions has led to a total ban on a railroad carrying its own goods. Absent such a ban, the merger review process should look critically at how the structural change through merger would affect the incentive and capacity to manipulate markets. The long run goal of public policy ought to be complete separation of pipeline ownership from the use of the pipeline either as a supplier to an affiliate of the owner, i.e., a gas fired generation plant, or as a merchant selling gas to end users.

B. Structuring Electric Markets to Facilitate Workable Competition

The technological characteristics of electricity create greater challenges for the development of workably competitive market structures. On the one hand, generation, given the scope of the transmission system, has the potential to have a competitive structure. However, entry and exit into generation is not easy. This has important implications. Entry into the production of electricity involves a very substantial investment that can be amortized only over a significant time period. This presents significant risk to the entrant and its financial backers. The risk is exacerbated if the entrant has no guarantees of a firm market for at least a significant part of its production. Thus, a process that involves longer term contractual commitments from appropriate buyers is the way to avoid delays and encourage independent entry into the market.

Absent such a system for managing entry, the most likely entrant would be an established retailer of power that expands generation to satisfy its own projected needs. Such vertical expansion, however, undermines the goal of creating a workable wholesale market. It is for this reason that the much-maligned California plan had a requirement that the existing retailers of power had to sell off at least fifty percent of their generation

capacity.⁶⁸ While other aspects of the plan nullified the gain from developing a wholesale market inherent in such a requirement, it does illustrate the kind of structural policy a competitive goal requires. On the other hand, one of the biggest mistakes in the California plan was the failure to authorize either the system operator or retailers to enter into long term contracts for baseload power. The absence of such contracting authority dramatically increased the risk and disincentive to build new capacity in the market.

Second, transmission is not currently configured to provide a good match to the growth in competitive supply. Moreover, unlike a highway, waterway or pipeline, an electric transmission system has to be tightly integrated with both supply and demand. Electricity is not storable, and demand fluctuates substantially. Additionally, the transmission system must be in balance and have reliable backup to respond to sudden changes in either supply or demand. This means that a transmission system employed as a means of delivering power from competitive suppliers to wholesale buyers must have a great deal of residual capacity to avoid congestion.⁶⁹ In addition, some central authority must exist to ensure reliability and balance within the system as a whole. The more different sources of input and removal from the system, the more complex that process becomes.

Further complicating the transition of the transmission system to one that could accommodate a more competitive supply context is the physical layout of the system, as well as its ownership. Existing transmission lines primarily serve the integrated owners' interest in moving power from its generators to its customers. This system needs redesign and added facilities to make it amenable to a more open system of supply and use.

The fact that vertically integrated firms own vital segments of the transmission system means that without some change in

68. New York and Maine have also sought vertical disintegration without the problems that arose in California. ME. REV. STAT. ANN. tit. 35-A, § 3204 (West 2005) (Maine electric industry restructuring statute); N.Y. PUB. SERV. COMM. OP. NO. 96-12 at 65 (1996), available at <http://www.dps.state.ny.us/> (New York administrative agency opinion stating policy preference for divestiture under broad public utility consumer-protection statutes); see *The Great Sell Off*, ENERGY ECONOMIST, March 1, 1998 (discussing vertical disintegration in New York and California); see also Del Jones, *States Take Varied Routes to Energy Deregulation*, USA TODAY, Feb. 1, 2001, at 3B (reporting study by Center for the Advancement of Energy Markets praising electricity deregulation in New York and Maine).

69. Increased real time pricing and the development of cost effective self generation capacity would create more price elasticity on the demand side and so could reduce the need for overly generous transmission capacity.

ownership or control there is a conflict of interest between the owner's self-interest as an integrated producer and seller of electricity and what a neutral operator of a transmission system would do. So long as the control over balance, reliability, and basic operation remained in the integrated owner, the potential for manipulation of access is significant. While conduct-oriented measures might ameliorate the tension, it should be obvious that changing ownership of the transmission system is the most likely way to eliminate the incentives for strategic conduct and provide a centralized approach to the planning and operation of an open access transmission grid.

Separating ownership of generation from other activities and creating workably competitive generation markets requires special attention to the problem of short-term market power that arises in times of congested transmission or overall high demand. In such contexts, generators with only modest overall shares can acquire a great deal of market power and an incentive to game the system by withholding electricity to raise the average price for the rest of their sales. This is rational conduct regardless of the gain to other generators although cooperation among generators in a market may facilitate this kind of exploitation.⁷⁰ Only by restricting the kind of generation capacity a firm may own that serves any separable market area can the incentive to withhold power be constrained.

Such a limit on generation capacity in a market should not be confused with a limit on overall ownership of different types of generation. PUHCA, now repealed, sought to consolidate utilities into a single geographic area based on notions of efficiency within a vertically integrated, regulated market context. A workable competitive market, on the other hand, should avoid regional concentrations. If there are economies of scale in managing a larger number of generation facilities involving a range of technology, then the law should not foreclose the opportunity to own multiple plants. But such combinations should not occur within the same geographic market.

This structural analysis points to vertical disintegration of ownership of generation, transmission and the wholesale purchase of electricity, either for resale or use by large buyers. Moreover, this idealized structure calls for horizontal disintegration of the wholesale buying side of the market if

70. The degree of coordination among generators is an open question in California. See Jacqueline Weaver, *Can Energy Markets Be Trusted? The Effect of the Rise and Fall of Enron in Energy Markets*, 4 HOUS. BUS. & TAX L.J. 1, 68 (2004), available at <http://www.hbtj.org/content/v04/v04weaverar.pdf> (last visited Sept. 26, 2005).

necessary to establish a number of buyers so that no one is powerful enough to exercise monopoly power. Similarly, the generation side needs to be so structured as to limit the potential for market power on that side of the market.

What also emerges from this structural view is that the separately owned and operated transmission system must take on (and charge for) the obligations of maintaining reliability and balance as well as reconfiguring the system in order to make it more open to entry by new suppliers. Indeed, the transmission system owner could also be the owner of local distribution if that would create a more seamless system of moving power from generation to the ultimate users, and if retail sales could be separated from the provision of system services.

While the first step is to make transmission system operator a separate business from either generation or downstream buyers (large users or retailers), that would simply move the market power to this bottleneck. The key structural question is whether it is possible to design an ownership for this entity that would significantly constrain its incentives to exploit its position.⁷¹ The ownership of the system should ensure equal access for all users, i.e., generators and buyers, and should have incentives to eliminate congestion by investing in expansion and reconfiguration of transmission capacity.

One strategy is to have all stakeholders, i.e., generators and retailers/buyers share, in ownership of the entity.⁷² The model is that of a quasi-cooperative. Such an enterprise has different motivations because it is essentially established to serve its members' interests. If no member or group of members gets a strategic advantage from controlling key decisions, then all members will have an incentive to seek to make the jointly owned facility operate in as efficient and mutually helpful way as possible. Thus, if the potential gain from strategic conduct is sufficiently limited, each stakeholder is better off having the enterprise operate efficiently. Indeed, such an enterprise has an incentive to overbuild its facilities and operate in other ways at the high end of reliability because that is in the mutual interest

71. The conduct analysis will examine the use of transmission rights, which seem to be primarily a conduct oriented remedy. It is possible to make such rights more durable and so impose on electric transmission a regime similar to that used in gas pipelines. Unless the owner of the transmission facility is strongly disfavored in such an allocation of rights, however, such a policy is unlikely to create the appropriate incentives to eliminate congestion.

72. See TRANSMISSION ACCESS POLICY STUDY GROUP, *EFFECTIVE SOLUTIONS FOR GETTING NEEDED TRANSMISSION BUILT AT A REASONABLE COST* (2004), available at <http://www.tapsgroup.org/sitebuildercontent/sitebuilderfiles/effectivesolutions.pdf> (last visited on Sept. 30, 2005).

of all participants.⁷³

This is an application of the essential facility concept from antitrust law. The law of essential facilities teaches that when a monopolist controls a resource that is necessary for upstream or downstream activity by its competitors, then, assuming access is feasible, it may not unreasonably exclude its competitors from access. The classic illustration was the St. Louis Terminal Railroad that controlled all the rail routes across the Mississippi River and through St. Louis. These routes were essential to connect east and west railroads. A group of rail lines owned the Terminal Railroad and imposed very high charges on their competitors for the use of the system. This gave the owners a significant cost advantage over their rivals. The Supreme Court ordered that all railroads serving St. Louis be allowed to participate in ownership of the Terminal Railroad.⁷⁴ Hence, exploitation by virtue of high prices or restricted access would be a wash because each line would pay in and then get back the overcharge. In addition, but not mentioned in the opinion, the revised ownership of the terminal railroad should have induced its management to engage in providing service on the best terms possible to all members. Once strategic advantage was eliminated, the goal of such a linkage in the rail system is to provide good service and have the capacity to provide all service needed by its stakeholders.

