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MERGERS IN THE ELECTRIC POWER INDUSTRY

RICHARD J. PIERCE, JR.

It is extraordinarily difficult to devise and to implement a socially-beneficial merger policy in an industry that is the subject of an ongoing restructuring process that is intended to increase reliance on market forces to obtain socially-desirable results. In order to decide which proposed mergers to approve or disapprove, antitrust agencies and regulatory agencies must know that which no one can know – how the restructuring process will evolve over the typical multi-decade period that is required to complete a restructuring of a network industry. An agency that is responsible for announcing and applying a merger policy applicable to an industry that is in the process of restructuring must make a series of difficult, recurrent decisions. First, should the policy be designed to fit the present industry structure or should it instead be designed to fit some expected future structure? If the latter, which of the many potential future structures of the industry should the agency use as its baseline for evaluating the expected effects of a proposed merger? Finally, should the agency use its merger policy only as a means of reacting to changes in industry structure proposed by private market participants, or should the agency use its merger policy proactively as a means of encouraging the types of restructuring activities that it considers critical to the success of the agency's restructuring program? The electric power industry illustrates well the daunting nature of the task. The following brief summary of the process of restructuring the U.S. electricity market will help readers appreciate the difficulty that antitrust and regulatory agencies have confronted, and continue to confront, in undertaking this task. (For more detailed descriptions, see Pierce 2005, Joskow 2003.)

An Overview of the Process of Restructuring the U.S. Electricity Market

Until the 1980s, the U.S. electricity industry consisted of approximately two hundred vertically integrated firms, each of which was a state-franchised monopoly subject to pervasive cost-of-service regulation implemented by state regulators. Federal agencies had only minor regulatory roles, and competition was nearly non-existent. In the 1980s, the federal agency with principle responsibility for regulating interstate electricity transactions, the Federal Energy Regulatory Commission (FERC), reached the well-supported conclusion that some forms of competition among suppliers could produce socially-beneficial results. FERC had little statutory power to introduce competition in the market at the time, but it began to move in that direction through the use of the few sources of leverage it had – primarily through the pro-competitive conditions it imposed in its orders approving proposed mergers. (Pierce 1996A, p.31.)

In 1992, Congress enacted the Energy Policy Act, a statute that increased FERC's power to introduce competition in the electricity market and that arguably gave FERC a mandate to create a competitive wholesale electricity market. (Watkiss & Smith 1993.) In 1996, FERC issued a rule in which it announced the manner in which it would attempt to restructure the industry to create a competitive wholesale market. (FERC 1996.) The restructuring plan FERC initially announced was largely ineffective, however, so FERC began to make gradual changes in its restructuring program shortly after it announced its initial plan. FERC's current restructuring plan is far more effective than the plan it initially announced. However, FERC has experienced significant resistance to its present restructuring plan from utilities and state regulators who oppose restructuring and who

want to retain the traditional regulatory environment in which all electricity is provided by vertically-integrated, state-regulated monopolies. As of 2005, about half of the electricity in the U.S. is provided by vertically-integrated, state-regulated monopolies, and about half is provided in one of the four competitive wholesale markets that FERC has been able to create. (Pierce 2005, Joskow 2003). Throughout the lengthy and still incomplete restructuring process, FERC has been confronted with the need to announce and to apply merger policies to an industry that was virtually certain to change in important, but unpredictable, ways in the near future.

The Need for Mergers Before Restructuring Began

In the 1970s, when all electricity was provided by vertically-integrated, state-regulated monopolies, and there was no major change in the governance system on the horizon, it was relatively easy to identify a good merger policy. Stephen Breyer, then a young professor at Harvard Law School, and Paul MacAvoy, then a young professor at Yale School of Management, wrote an excellent book in which they made the case for adoption of a policy that would encourage widespread mergers among utilities. (Breyer & MacAvoy 1974, pp.89-121). They argued persuasively that only a handful of the roughly two hundred electric utilities in the U.S. were large enough to take advantage of the large economies of scale and scope that are potentially available in performing the functions required to provide electricity service. They explained in a detailed and persuasive manner why a policy of widespread consolidation of electric utilities had the potential to save the U.S. billions of dollars per year.

Breyer and MacAvoy recognized, however, that such a massive socially-beneficial consolidation of electric utilities was unlikely to take place unless the federal government mandated such a change in structure or coerced market participants into implementing such a structure by making other fundamental changes in the policies applicable to the electricity industry. With each utility operating as a state-franchised monopolist, utilities had no incentive to attempt to implement mergers that would reduce their costs because they confronted no competition. Moreover, state regulators were generally hostile to proposed utility mergers because many such mergers would create multi-state utilities that would be more difficult for state agencies to regulate. State agencies feared that they would eventually have to cede some of their regulatory powers over multi-state utilities to FERC. State agencies also imposed conditions on proposed mergers that rendered them unprofitable to the proponents, thereby discouraging utilities from proposing mergers. The only federal statutes applicable to electric utility mergers at the time were the Federal Power Act and the antitrust laws -- statutes that clearly did not confer power on any federal agency to mandate or to encourage mergers – and the Public Utility Holding Company Act – a depression-era statute that continues to make many potential socially-beneficial mergers unlawful. (See Bilicic 2003).

Electric Utilities Began to Confront Competition in the 1980s

In 1978, Congress enacted the Public Utilities Regulatory Policy Act (PURPA). That statute included provisions that instructed FERC to require utilities to purchase electricity from two statutorily-prescribed types of qualifying facilities (QFs) owned by

third parties – cogenerators and small power producers -- at state-determined estimates of the full cost the utility would avoid by making the mandatory purchase. PURPA was a failure as a means of improving the efficiency of the performance of electricity markets, primarily because some states made estimates of full avoided costs that required many utilities to pay supra-market prices for electricity generated by QFs. (Black & Pierce 1993, pp.1347-1349). However, PURPA demonstrated the viability of an institutional regime in which utilities are required to transmit electricity generated by third parties – a critical prerequisite to creation of a competitive wholesale market.

In the 1980s, FERC recognized that changes in the basic technological and economic characteristics of generation and transmission of electricity had created a situation in which some functions that had been performed exclusively by vertically-integrated, pervasively regulated monopolies were no longer natural monopoly functions. (Pierce 1986). FERC recognized that generation and wholesale of electricity could be undertaken by unregulated firms operating in a competitive market, and that substitution of competitive market forces for regulation had the potential to allow the wholesale market to perform more efficiently. At the same time, industrial consumers in many states became angry at their local utilities for charging what the consumers perceived to be exorbitant prices attributable to the utilities' inefficiency. Industrial consumers in states with high electricity prices pressured both FERC and state officials to allow them to buy power from firms other than their local utility. FERC had little regulatory power to accede to the wishes of the industrial consumers, but several major states enacted statutes that allowed industrial consumers in those states to buy electricity from non-utility

providers or from utilities other than the utility that previously had the exclusive right to sell to the consumers. (Black & Pierce 1993, pp.1350-1354).

FERC Encourages Competition by Conditioning its Approval of Mergers

As a result of the enactment of PURPA and of state statutes that allowed industrial consumers to buy from non-utility sources in some states, many electric utilities found themselves subject to competition for the first time. The resulting competitive pressures induced utilities to identify ways in which they could become more efficient and reduce their costs. For the first time, large numbers of utilities looked favorably on the potential to participate in the mergers that Breyer and MacAvoy had previously identified as potential means of enhancing their efficiency. FERC was supportive of both the utility mergers that were proposed in the late 1980s and early 1990s and of the movement toward creation of a competitive wholesale market that industrial consumers had persuaded many states to support. FERC would have liked to have been instrumental in implementing a broad transition to a competitive wholesale market in the 1980s by requiring all owners of transmission lines to provide third parties' access to their lines, but FERC believed that it lacked the statutory authority to issue such a broad mandate. It attempted to move the market in that direction, however, by conditioning its approval of the many mergers it approved in the 1980s and early 1990s on the merged entity's willingness to agree to include in its tariff a provision that guaranteed equal access to its transmission lines. (Pierce 1996A, p.31). With guaranteed

access to a utility's transmission lines, third party generators could begin to compete with the utility to make sales to its customers.