Wisconsin has already applied the essential facility concept to the transmission lines within the state.⁷⁵ It required all electric utilities that owned such lines to transfer them to a newly created corporation, American Transmission Company (ATC). These utilities got back stock in ATC. In addition, major buyers of power including cooperatives, municipal providers, and distribution companies that did not have major transmission assets were authorized to buy into ATC thereby providing it with working capital. The board consists of executives from both buyers and sellers of power. ATC is actively expanding and revising the transmission system within the state to make it

73. The Averch-Johnson effect in regulated monopolies might actually work to the benefit of creating a workable wholesale market if the owner of the transmission system saw gain only from regulated rates based on capital investment. Harvey Averch & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AM. ECON. REV. 1052 (1962). In such a context, the owner would have an incentive to “over” invest in capacity in order to earn greater revenue. Moreover, from the perspective of stakeholders, the relatively minor increase in cost would be helpful in avoiding interference with the market for power.

74. *United States v. Terminal R.R. Ass’n of St. Louis*, 224 U.S. 383 (1912).

75. *See* WIS. STAT. § 196.485 (2005).

more serviceable to all users.⁷⁶

Finally, one needs to look at the buying side of the market. The basic problem is that distribution of power is currently inextricably linked to its sale to consumers. Moreover, because of the institutional history of integrated power systems, the retail power sellers tend to serve very large blocks of customers. The implication of this fact is that there are relatively few buyers of power for resale. This structural fact increases the risks and uncertainties for sellers of power in any regional market. There are, as discussed in the next Part, some conduct oriented responses to this problem, but the question to be considered here is whether structural responses might not provide better and more durable solutions.

The two main structural considerations include the absolute size of the retail operations and the integration of ownership and control of the distribution networks themselves with the retailing of power. To create a workable buying market, one could restructure the retail side of the market by breaking up the retailers into smaller units that retain sufficient size to be able to achieve any necessary efficiencies. A probable objection is that management of the physical assets of a distribution system may entail more significant economies of scale; moreover, the distribution system needs to be closely integrated with the transmission system and increasing the number of distribution systems may well create additional coordination problems.⁷⁷

The foregoing considerations suggest that in order to have a workably competitive market structure on the buying side and retain the benefits of an integrated distribution system, separation of ownership and control of the physical assets of the distribution system from the business of retailing may be in order. The distribution system would, like a rail line, pipeline, or highway, provide the physical means for delivery of the product, but the sale of the product itself would be in the hands of a third party—the retailer. The advantage of this system is that retailers

76. See American Transmission Company, <http://www.atcllc.com> (last visited Feb. 28, 2006); see also, Douglas Houston, *User-Ownership of Electric Transmission Grids: Toward Resolving the Access Issue*, REGULATION, Winter 1992, at 48–57 (advocating user ownership of regional transportation systems).

77. See J. Stephen Henderson, *Cost Estimation for Vertically Integrated Firms: The Case of Electricity*, in ANALYZING THE IMPACT OF REGULATORY CHANGE IN PUBLIC UTILITIES 75, 90–91 (Michael A. Crew ed., 1985) (concluding that electrical distribution networks have “substantial economies of scale” and are natural monopolies). But see Adonis Yatchew, *Scale Economies in Electricity Distribution: A Semiparametric Analysis*, J. APPLIED ECONOMETRICS, March/April 2000, at 187, 202 (concluding that economies of scale exist but do not reduce cost-per-customer when the distribution network grows beyond 20,000 customers).

would be able to compete for customers in the downstream market and could operate in several geographic areas thus increasing their volume without being assigned a dominant position in any one retail market.

An additional way to expand the wholesale market is to authorize major consumers of electricity to buy directly from generators and obtain delivery through the transmission system. Such sales were a subject of competition between the local distribution companies and cooperatives and the integrated generators.⁷⁸ As with natural gas, increasing the number of buyers who deal directly with generators increases the depth and strength of the wholesale market for electricity. Of course, the inherent needs of the transmission system may make it more difficult for such buyers to deal directly with suppliers.

The concept presented here involves first isolating the primary source of inherent market power—the transmission and distribution systems—and identifying ways to neutralize the incentive to exploit that power. Second, the concept involves restructuring both generation and wholesale buying of power to create a market context that would support and nurture a workably competitive market. The electric industry can in these ways be converted to a structure that is much more conducive to market processes.⁷⁹

When we compare the idealized structure of a market based electric system and the observed system, it is obvious that the gaps are formidable. At the center is the transmission system question. FERC's preference is for the creation of an Independent System Operator (ISO) or a Regional Transmission Organization (RTO) to act as an independent operator of the transmission system without any underlying change in ownership of or responsibility for the day-to-day management of transmission facilities.⁸⁰ This approach is fraught with difficulties because the operator lacks the rights that go with actual ownership, including the right to reconstruct and develop the physical

78. See, e.g., *Town of Concord, Mass. v. Boston Edison Co.*, 915 F.2d 17 (1st Cir. 1990); *Am. Elec. Power Co. v. City of Mishawaka*, 616 F.2d 976 (7th Cir. 1980).

79. One can find a rough analogy in the can case. *United States v. Am. Can Co.*, 87 F. Supp. 18 (N.D. Cal. 1949). In that case, the dominant can makers also owned key patents for can closing machines. They would only lease their machines and insisted that lessees (canners) had to buy most or all of their cans from the patent holder-can maker. The antitrust court ordered both an end to this practice and required that the machines be sold at modest prices. As a result, the canners were then able to buy from all can makers. The basic idea is that the monopoly power has to be dissipated and separated from the activity that permits exploitation of the power; see also James McKie, *The Decline of Monopoly in the Metal Container Industry*, 45 AM. ECON. REV. 499 (1955).

80. See Notice of Proposed Rulemaking, 68 Fed. Reg. 24,679 (May 8, 2003).

system. FERC has not insisted on restructuring of ownership of generation or transmission, but has allowed horizontal mergers and the sale of generating facilities back to retailers thus increasing vertical integration, and has not sought to create a large body of buyers of electricity to stimulate the demand side of the market.⁸¹ In short, it has failed to recognize that a market based system requires substantial structural changes at all three levels of the traditional market of electric power.

This failure to deal with structure parallels the failure of Congress to impose a systematic reorganization of telecommunications markets in 1996.⁸² At that time, Congress decided that there could be competition in local service. This was not contemplated by the 1981 settlement of the monopoly case against AT&T.⁸³ Congress wanted to open access to local landlines, but failed to separate ownership of the physical assets from the operation of local service. The result has been a series of problems as entrants into landline service were subject to exclusionary practices by the incumbent providers.⁸⁴ The saving grace of telecommunications in the long term is the emergence of alternative methods of providing basic and advanced communications. There are wireless as well as cable television based internet systems, and, potentially, electric power lines can be used. These alternatives limit the market power of landline systems and make the need for restructuring less pressing.

In the case of electricity, there is much less prospect of a technological breakthrough that would create competing delivery systems. There are those who believe that competing transmission systems are technically and economically possible. Such an innovation would require a very large capital investment and would seem to raise the prospect of duplicate and overlapping systems. The experience with competition in another capital intensive industry, cable television, suggests that, in fact, such competition is not practical. Absent such a major technological transformation, competitive markets in electric power will be best served by restructuring of the industry so that it fits with the market oriented model that a competitive wholesale market in power requires.

As in the case of gas markets, it is also important to control

81. As discussed earlier, part of the problem is that FERC lacks clear authority to impose some of these conditions. See Joseph Kelliher, *The Need for Mandatory Electric Reliability Standards and Greater Transmission Investment*, 39 U. RICH. L. REV. 717 (2005).

82. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996).

83. See U.S. v. AT&T, 552 F. Supp. 131 (D.D.C. 1982).

84. See Trinko, *supra* note 55.

electric company mergers.⁸⁵ The overall lesson from merger enforcement is that it is much easier to retain workably competitive markets than to restore them. In the case of electricity, one of the greatest problems is the acquisition of generation facilities by retail distributors. This clearly undermines the goal of creating workable wholesale markets. This is particularly important in the context of a current structure that includes a great deal of existing vertical integration. Second, mergers that increase regional concentration in either generation or distribution create serious problems for the goal of competition. Once again the effect of such mergers is to create localized market power at least in peak times or periods of congestion. Such market power in turn allows these firms to coerce either suppliers or customers to give favorable treatment or exclude new entry. Because the goal of market regulation is to create workable wholesale competition, mergers that undermine that goal should be denied even if conventional market analysis would not condemn them.⁸⁶

Finally, as in the gas case, mergers that combine either gas and electric distribution or allow vertical integration between gas and electric generation raise serious competitive concerns. The linkage of gas and electricity means that only one major local retailer of energy exists in the market area. This makes the development of viable alternative wholesale customers for any energy product very difficult. Similarly, the linkage between gas supplies and electric generation create the incentive for strategic conduct that can distort prices and exploit customers.