This merger policy – approve all proposed mergers subject to a condition that eliminates a major vertical restraint on trade – made a lot of sense at the time. It moved the industry gradually in the direction of greater reliance on market forces to govern the wholesale market. FERC's merger policy was inadequate alone, however, to induce most utilities to acquiesce in the actions required to further FERC's desired goal of creating a competitive wholesale market. Some utilities had no incentive to merge because they were already large enough to take advantage of available economies of scale and scope. Many other utilities would have enhanced their efficiency by merging, but they so feared the potential consequences of having to compete with third parties that FERC's policy of conditioning mergers on a guarantee that the utility would provide third parties access to their transmission lines deterred them from proposing many potentially efficiency-enhancing mergers. Utilities that did not have tariff provisions that guaranteed third party access to their transmission lines routinely denied third parties access, thereby insulating themselves from competition in the generation and wholesale market.

FERC's Initial Restructuring Order

In 1992, Congress enacted the Energy Policy Act, a statute that for the first time conferred on FERC the power to require a utility to provide third party access to its transmission lines. FERC interpreted that statute as a mandate to create the conditions necessary to support a competitive wholesale electricity market. (Watkiss & Smith 1994).

FERC conducted a rulemaking that culminated in the issuance of a 1996 rule that required every investor-owned utility to provide third party access to its transmission lines. (FERC 1996). In return for providing third party access to its transmission lines, FERC authorized each utility to make wholesales at unregulated prices.

FERC's initial third party access rule was largely ineffective in creating a competitive wholesale market, however, for two reasons. First, it was somewhere between difficult and impossible to implement the rule in the context of the many utilities who had an incentive to resist competition and who had an understanding of the capabilities of their transmission lines vastly superior to the knowledge any regulator or other third party could hope to obtain. Many utilities simply claimed that they lacked the transmission capacity required to accommodate transactions proposed by third parties. (Pierce 1994). Second, the 1996 rule was premised on a serious misunderstanding of the manner in which electricity flows on an integrated grid and of the competitive implications of alternative methods of pricing transmission. (Pierce 1997A). I will now embark on a lengthy digression about electricity transmission and transmission pricing policy. It is impossible to understand either the flaws in FERC's initial attempt to create a competitive wholesale market or the ways in which FERC's initial failed wholesale competition policy complicated FERC's efforts to devise and implement a sound merger policy without first understanding the nature of transmission and the importance of a transmission pricing policy to the creation of competitive wholesale markets.

Transmission Pricing – the Fatal Flaw in FERC's Initial Restructuring Order

Three integrated transmission grids support provision of electricity service in the U.S. – one east of the rockies, one west of the rockies, and a third grid that covers about two-thirds of Texas. Electricity flows on an integrated grid in inverse proportion to the impedance on each line that comprises the grid. (Hogan 1993, Joskow 2004). Electricity flows are unaffected by political boundaries, statutes, rules, or contracts. Each of the two major grids in the U.S. has thousands of nodes – points at which electricity either enters the grid from a generator or leaves the grid to serve a load center. The quantity of electricity that leaves the grid at each output node varies constantly, often by large amounts in short periods of time, as demand for electricity changes with changes in weather conditions, the opening and closing of industrial and commercial facilities, etc. Similarly, the flow onto the grid from an input node can vary between zero and 2000 megawatts instantaneously as generators are turned on and off to meet constantly changing demand conditions. As a result, the flows across an integrated grid are extraordinarily complicated and dynamic. A change in demand in Akron can have instantaneous large effects on capacity and flows into Des Moines, Boston, or Atlanta.

It should be immediately apparent that an integrated grid should be owned and operated by a single entity – either a firm or a government agency – and that is the pattern of ownership and control of all integrated grids in the world except the U.S. grid. (Henney & Russell 2002). It is hard to imagine a worse mismatch between the characteristics of an integrated transmission grid and the pattern of ownership and control of the three integrated grids that support provision of electricity service to the continental U.S. Ownership and control of the three U.S. grids is divided among 140 vertically-integrated utilities. (Joskow 2004). This balkanized pattern of ownership and control

yields massive inefficiencies, greatly increases the risks of cascading blackouts, and greatly complicates the task of designing and implementing a plan for restructuring the industry in ways that produce an efficiently-functioning wholesale electricity market.

To complicate the situation still further, FERC traditionally authorized utilities to charge for provision of transmission service on a utility-specific, average total cost basis. As a result, a generator who wanted to make a sale to a distribution company or an industrial consumer one hundred miles away typically had to contract to pay high, average-cost-based transmission rates to the two, three, or four utilities across whose lines the electricity was deemed to flow by the contracts between the generator and the utilities that comprised the fictional contract path between the generator and its customer. (Pierce 1997A). The resulting price of transmission service bore no relationship to the cost of transmission service.

The per-unit price of transmission service should be based on marginal cost – a measure of cost that is usually a tiny fraction of average total cost and that does not depend on the pure happenstance of the number of utilities that lie between the buyer and the seller using some necessarily fictitious and arbitrary contract path. (Hogan 1997). The owner of the transmission assets can then supplement what otherwise would be its inadequate revenues attributable to unit prices based on marginal cost by charging all users of its assets postage stamp rates that reflect the embedded cost of its prior investments in transmission assets and by requiring generators that propose to add generating capacity at a location that will require new investment in transmission assets to pay for that new transmission capacity. (Joskow 2003).

When FERC issued its initial rule to mandate third party access to transmission lines in 1996, it made no change to its pre-existing method of pricing transmission service. As a result, the cost of transmission was so high that it was often uneconomic to transmit electricity over a fictitious contract path that included more than one utility, and the wholesale markets created by the initial rule were small and highly concentrated.

FERC's Initial Merger Policy

When FERC announced its first restructuring plan, it chose a merger policy that was designed to be compatible with its plan to create competitive wholesale electricity markets. FERC adopted the DOJ/FTC horizontal merger guidelines as its own. (FERC 1996A). FERC's initial choice of merger policy has served it and the nation well. FERC continues to apply its 1996 policy in 2005. FERC recognized that the DOJ/FTC Guidelines reflect a tremendous amount of accumulated experience and expertise and that the Guidelines are sufficiently flexible to be applied to any market, including the idiosyncratic characteristics of electricity markets. By choosing to adopt the DOJ/FTC Guidelines as its own, FERC also minimized potential differences of opinion between it and the antitrust agencies with which it shares jurisdiction over proposed electricity mergers.

FERC has experienced major problems, however, in its attempts to apply its merger policies. The main source of the problem is the same in each case. The appropriate method of applying FERC's merger policy depends critically on the future environment in which the potentially-merged firm is likely to operate. Yet FERC lacks

both the regulatory power required to create those future conditions and the prescience required to predict how they will evolve over time. This problem has manifested itself primarily in two contexts – situations in which a proposed merger is likely to have adverse effects on the performance of a competitive retail electricity market that a state might, or might not, choose to create, and situations in which a proposed merger is likely to have adverse effects on the performance of a wholesale market if but only if the wholesale market is designed in one of several potential ways.

How Can You Apply a Merger Policy Without Knowing the Characteristics of the Markets Potentially Affected by Proposed Mergers?

The proposed merger of Baltimore Gas & Electric with Potomac Electric Power Company was the first case in which FERC encountered the problem of applying its merger policy when a proposed merger would have adverse effects on the performance of a retail electricity market if a state authorizes the creation of such a market, but when the state had not yet decided whether to authorize creation of such a market. FERC's expert witness expressed the well-supported opinion that the proposed merger would create an unduly concentrated retail market. The expert witness for the companies that proposed to merge agreed with that opinion, but he expressed the view that, since FERC did not have the power to create a competitive retail market, FERC should not consider the potential effects of the proposed merger on the performance of such a market unless and until the state or states with the power to create retail markets decided to do so. FERC agreed as matter of policy, and approved the merger because only the State of Maryland had the

power to create a competitive retail market in the area affected by the proposed merger, and it had not done so. (Pierce 1997). A few months later, to no one's surprise, Maryland announced the creation of a competitive retail electricity market. As a result, FERC had approved a merger that all of the expert witnesses before it agreed would have adverse effects on the performance of a newly-created competitive retail market.