The lesson of more than 100 years of antitrust efforts to police markets is that the less concentrated the market structure, the more competitive markets are likely to be. Applying that lesson to particular situations requires that technological conditions be respected. However, it should be clear that allowing increased concentration or vertical integration in electric

85. Such mergers have generally proven unsuccessful in economic terms. See John Becker-Blease et al, *Mergers and Acquisitions as a Response to the Deregulation of the Electric Power Industry: Value Creation or Value Destruction?* (Social Science Research Network, Nov. 2004), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=625083.

86. A significant legal policy problem with contemporary merger enforcement policy at both agencies such as FERC and the antitrust law enforcers is the limited set of likely consequences deemed sufficient to justify a challenge. As the discussion in this part shows, harmful competitive consequences can arise in ways not covered by conventional policy. The statutory standards of effect on competition and the public interest would easily accommodate these concerns. The failure to develop better merger policy is a result of administrative and judicial failures. Cf. Peter Carstensen & Nina Questal, *The Use of Section 5 of the Federal Trade Commission Act to Attack Large Conglomerate Mergers*, 63 CORNELL L. REV. 841 (1978).

markets is going to undermine the ability to create and maintain workable wholesale electricity markets.

IV. CONDUCT

A central premise of much of the current effort to create wholesale markets in energy is that regulating the conduct of existing participants in these markets, regardless of the structure of those markets, will suffice to bring about workable competition. This view may rest on one or both of two questionable assumptions about industry participants. First, because changes in conduct feed back to structure directly and indirectly through changes in the basic conditions of the market, it is possible that mandated changes in conduct will cause the conditions and structure of wholesale markets to be transformed. Second, there may be a belief that if market participants are told that they must compete that they will do so regardless of their economic self-interest and the opportunities for strategic conduct.⁸⁷ As Part III argues, the second assumption is naive given the incentives created by existing structures and opportunities for strategic conduct. The first assumes either very strong feedback effects that could only occur if very draconian conduct rules existed or that the structure and conditions of energy markets do not require much in the way of modification. Not only are current and most possible conduct rules insufficiently draconian, but it would also be seriously wrong to assume that only minor adjustments in structure are needed with respect to electricity, although such a view is not entirely implausible with respect to natural gas.

Workably competitive markets require rules and regulations that facilitate their operation. It is an often overlooked, but fundamental, fact of economic activity that markets need to be constituted and facilitated by adequately enforced legal and regulatory commands if they are to fulfill their roles. Viable energy wholesale markets need to be reliable, not unduly subject to manipulation, competitive, and accessible to buyers and sellers. When shaping regulations for a workable market, regulators must consider the market's structure and the strategic conduct feasible and rational for market participants. But when market conditions and structures are significantly inconsistent with workable competition, conduct oriented remedies are unlikely to bring about such a result. Hence, if public policy relies

87. It is at least arguable that FERC holds this belief based on its market behavior rules and proposed rules. See Notice of Proposed Rulemaking, 68 Fed. Reg. 24,679 (May 8, 2003).

primarily on conduct rules to induce workably competitive wholesale markets, it is unlikely to succeed with respect to electricity, but it has a better chance in natural gas.

Transparency in price and quantity of sales is very helpful in assuring fair and efficient dealing in markets with competitive structures. Transparency allows buyers and sellers, including firms on the margin, to enter or exit the market or expand or contract production. The key characteristic of such markets is that neither buyers nor sellers have individual capacity to affect the market price. All are price takers.

In markets with structures involving high concentration on either the buying or selling side, transparency can become a tool for either collective action among a few dominant firms or for unilateral manipulation of the market if a buyer or seller has market power in some context.⁸⁸ For such markets, as FERC proceedings on market power mitigation and standard market design demonstrate, complex conduct regulation is the only possible way to get any of the benefits of competition. But as an increasing number of commentators have observed, the results seem to be a costly and fragile system that has yet to produce any of the benefits of competition.⁸⁹

Exacerbating the lack of structure or conduct in electricity oriented toward an active transactional market are the underlying conditions of electric transmission operation. Because flows respond to physical laws and not the Uniform Commercial Code, and because the entire system needs to be closely controlled to ensure balance and reliability, both structure and conduct evolved to address those needs within the framework of a regulated and long-term contractual market. Only after these structures were in place has the law sought to create a workably competitive market. In such a context, there are large transition costs. Moreover, change has to go forward on a trial and error basis. Market participants have an incentive to game any system to maximize their profits. As those opportunities emerge, it is essential to fix them by revising the rules governing conduct. But the underlying conditions and structure, exogenous and endogenous, are likely to frustrate this effort at least in electricity.

A particularly striking characteristic of the efforts to create

88. See, e.g., *United States v. Container Corp. of Am.*, 393 U.S. 333 (1969); Proposed Modification of Existing Judgment in *United States v. Gen. Elec.*, 42 Fed. Reg. 17,004 (1977).

89. See AM. PUB. POWER ASS'N, *RESTRUCTURING AT THE CROSSROADS: FERC ELECTRIC POLICY RECONSIDERED* (2004); HULLIHEN MOORE, *Competition: The Wrong Goal*, 39 U. RICH. L. REV. 739 (2005).

markets for electricity has been the heavy reliance on short-term transactional markets. While the special characteristics of electricity require more last minute purchases because of fluctuation in demand and the inability to store it, the failure to rely on longer term contracts for baseload and even for reasonably predictable peaks in demand is curious. Economists, regulators and politicians seem to think in terms of a transactional market when they talk about competition and so converted abstract models into legislative and administrative rules.

The bias toward transactional markets created additional problems for entry and growth of producers of power in many regions.⁹⁰ The fact that they could not get long-term contracts meant increased risk of lost sunk costs. At the same time, the vertically integrated firm had a clear advantage because it could self-contract for supplies. Moreover, without vertical separation so that all distributors of power had to buy most or all of their supplies, it was probably not feasible to create the kind of context that would have induced all participants to find ways to make the market work. It is notable that there is a strong movement in all wholesale markets, but especially in electricity, to return to using longer term supply contracts.

Workably competitive markets require rules of conduct that are effectively enforced. Without rules, any market will degenerate into a lawless war of economic attrition. Indeed, rules for the conduct of markets are the key first step in developing markets whether based on transactions or contracts. The rules can come from private market regulation, as was the case in securities and commodities markets in the 1800s and early 1900s, or from direct regulation as illustrated by the Securities Exchange Commission and the Commodities Futures Trading Commission that currently oversee the operation of those markets. What is essential is that there be a relatively neutral rule maker with the capacity to modify rules in response to experience and the ability as well as the will to enforce the rules. As Tom McCraw has argued, the SEC is a remarkable illustration of such an agency and something of an anomaly in the experience of American economic regulation.⁹¹ The rules governing complex market conduct need to be market specific

90. It is possible that state retail choice regimes create pressure for short-term markets, because the entities serving retail customers in such regimes could see their customer bases shifting frequently, which might make longer term contracting more difficult.

91. TOM K. MCCRAW, *THE PROPHETS OF REGULATION* (1984).

and go beyond the limited bounds of antitrust law. The goal of such rules is to facilitate an open, competitive, and efficient market for the good or service being bought and sold. Such regulation should be compatible with antitrust law,⁹² but by its nature it is a necessary first step after which antitrust can provide further enforcement against specific types of conduct. The policies and experience of antitrust also provide useful guidance to those developing such rules of conduct.

Antitrust law is itself a limited factor in policing such markets.⁹³ Antitrust law essentially assumes that the competitive market is the norm in any context subject to antitrust law. Only firm specific conduct that violates that norm given the ordinary practices of the market fall within the purview of antitrust challenges. For example, extracting a monopoly price from a market is not in itself unlawful under antitrust law.⁹⁴ Such conduct may prove that the firm has a monopoly and so will permit judicial review of unilateral conduct by such a firm that has significant exclusionary effect or even involves unlawful methods of exploitation. Finally, antitrust law is enforced through the courts that lack the ability and capacity to write detailed administrative rules (or modify them) to facilitate competitive markets.

Despite the limited role that antitrust law is likely to play in directly regulating the conduct of participants in the wholesale market for energy, antitrust law can provide important insights into the competitive issues that need to be addressed and provides some guidance on the kinds of sanctions that may be effective in deterring violation of the rules.

This discussion cannot develop the specifics of the market facilitating regulation that must exist to organize wholesale markets in gas and electricity. That task would be enormously daunting as pending and past rule making proceedings at FERC demonstrate.⁹⁵ Hence, the focus of this discussion is on the insights that antitrust law and competition policy can contribute to the ongoing process of developing and enforcing market facilitating regulations. It addresses six aspects of wholesale market constituting regulations and their enforcement to which the policy insights of antitrust law can make contributions. The

92. See *Gulf States Utils. v. Fed. Power Comm'n*, 411 U.S. 747 (1973).

93. See Darren Bush & Carrie Mayne, *In (Reluctant) Defense of Enron: Why Bad Regulation Is to Blame for California's Power Woes (Or Why Antitrust Law Fails to Protect Against Market Power When the Market Rules Encourage Its Use)*, 83 OR. L. REV. 207 (2004).

94. See Trinko, *supra* note 55, at 407.

95. See, e.g., Fed. Energy Regulatory Comm'n, 18 C.F.R. § 35 (2002).

bottom line, however, is that it is extremely unlikely that conduct oriented regulation can, on its own, remedy the problems of market power and its abuse in electricity. The prospects for gas, in contrast, are better.

A. *The Problem of Access and Exclusionary Conduct—
Transmission and Pipeline Monopolies*

Monopoly law is primarily concerned with exclusionary conduct that entrenches and protects a monopolist from competition. Antitrust's fundamental vision of monopoly is that one will not prove durable so long as it is subject to the "centripetal and centrifugal" forces of the economy.⁹⁶ This is a dynamic understanding in which market power emerges, is challenged, and dissipates again. Hence, the law condemns unreasonably exclusionary conduct. Such behavior includes bundling sales of goods so as to disadvantage a competitor with a more limited line,⁹⁷ entering into contracts that require either suppliers or customers to refuse to deal with actual or potential competitors,⁹⁸ and refusing to make goods available in ways that allow competitors to create attractive and competitive packages.⁹⁹

The problems of exclusion are well recognized in energy markets and subject to a variety of conduct oriented interventions. A central insight of competition law is that the best remedy is to create market contexts in which there is little or no incentive to engage in such conduct. It is for this reason that the previous section emphasized structural responses that would reorganize the industries so that most participants would have limited market power and the transmission/distribution controllers would have no incentive to use the inherent power in those elements of the market.

The central regulatory problem in electricity, given the current structure of integrated ownership of transmission, generation and retailing, is that the firms controlling all levels have no incentive to upgrade transmission facilities so long as they can use the bulk of the available capacity. While more effective, after-the-fact sanctions against unjustified exclusion might reduce the incentive, given the complex technological issues involved in operating a transmission system, many

96. *Standard Oil v. United States*, 221 U.S. 1, 62 (1911).

97. *LePage's, Inc. v. 3M*, 324 F.3d 141 (3rd Cir. 2003) (en banc), *cert. denied* 124 S. Ct. 2932 (2004).

98. *Toys "R" Us v. Fed. Trade Comm'n*, 221 F.3d 928 (7th Cir. 2000).

99. *United States v. Microsoft*, 253 F.3d 34 (D.C. Cir. 2001) (en banc) (per curiam); *cert. denied* 534 U.S. 952 (2001).

opportunities would exist to create or exacerbate congestion problems. So long as structural integration exists it is hard to imagine any conduct regulation that can successfully overcome these incentives.

FERC has tried to deal with the problem by creating various kinds of rights to firm transmission access for unintegrated firms. To date these interventions seem not to have produced the kind of revamping and expansion of the transmission system that is desired. The conduct limits have not had sufficient feedback effect on structure. Moreover, the required use of ISOs and RTOs have resulted in dramatic increases in the costs of these services without producing much benefit in terms of greater competition and access to the supplies.¹⁰⁰

One draconian remedy would be to exclude all integrated owners from firmly committed use of their transmission facilities.¹⁰¹ All firm capacity would be assigned to unintegrated firms, and, if this number did not prove sufficient, investors would be invited to buy such rights. To then get assured access to its own transmission system if it suffered from congestion, the owner would have to buy back such rights or expand the transmission system such that all users could use it without any congestion. The goal would be to make it very costly to continue to operate a constrained transmission system. Where it would be costly or difficult to expand such a system, the integrated owner should find it economically attractive to sell the system to a "transco" as in Wisconsin or otherwise dilute its ownership to remove the incentives to engage in strategic conduct. Only such an intrusive conduct remedy is likely to resolve the problem of access on congested transmission systems.

Even if an integrated firm divested itself of its transmission, it would still have incentives to self deal with its own generation services so long as there was no retail competition. It could pass on its own costs and ensure that it would incur no loss on its sunk investments. Meanwhile, more efficient merchant producers would find themselves at the margin of the market, subject to strategic conduct based on the buyer power of the integrated firm. It is impossible to ensure equal treatment of suppliers in the context of significant vertical integration between production of electricity and its retail distribution.

100. See Margot Lutzenhiser, *An Expensive Experiment? RTO Dollars and Sense*, PUB. UTIL. FORTNIGHTLY, Dec. 2004, at 38, available at http://www.pulp.tc/RTO_ISO_Costs121004.pdf.

101. Because the retail customers of these integrated utilities help build these transmission facilities, state regulators are not likely to look favorably on such a proposal.

In gas markets, the problem is similar but the remedy is easier. The specific problem is the incentive to use control over capacity in the pipeline to favor the affiliated merchant arm of the pipeline owner. Here sanctions can be directed at the owner. In securities and commodities markets, regulators have the authority to bar individuals and enterprises from participation in the market when they engage in seriously wrongful manipulation.¹⁰² Since the problems in gas are more likely to be relatively obvious, such a sanction might provide sufficient deterrence to eliminate the problem. Again, a structural approach that restricted the permitted scope of activities of pipeline owners with respect to natural gas sales would require less costly policing.

B. Bundling, Tying, Market Manipulation and Related Practices

Monopoly law is concerned with the ways a monopolist exploits its power to capture monopoly profits. In essence, the law seeks to confine such exploitation to the market in which the power exists and insists that insofar as practical the exploitation should be done by directly pricing the power. In dynamic terms this makes the value of the monopoly more transparent and in a Schumpeterian world of “creative destruction” allows potential competitors to identify the most economically attractive opportunities for new and better products or technologies. Thus, one of the policies supporting strict rules against tying is that such practices both distort competition in related markets and obscure the value of the monopoly product itself.¹⁰³

The implications of the antitrust experience with tying and bundling support the efforts of FERC to unbundle the sale of specific components of the production and transportation of both gas and electricity. The exogenous conditions of the gas market create fewer problems for the easy implementation of such a conduct requirement.

In electricity, the combination of components needed for effective service suggest that the definition of appropriate products for sale is more difficult and involves an expressly legal determination of the categories or types of things to be sold and who should be allowed to sell or required to buy.¹⁰⁴ The goal of

102. See Becker-Blease, *supra* note 85.

103. See, e.g., *Int'l Salt v. United States*, 332 U.S. 392 (1947); *N. Pac. Ry. v. United States*, 356 U.S. 1 (1958).

104. This was an important concern for the D.C. Court of Appeals in the *Microsoft* case because of its concern with product innovation that might involve combining two or more previously discrete programs. A similar concern might exist with respect to classes

this kind of conduct regulation is to create a market of active buyers and sellers. Because such markets have not generally evolved given the past history of the electricity business, there is a need for explicit definition, much as there are grades of grain or livestock defined by government regulation. But the lesson from those markets is also that definitions need to be modernized to reflect market realities.¹⁰⁵

Once again the presence of vertical integration of supplies creates problems that may be insuperable. The merchant power plant is going to be the marginal supplier for such enterprises. When they dominate a region and have the benefit of congestion, it is unlikely that any integrated firm will voluntarily move toward a workably competitive supply market. The experience with PURPA and co-generation provides case studies in inefficient and counter productive efforts to force the purchase of electric power by integrated utilities.¹⁰⁶ In some respects this “cure” is worse than the disease of market exploitation because it basically shifts the opportunity to exploit to another set of actors.

Another variable that can strongly affect the incentives to collude is the method of pricing the goods or services. Classic economic theory calls for all prices to be set at the level where supply and demand intersect. This means that the infra-marginal sellers may earn economic rents (the price will exceed their costs), but in a world of homogenous goods and no long term contracts each seller would in fact price at that price; moreover, no buyer would pay more than the market price. In a world of many transactions each representing only a small part of the total demand, this model is coherent and workable. Collusion is difficult exactly because of the large numbers involved. On the other hand, when the “market price” is not the result of massive trading, it becomes vulnerable to manipulation. In commodities markets, where most transactions occur outside the public market, the public price can remain the basis for pricing all other sales. In such a context, large buyers or sellers have a great incentive to take the opposite position (buyers sell to drive down the public price; sellers buy to drive it up). There are well documented historic examples of this conduct in various

of electric supply. See *Microsoft*, 253 F.3d at 89.

105. *Agricultural Concentration and Competition Hearing, Before S. Comm. on Agriculture, Nutrition, and Forestry*, 106th Cong. (2000) (testimony of Stephen Koontz), available at http://agriculture.senate.gov/Hearings/Hearings_2000/Aptil_27_2000/00427koo.htm (regulation has failed to promote efficient and desirable transactional markets in livestock by failing to adapt grading to needs of contemporary meat packers).

106. See *Indep. Energy Producers Ass'n v. Cal. Pub. Util. Comm'n*, 36 F.3d 848 (9th Cir. 1994).

commodities.¹⁰⁷ These examples often involved groups of buyers or sellers acting together, expressly or tacitly, to manipulate price. Such conduct is, therefore, uniformly condemned even if specific regulations may not effectively control it.

In pricing energy, the central question is the interaction of the marginal price for energy with the overall volume of sales. If a uniform price, as in the failed California system, based on the price of the marginal unit of power required exists in a concentrated market, this creates significant incentives for exploitation. Control over the price of the marginal unit raises the net revenue of all the other units producing power for sale at that time. Hence, the pricing model employed needs to be responsive to the market context in which sales will occur if the incentive to manipulate is to be limited. Thus, once again the remedy is found in finding a way to make the incentives to engage in such conduct less attractive rather than trying to punish the conduct after it has occurred.

The problems in gas markets that emerged primarily in the context of California result directly from the structural decision to allow pipeline owners to be merchants of gas combined with the constrained capacity of the available pipelines serving the state. While this might have been unavoidable as a transition stage, it creates exactly the incentives to seek to control capacity on the pipeline when manipulation of gas prices is feasible. The lessons from competition law teach that this creates a serious risk of market manipulation. Remedies could include controls over such merchant activity, including forbidding transactions involving delivery over the affiliated pipeline. But even then, the experience of the motion picture industry, discussed earlier, suggests a potential for collusive arrangements in which each pipeline would favor the merchants affiliated with other pipelines to permit collective exploitation of the latent market power that exists as a result of the fact that pipelines have finite capacity and the entry barriers are enormous. Another alternative drawn from the regulation of commodities and securities markets would be to bar violators from continued participation in the market.¹⁰⁸

107. See Peter Carstensen, *The Content of the Hollow Core of Antitrust: The Chicago Board of Trade Case and the Meaning of the "Rule of Reason" in Restraint of Trade Analysis*, 15 RESEARCH IN LAW & ECON. 1 (1992); see also *Knevelbaard Dairies v. Kraft*, 232 F.3d 979 (9th Cir. 2000).

108. See Robert McDiarmid, Address at the National Rural Electric Corp. Association Meeting, Taking Stock: The Success and Limitations of Open Access (Jan. 11, 2005).

C. *Naked Restraints of Competition—Tacit and Express Collusion*

Restraint of trade law also addresses both exclusionary and exploitive conduct. The classic concern is with cartels among buyers or sellers that fix price and limit the quantity of goods sold. In order to survive, a cartel must also police its members and exclude potential competition. Thus, inherently, such conduct involves both exploitive and exclusionary elements. From an antitrust perspective, cartels lack any justification and so are absolutely illegal as a general matter. Exceptions, discussed in the next section in more detail, exist when either state or federal government has expressly or impliedly authorized a cartel to serve some public interest. Claims of such authorization are subject to differing degrees of scrutiny depending on the context and era in which the case arose.¹⁰⁹ However, the fact that such lawful naked restraints can and will exist further complicates the already difficult problem of policing collusive conduct.

To establish an antitrust violation two issues must be resolved: (1) whether there is in fact a “contract, combination . . . or conspiracy” among the enterprises and (2) whether any such understanding actually “restrains” trade.¹¹⁰

The first issue focuses on whether the conduct is the product of unilateral decisions or interdependent conduct in which no firm would engage without some understanding that its competitors would do the same. Antitrust law has long recognized that tacit collusion is as much a problem as is overt agreement to restrain competition. The *High Fructose* decision written by Judge Posner provides a good illustration of the kinds of evidence that support a finding of collusion even in the absence of direct evidence.¹¹¹ Basically, the court considered the incentives of the parties, the nature of the product, and specific evidence of conduct that was inconsistent with rational unilateral decision making. Such tacit agreements are easier to create and maintain when few firms are involved and there is sufficient transparency in conduct that any deviation from the understanding will result in an immediate retaliation. Electricity is very vulnerable to such tacit agreements because of the many time of day and generation

109. See TODD ZYWICKI ET AL., REPORT OF THE STATE ACTION TASK FORCE (Sept. 2003); Peter Carstensen & Bette Roth, *The Per Se Legality of Some Naked Restraints: A [Re]Conceptualization of the Antitrust Analysis of Cartelistic Organizations*, 65 ANTITRUST BULL. 349 (2000).

110. The Sherman Anti-Trust Act § 1, 15 U.S.C. § 1 (2005).

111. *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651 (7th Cir. 2002), cert. denied, 537 U.S. 1188 (2003).

specific markets that exist within congested areas.¹¹² This means that barriers to new entry exist and the generators within the zone protected can more easily coordinate their activities. Moreover, the fact that electricity cannot be stored means that there is substantially more opportunity to engage in short run market price collusion with respect to peak loads.

The second issue focuses on how the conduct impacts the economic discretion of the actors: Does the agreement entail a restraint? The classic example and one of great import in energy markets is the exchange of information. Such exchanges can operate to make a market perform in a more nearly perfect manner as a result of more informed buyers and sellers.¹¹³ On the other hand, some exchanges make economic and business sense only because they imply an underlying understanding that competition will be constrained.¹¹⁴

The rules organizing a structured market can either facilitate genuine competition in the market or create significant opportunities for strategic conduct. Both the conditions under which the market will operate and the structure of market participants are vital considerations. Where there are many buyers and sellers of a relatively homogeneous product, collusion is difficult because of the significant costs of coordination and the incentives for individual parties to betray any collusive understanding. There have been exceptions, however, in numerous types of markets. Where there is a tight community of interest in a group, and it has some means to deter members from cheating on the agreement, collusion is possible even in large numbers. However, such collusive understandings are usually more open and obvious exactly because of the need for consensus among a large group. Hence, encouraging accurate and prompt public reporting of prices in such contexts is usually consistent with maintaining a workably competitive market.

The analysis is different when there are significant barriers to entry/exit, there is high level of concentration on one side of the market, and the capacity of firms at the margin to vary their output is limited. In such circumstances better price reporting provides a means for tacit collusion. The number of players is limited and so reaching understandings is easier; detection of

112. Thus, the heterogeneous character of electric production technology and time of day markets create a large number of contexts in which relatively few competitors can control price. In such a circumstance, the temptation to coordinate conduct is very great.

113. *Maple Flooring Mfg. Ass'n v. United States*, 268 U.S. 563 (1925).

114. *Sugar Inst. v. United States*, 297 U.S. 553 (1936); *Am. Column & Lumber Co. v. United States*, 257 U.S. 377 (1921); *United States v. Container Corp.*, 393 U.S. 333 (1968); *United States v. U.S. Gypsum Co.*, 438 U.S. 422 (1978).

deviation is inexpensive because of the public disclosure of the relevant price information. Moreover, firms with larger shares are more vulnerable to retaliation if they do deviate since price competition will drive down their own average income. Hence, the structure of such markets creates disincentives to compete on price.

Antitrust law has responded to both kinds of market situations. It has affirmatively facilitated price discovery systems in markets with many participants. Such markets are improved with better price disclosure. It has also successfully challenged information disclosure in oligopolistic markets because of its demonstrated capacity to facilitate market coordination.¹¹⁵ The remedies in such cases, counter-intuitively with respect to conventional economic models of competitive markets, have involved requirements that obscure the prices of the competitors in so far as that is possible. The concept is that in such markets, uncertainty about how rivals will price creates a stronger incentive for each firm to make its own decisions based on its own costs. The goal is to maximize rivalry given the structure of the market.

A serious tension exists between the administrative needs of energy markets and the kinds of regulations that might push suppliers to be more price competitive. To create competition, regulations should frustrate communication and limit transparency. But the exogenous needs of both electric transmission and gas pipeline service conflict with that goal. Hence, to reduce the risk of collusion, given the structure of the markets, it would be necessary to increase the inefficiency of the delivery systems by concealing important information from major market participants. Indeed, it is probably not technically possible to conceal enough information to frustrate tacit collusion in electric markets. The potential to use conduct remedies to overcome the structure and conditions of the market is very limited if it exists at all. Antitrust law also allows for after-the-fact liability to deter collusion. This liability includes the threat of substantial fines and prison time.¹¹⁶ In addition, treble damages can result in very substantial liability. The goal of these sanctions is to deter collusive conduct. The general sense is that despite the well-publicized violations, sanctions deter many firms

115. Proposed Modification of Existing Judgment, *United States v. Gen. Elec.*, 42 Fed. Reg. 17,004 (1977).

116. Recent amendments to the Sherman Act increased the maximum to ten years and some executives have received three years. *United States v. Andreas*, 216 F.3d 645 (7th Cir. 2000). Archer Daniels Midland itself paid a \$100 million fine.

from engaging in collusive conduct. Unfortunately, the filed rate doctrine currently precludes victims of price fixing in energy from making damage claims. Moreover, prison is reserved for defendants who engage in overt price fixing. In the case of electric markets, as discussed above, tacit collusion is the most likely kind of naked restraint on competition that will occur. Hence, the potential for antitrust law to provide any real backup to market regulation is very limited.

Creating a credible wholesale market in electricity faces many challenges. The basic conditions of power production and transmission require a more closely integrated system of operation with a high level of communication among actors to ensure the stability and utility of the system. The fluctuation of demand with the consequent need for dramatic variation in supply, including the creation of short-term market power, creates significant challenges to any market system. Controlling collusion is more difficult because of the inherent need for a high level of forward communication about both supply and demand as well as the need to make last minute purchases of power to cover unexpected peaks in demand.

In addition, the existing structure of most markets creates an additional set of problems for workable wholesale competition. The continued ownership integration of generation, transmission, distribution, and retailing creates incentives to manipulate the wholesale price whenever it is possible for the integrated firm to pass the higher price on to its customers. Moreover, the necessary level of transparency and communication for safety, balance, and reliability, assures participants that any deviation from an understanding will be readily apparent and easily countered.

Faced with this kind of market context and the divided regulatory authority, the task of fashioning workable remedies for collusion is daunting. The first and most obvious implication from antitrust experience is that simplistic models based on the assumptions of perfect competition have no place in this system. Rather, the appropriate regulatory response is to find ways to induce competitive conduct despite strong incentives to collude. To the extent that individual retailers have an obligation to provide both baseload and peak power to match their needs, it may be possible that such buyers will employ a variety of strategies to avoid being exploited by sellers. Such strategies would consist of longer term contracts including long term peak load commitments that would have relatively set prices. The practice of giving the owners of such rights the ability to sell the rights if they did not need them would further complicate the

ability of colluding producers to manipulate price in some circumstances. Whether this can be done given the level of vertical integration between generation and distribution outside FERC's authority is very questionable.

In contrast, gas markets are somewhat less vulnerable to collusion than electric markets. First, there are more sellers and buyers. Second, FERC rules caused some disintegration of pipeline capacity that limits the incentive of pipeline operators to restrict access. Third, because of the direct and indirect links among pipelines and the capacity of traders to swap gas on different systems as well as redirect gas among systems, a larger, more nearly national market has emerged. Fourth, the capacity to store gas at various places along the system again weakens the opportunity for strategic withholding of supplies. The combination of the inherent characteristics of the market, the structure of the ultimate buying and selling of gas, together with specific regulations that limit some incentives to collude, make wholesale gas markets more nearly workably competitive.

D. Necessary Naked Restraints

Further complicating the effort to induce competition in energy market is the need for mutually agreed to standards and rules for the operation of the transmission and distribution systems. Although such regulations are in fact market constituting, functionally they are indistinguishable from anticompetitive cartelistic restraints agreed to by firms that are potential or actual rivals.¹¹⁷ The role of such agreements, as discussed in Part II, is very substantial. Many of the firms developing these agreements are also in a position to exercise joint control of some aspect of the market. Moreover, while it is possible to "just say no" to basic collusion to manipulate prices, these interactions and resulting agreements often have a strong basis in the inherent needs of energy markets to operate and operate efficiently. Agreement among stakeholders is essential to resolve many of the technical specifications for electricity and key issues of reliability and balance. Similarly, in the gas business, a number of operating conditions and protocols need to be agreed upon in order to ensure that merchants, sellers, and ultimate recipients can all operate within the system. The need for such agreements provides a fertile ground for the parties to engage in additional tacit collusion and to adopt unduly exclusionary or

117. See, e.g., *Fashion Originators' Guild of Am. v. Fed. Trade Comm'n*, 312 U.S. 457 (1941); Robert Lande & Howard Marvel, *The Three Types of Collusion: Fixing Prices, Rivals, and Rules*, 2000 WIS. L. REV. 941 (2000).

exploitative regulations.

Comparable situations exist elsewhere and antitrust law has regularly excused such agreements from liability through a variety of doctrinal labels when the record convincingly showed that the resulting restraints were either authorized by government or had a de facto authorization.¹¹⁸ There needs to be some level of authorization from an appropriate government entity, the conduct at issue must be within the scope of that authorization, and there must be an appropriate level of oversight usually by a public agency, but occasionally some private organization provides such supervision.¹¹⁹ In energy markets, such agreements can nevertheless impose unnecessary restraints that frustrate competition.

Where such agreements result from an open process in which stakeholders with conflicting interests have an effective voice, there is less basis for concern.¹²⁰ These agreements are likely to be market facilitating and not unduly biased against the interests of any participant. There should still be disinterested review of those agreements to protect against the danger of some subset of stakeholders manipulating the initial decision.¹²¹ The harder cases involve situations in which the relevant stakeholders share a common economic interest that is antithetical to market facilitation but are the primary parties to establish the underlying agreement. Their incentive is to adopt rules that both serve the legitimate goals of such collaboration and also suppress disfavored modes.¹²² Because of the technical nature of the issues and the incentive to exclude unnecessarily competition, only an expert agency can possibly balance the overall efficiency gain against the costs to the market process. But even if such an agency is strongly pro-competitive, it is unlikely to give close scrutiny to all the ways in which such regulations can be deployed to frustrate competition.

In sum, such regulatory agreements, even if subject to strict oversight, provide both a means directly to undermine the

118. See Carstensen, *supra* note 86.

119. See *id.*

120. The standards for such organizations are now codified in the Standard Development Organization Advancement Act of 2004, H.R. 1086, 108th Cong. (2004) (amending 15 U.S.C. § 4301 (2005)).

121. See *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988); *Am. Soc'y of Mech. Eng'rs v. Hydrolevel Corp.*, 456 U.S. 556 (1982).

122. When telephone service was being opened to competition, AT&T attempted to require all competitors to buy and install costly interface devices between their equipment and the phone line. Only when the FCC decided that AT&T itself would also have use of these devices, did AT&T decide that they were not necessary. See *Litton Sys., Inc. v. AT&T*, 700 F.2d 785 (2d Cir. 1983).

development of a wholesale energy market and a forum for dominant firms to coordinate competition on matters outside the scope of such regulation. Here again, the structure of the markets, especially the electric market with the dominance of integrated firms, makes it extremely difficult to develop conduct rules that will both advance the interest in competitive markets and allow for the necessary level of collective decision making required to regulate the operation of the system.

E. Ancillary Restraints—Reasonable and Unreasonable

Restraint of trade law also applies to agreements that have positive, productive objectives. The primary goal of such agreements is to produce or distribute goods or services. Inevitably, any forward looking agreement entails some restrictions on the economic freedom of action of its participants. Moreover, as parties commit to courses of conduct they become vulnerable to strategic conduct by other parties to the agreement. In such contexts, additional limits on future conduct may become essential to the creation of the agreement or its efficient operation. The most common justification for such restraints is a concern for “free-riding” by some parties on sunk investments of other parties. However, the legitimate concern for strategic conduct has a more expansive application.

The antitrust concern with restraints found in such legitimate productive agreements is that they may be unduly restrictive. Enterprises seek profit and not efficiency. Hence, there is no inherent constraint on the parties to an agreement that keeps them from including restraints that facilitate either unnecessary exploitation of the market or exclude potential competition beyond that which is immediately relevant to the venture. In this context, antitrust law has to consider the legitimacy of the primary objective, the validity of the claimed justification for any restraint and, assuming some restraint is justified, whether the specific restraints are no more restrictive than necessary. There are short cuts in this analysis that arise from judicial presumptions. Thus, most restraints on distribution except those setting minimum resale prices are presumed to be lawful as necessary incidents to the distribution. A court will look critically at the merits of the restraint only if the party benefiting from the restraint has substantial market power. In contrast, it is probably still the case that agreements among competitors that directly limit their capacity to compete with each other in the markets other than the one in which they are collaborating are subject to a presumption of illegality, or at least are subject to

strict scrutiny.¹²³

The crucial competitive concern is that in the context of energy markets, long term contracts can have significant foreclosure effects even though they are also the antidote to short term market power. The problem is that a generator or a retail buyer that has significant leverage over the party on the other side can insist on unduly long or exclusionary terms. Unintegrated retailers need power, and merchant generators have substantial sunk costs. Due to of the large extent of vertical integration, unintegrated firms are marginalized and only sometimes can deal directly with each other. As a result, when the integrated electric company agrees to buy power or sell it, it has a great deal of leverage in the market if the counter party has few options. Again, this is why integrated firms have little incentive to remedy the congestion problem.

From a regulatory standpoint, the problem is to define rules that will limit incentives of dominant buyers (or sellers) to exploit their power in terms of restraints on the other party's freedom to seek or use alternatives. For the reasons already discussed, the present structure of the market, combined with the underlying exogenous conditions of power generation, make this a very difficult process. The structure requires either a very case specific analysis in which the agency must renegotiate the agreement to minimize the harms to competition; or a set of firm rules that may be counterproductive in some number of cases. But at the same time, especially as these markets return to the use of longer term contracts, it is essential to the goal of workable competition that such oversight and control occur to remedy the abuse of market power that will otherwise transpire.

As with the other areas discussed, the greater potential problems exist in the electric markets. The gas market has fewer constraints, more buyers and sellers, and has a history of contractual supply agreements that provide a base line for evaluating the merits of any new contract. Such review is not necessarily helped by FERC's policy of general acceptance of contracts.¹²⁴ Given the need to transform market conduct, FERC should, to the extent its jurisdiction permits, critically review all long term supply contracts with special reference to restrictions on the buyer's freedom to buy or sell to others, as well as restrictions on the freedom to resell the energy being

123. See also *Arizona v. Maricopa Medical Found.*, 457 U.S. 322 (1985); *Nat'l Soc'y of Prof'l Eng'rs v. U.S.*, 435 U.S. 679, 692 (1978).

124. See *San Diego Gas & Elec. Co. v. FERC*, 904 F.2d 727 (D.C. Cir. 1990).

purchased.¹²⁵

F. Jurisdiction and Penalties—Sources and Severity

One of the lessons of antitrust is that multiple enforcers make it more likely that the commands of the law will be obeyed.¹²⁶ In energy, unlike antitrust, there is a marked separation between the jurisdiction of the states and the federal regulatory body. Moreover, under the filed rate doctrine and exclusive jurisdiction, the regulators have largely, but not entirely, pre-empted other legal regimes that might impose more liability on those enterprises that interfere with the development of the market. The contrast between the world of antitrust and energy regulation is stark.

Antitrust law enforcement involves multiple actors, in both public and private sectors. At the federal level, both the Antitrust Division of the Department of Justice¹²⁷ and Federal Trade Commission have authority to enforce the law.¹²⁸ A key difference between the two agencies is that only the Antitrust Division has authority to bring criminal proceedings.¹²⁹ Criminal cases focus exclusively on overt cartels and can now result in substantial jail time for corporate executives as well as substantial fines for corporate offenders.

Most states have their own antitrust laws with civil and criminal provisions. In addition, the states have standing to invoke the civil aspect of federal law.¹³⁰ This state power provides an important public interest check on federal agency decisions. Historically, there have been periods when state litigation has been very important in maintaining an active role for antitrust. In addition, private citizens can sue for damages or injunctions under the antitrust laws.¹³¹ There are standing and causation issues that circumscribe who can sue with respect to any particular injury, but the threat of treble damages is a widely known risk that is thought to have significant deterrence value. The primary function of antitrust law as a market constituting

125. Ironically, FERC has been trying hard to avoid reviewing the merits of contracts.

126. The Supreme Court majority in *Trinko*, on the other hand, expressed strong hostility to having multiple enforcers of rules of conduct in the context of regulated telecommunications. See *Trinko*, *supra* note 55, at 413–15.

127. 15 U.S.C. § 4 (2005).

128. 15 U.S.C. § 45 (2005).

129. 15 U.S.C. § 1 (2005).

130. 15 U.S.C. § 15c(a) (2005).

131. 15 U.S.C. § 15(a)1 (2005).

and regulating force is in its deterrent value.¹³² The risks of antitrust liability create incentives for rational managers to avoid conduct that might produce risks for the enterprise and in the case of cartel type behavior risks of personal sanctions including significant jail time. While no system of deterrence is perfect, it seems plausible that the sanctions that antitrust imposes have generally lead businesses to avoid overtly anticompetitive conduct.

There is, of course, an ongoing struggle to define the contours of permitted and impermissible conduct. A common complaint is that antitrust law produces “false positives” that deter efficient conduct.¹³³ A contrary concern is that “false negatives” authorize anticompetitive conduct that results in continuing harm to the economy as a result of unnecessary exclusion or exploitation. Contemporary judicial concerns have largely focused on the false positives because of a belief that they pose the greater long term risk.¹³⁴ Such concerns ignore the innovative capacity of the market to find alternative routes to efficient outcomes. The greater concern might be for false negatives that may well authorize more effective exclusion or exploitation of markets, thus undermining the long run dynamic of the market and slowing the restoration of competitive conditions.

Despite these limitations, antitrust law is an active force exactly because it can and is being enforced by a variety of different actors, and if there is a violation, the consequences are substantial. This is necessary in order to achieve deterrence. Antitrust enters, except in the case of mergers, only after the fact. It punishes illegal conduct. This provides the backdrop for business decisions that must take account of antitrust risks.

The oversight of energy markets remains stuck with the model of controls that were designed for a regulated market in which the agency determined price and service. In such a context, there was less need for after-the-fact sanctions. The goal was to decide on prices or other elements of the market before any transactions took place. Both the filed rate doctrine and exclusive jurisdiction helped to ensure that the regulatory agency dominated the oversight of the industry. Exclusive jurisdiction pre-empted state regulation and also foreclosed use of antitrust law to challenge anti-competitive conduct that the agency had

132. *Tarasi v. Pittsburgh Nat'l Bank*, 555 F.2d 1152, 1162 (3rd Cir. 1977).

133. *See* Frank Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 16–17 (1984).

134. *See, e.g., Trinko, supra* note 55.

approved.¹³⁵ Despite Otter Tail's opening of the door to greater antitrust oversight,¹³⁶ the FPC, and later FERC, have largely excluded antitrust as an independent force in the oversight of these markets.

The regulatory structure for overseeing energy markets is not adapted to the needs of competition. First, the division between FERC and the states creates gaps, e.g., integrated generator-retailers within a state can avoid FERC oversight despite being major factors in the wholesale side of the energy market. Second, neither FERC nor the states have the legal tools to deal effectively with a number of the competitive issues that exist. FERC lacks the authority over some market participants; cannot impose severe sanctions for violations of its rules; and cannot provide the kind of damages that would serve as appropriate deterrents to misconduct by the firms it insulates from other legal sanctions.¹³⁷

The major constraints on the allocation of regulatory authority make it extremely difficult to fashion workable rules and create a national market in any type of energy. The limited jurisdiction of FERC in respect to both gas and electricity markets is a central problem. FERC lacks the authority to fashion a workable downstream set of wholesale buyers. Only state regulation will create that stage of the process. The artificial wholesale-retail distinction in electricity combined with the interest that states have in retaining jurisdiction over important sources of power generation creates serious legal obstacles to any comprehensive set of conduct-based rules that would promote competition.

G. Conduct Remedies and the Present State of the Market and the Law

The foregoing discussion was originally intended to make a positive contribution to the process of finding appropriate conduct-based remedies for the major problems of market power and its abuse that hover over energy markets. As is apparent from the text that has emerged, there is no basis for optimism with respect to electric markets given the present structure of

135. *Transmission Agency v. Sierra Pac. Power Co.*, 295 F.3d 918, 929 (9th Cir. 2002).

136. *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973).

137. Moreover, even if FERC has jurisdiction, it may lack the express legal authority to impose a remedy. Basically, it can only condition its approval on a utility agreeing to do things, but the utility can refuse to accept the condition provided the utility is willing to forego the benefit of the requested authorization.

those markets generally and the inherent needs of operating an integrated electric transmission and distribution system. The underlying market situations make competition a viable option only in some situations and only at substantial cost. Whether the cost is worth the benefit is an open question.

It is, on the other hand, possible to be somewhat more hopeful about gas markets. The exogenous conditions of that industry and the structure of the enterprises comprising it make it possible to retain a more workably competitive wholesale market. Even there, structural choices have created more risk to competition than is necessary, leaving little basis to think that there will be any significant efficiency gains.

V. PREREQUISITES FOR WORKABLE WHOLESALE ENERGY MARKETS—A RECAPITULATION

The conditions of supply, demand, technology, and institutional structure all evolved in light of the organization of the two energy industries as ones in which direct regulation of prices and services were central organizing principles. As a result of the combination of exogenous and endogenous factors, both the structure and conduct of these industries evolved in ways consistent with those underlying conditions.

Despite some major policy errors, such as trying to impose conventional rate regulation on wellhead gas prices,¹³⁸ the trend of such regulation was to move such markets toward efficiency. The suggestion is that there were enough pressures on major producers and retailers of energy from the broader market as well as regulatory oversight to cause the system to work without gross inefficiency. The pressures were stronger in gas, where more market engagement occurred, and weaker in electricity, where regional disparities were greater because of the tighter vertical integration and the lack of effective long distance transmission of lower cost power.

To change to a competitive market system requires careful consideration of the conditions, structure, and conduct necessary for desirable performance of a competitive market. To have workable wholesale markets, it is essential to have sufficient buyers and sellers interacting in a relatively open context. A central part of the necessary transformation is disintegration of the stages of production and distribution. In addition, market institutions need to be created or expanded, and the kinds of transactions on which the market will rely must be identified and

138. See *supra* text accompanying note 8.

legally defined. This is a market creation and facilitation process that is akin to moving an economy from state socialism to a market basis.¹³⁹ It cannot be accomplished by slogans or simplistic legislation.

The contrast between the gas and electric markets is striking. The basis for the differences reside in both the exogenous conditions of the two markets and the structures as well as conduct that evolved based on those conditions, and the endogenous historical facts and legal policies applied to the two industries. The institutional, regulatory, supply, and demand characteristics of natural gas made a transition to more competition easier to visualize even if it posed serious political challenges. A market already operated at the production end of the natural gas chain. The gas pipelines were not substantially integrated into retail distribution, and a number of major buyers existed in both the unregulated intrastate market as well as had the capacity to enter into the interstate market when permitted to do so.

Thus, conditions, structure, and conduct all made a transition to a broader competitive gas market feasible. The central changes in the basic conditions of the industry were to separate transportation charges and responsibility from the buying and selling of gas itself. This included the creative idea of converting rights to use pipeline capacity into tradable units that could be bought and sold. As discussed earlier, this conversion limited the incentives of the pipeline owner to manipulate capacity and seek to impose monopoly prices. Of course, regulation of price remains essential for the delivery services because those remain potential monopolies, especially at the ends of many pipelines where the ultimate buyers have only one way to receive gas.

The most questionable element of this market is the decision to allow pipeline owners to remain merchants of gas sold through their affiliated pipelines. Conduct-oriented rules imposed on this activity attempt to reduce or eliminate the manifest incentive to manipulate supply in order to raise prices. As discussed earlier, a structural response, similar to that adopted in other transportation service industries that would ban such activity because of the inherent conflict would seem the better approach. Absent such a separation, regulators need to have the power to

139. An interesting comparative institutional point is that in countries where the government owned most or all generation, transmission, and distribution, the transition to market systems was easier because the state could more freely decide how to configure ownership structures as it sold off its assets.

ban any merchant from the market if that merchant engages in manipulative or deceptive acts or practices. These requirements are common to the market facilitating regulation of other major commodities markets. Deterrence is important with respect to all traders, but especially important when traders have an inherent conflict of interest.

The other continuing structural concern for wholesale markets in gas is the need to have policies that will retain sufficient numbers of buyers and sellers to ensure that overall market participants have a strong and clear incentive to seek fair and open market practices. Thus, stricter standards for merger on both the buying and selling side of the market seem in order. In addition, there should be concern with any combination that results in incentives to manipulate capacity of pipelines. In particular, the concern is with combinations of pipeline ownership and ownership of electric generation facilities in the area served by such a pipeline.

In the case of electricity, the problems of moving to a more competitive market are far more substantial. Indeed, absent significant structural change and changes in the endogenous conditions of electric markets, the goal of workably competitive wholesale markets in electricity seems problematic at best.¹⁴⁰ The essential structural condition for competition is a separation of the ownership of generation from that of transmission and dispersing both generation and distribution among sufficient owners to create a context in which a wholesale market can flourish. Unlike gas, the technological conditions for generation, transmission, and distribution require much closer and continuous interaction among the parties. This poses major institutional design problems to ensure responsibility for balancing and reliability as well as reorientation of the delivery system, transmission, and distribution, to serve a competitive supply market. The examples of securities and commodities markets tells us that such institutional designs are feasible, but in the case of electricity, they would have to be built from the ground up. In addition, the actual physical layout of the transmission system was not intended to serve as a medium for market exchanges. Thus, a major investment in new transmission capacity with all the costs and environmental concerns entailed is necessary. Finally, the regulatory conditions

140. See Andrea Morris, *Why the Music is Off-Key When Lawyers Sing from Economists' Songbooks or Why Public Utility Deregulation Will Fail*, in *THE END OF NATURAL MONOPOLY: DEREGULATION AND COMPETITION IN THE ELECTRIC POWER INDUSTRY*, 193 (Peter Grossman & Daniel Cole, ed. 2003).

under which electric markets operate need to be transformed to ones appropriate to a competitive market system. The current divisions of responsibility, the exclusivity of the several regulators, and the limits on the sanctions allowed to them are not the necessary conditions for the creation of a workably competitive wholesale market in electricity.

Specific questions of market design enter into the evaluation. Because of the major linkages between generation and distribution, there is a heavy emphasis on short-term transactional markets to cover the marginal supplies. In California, all supplies were bought on a short-term basis creating a mismatch between incentives for development of new and more efficient generation and the market for such power because of the long-term risks in construction having only a short term market.

The problem of market design, i.e., conduct, is a very difficult one as FERC has discovered. Because of the physics of electricity, it is difficult for parties to transact in actual electrons. What is required is a method of matching purchases and withdrawals from the system. Comparable settlement systems exist in commodities and securities trading markets. Those markets operate with a strong central authority in the position of market maker. That entity must police the conduct of buyers and sellers to ensure that all trades are completed. The operator of the transmission system stands in a comparable position in electricity. That operator provides the central clearing point for supply and demand. If the overall transmission system has sufficient capacity, including the ability to use power at a variety of points, it can match contractual rights to deliver power with the demand for power. This is similar to the clearing function of commodities and securities markets. What is then required is a set of contractual instruments that provide long-term as well as short-term commitments from generators that distributors can buy and deliver to the system operator to cover their requirements. Because the value of electricity varies by time of day and season of the year, it is much harder to develop the instruments that can be bought and sold in sufficient volume to create a market.¹⁴¹ It would appear that longer term contracts that involve continued commitments to supply some set level of power, equivalent to the “take or pay” contracts used in gas markets at one time,¹⁴² may be potentially useful tools.

141. The industry has been trying to develop various financial instruments to accomplish this purpose.

142. See BOSSELMAN, *supra* note 7, at 468–73.

It should have been clear to policy makers at the outset and has certainly become clear in hindsight that positive results from movement toward competition in electric markets will not come easily because of the complexity of the transformations required. Yet so deep was the political faith in “competition” that legislation such as California’s imposed unworkable legal structures on the industry.¹⁴³ These policy errors in turn call into question the claims that competitive markets will provide long run economic benefits. Indeed, given the complexity of the electricity business, either competitive or regulated markets will operate imperfectly. The central question is whether more competition will result in a less imperfect market than more regulation.

To make progress toward a workable competitive market requires a major reorientation of the physical structure of the transmission system, its separation from the strategic interests of its former owners, and the development of market mechanisms that would allow generators to sell directly to buyers. These transformations cannot come without major revisions of the legal conditions under which power is produced, transmitted, and distributed.¹⁴⁴ Despite repeated calls for such legislation,¹⁴⁵ it has not emerged, and the proposals that congress has considered have fallen substantially short of providing the overall restructuring necessary to bring about workable markets.

Overall competitive markets are preferable to regulated ones. The competitive market brings a greater opportunity for entry, exit, and the potential for more dynamics in technology. But, such markets are not free and require a great deal of careful design and continuing re-evaluation. In the case of electricity, the costs of transition as well as those associated with the ongoing efforts to oversee a market including the major economic costs associated with exploitation of market power may well outweigh any long term benefits that might arise if competition caused changes in the basic conditions and structure of the market. Without significant change in conditions and structure, indeed, it is possible that the present system is the worst of all possible options.

143. See Bush & Mayne, *supra* note 93.

144. It is not unduly pessimistic to suggest that the current muddle in electricity is worse than either a fully competitive or a fully regulated system. Much unregulated market power exists in the current system that can be and is exploited under the guise of competition. Yet the bifurcated regulatory framework of federal and state jurisdiction with its highly artificial allocation of authority and the lack of effective sanctions against many of the market abuses that have occurred contribute to the muddle.

145. See, e.g., Kelliher, *supra* note 81.

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To paraphrase Orwell, “all markets are equal, but some markets are more equal than others.” The central lessons from a comparison of the effort to create workable wholesale markets in gas and electricity is that conditions and existing structures are very important factors. Without strong legislative will to make significant changes that are very market specific, the prospects for remedying the flaws in poorly functioning markets are limited. Competition may be desirable, but only when it is feasible.