The second context in which FERC has encountered serious problems in its attempts to apply its merger policy is the ubiquitous situation in which a proposed merger is likely to have an adverse effect on the performance of a competitive wholesale market, if, but only if, that market is structured in one of several ways in which it might be structured. When FERC announced its initial plan to create competitive wholesale markets, it made no changes in its pre-existing method of pricing transmission. Since FERC's traditional method of pricing transmission produced artificially high transmission prices, it also produced small, highly concentrated wholesale markets. When FERC applied its merger policy to such a market, it determined the geographic scope of the market based on the implicit assumption that FERC would retain its traditional method of pricing transmission. FERC instructed utilities to use a hub and spoke method of defining the relevant geographic market to include only those utilities whose operating areas were adjacent to the operating area of the merged utility or one utility removed from that operating area.

A simple hypothetical will illustrate why this definition of the relevant geographic market makes sense if, but only if, FERC continues to use its pre-existing method of pricing transmission service. (Pierce 1996, Pierce 1997A, Pierce 1999). Imagine utilities Giant, Titan, Tiny, Small 1 and Small 2. Giant is very large and is adjacent to Tiny,

which is very small. Titan is also very large, but it is separated from Giant by Small 1 and Small 2. On those facts, FERC would approve of a proposed merger between Giant and Titan, even though the resulting firm would be very large, because FERC would conclude that Giant and Titan are not in the same geographic market. FERC would disapprove of a proposed merger between Giant and Tiny, however, even though Tiny is much smaller than Titan, because FERC would conclude that Giant and Tiny are in the same small, highly-concentrated market.

That combination of actions would make sense as long as FERC retains its pre-existing transmission pricing policy. Through application of that policy, every market is small and highly concentrated. A merger between Giant and Titan could not have adverse effects on the performance of any market because Giant and Titan could not compete effectively against each other, given the high cost of transmitting electricity across the fictional contract path that includes Small 1 and Small 2. Conversely, a merger between Giant and Tiny would increase significantly the degree of concentration in the already highly concentrated, small market that includes only Giant, Tiny and a few other utilities.

This hypothetical raises an obvious question, however. How long was FERC likely to retain its pre-existing transmission pricing policy in the new environment in which FERC is attempting to create efficiently-functioning competitive wholesale markets? FERC was highly unlikely to retain its pre-existing transmission pricing policy for very long if it could implement a new policy. FERC had acknowledged the severe flaws in its transmission pricing policy repeatedly for almost a decade before it announced its initial restructuring plan, and FERC's pre-existing policy was inherently

incompatible with creation of the large markets that are essential to support effective competition in a wholesale electricity market. (Pierce 1997A).

Any socially-beneficial change in transmission pricing policy that FERC might adopt in the future would increase the size of the wholesale markets in which sellers could compete with each other. With such a new transmission pricing policy in effect, the proposed mergers described in the hypothetical would have very different effects and might well elicit the opposite responses from FERC. FERC would conclude that Giant and Titan participate in the same geographic market, and FERC might well conclude that their proposed merger would create an undue increase in the concentration of that market. By contrast, FERC almost certainly would conclude that the proposed merger of Giant and Tiny would not create an intolerable increase in the degree of concentration of the then much larger and less concentrated market in which they compete with each other.

Of course, FERC could not make a well-informed decision with respect to the likely future effects of any proposed merger without knowing the transmission pricing regime that would exist in the future, since the size of the wholesale market relevant to any proposed merger of electric generating companies depends critically on the method that is used to price transmission. For reasons that will become apparent as I describe the status of FERC's ongoing attempts to restructure the market to support wholesale competition, FERC still does not know, and can not know, what transmission pricing policy will be in effect in the U.S. in the near future.

FERC's Efforts to Change Transmission Pricing

Shortly after FERC announced its initial restructuring plan and its hub and spokes method of defining geographic markets relevant to proposed mergers, it began an effort to change its transmission pricing policies in ways that would be much more conducive to creating competitive wholesale markets but that were inconsistent with its hubs and spokes method of defining geographic markets relevant to proposed mergers. Once FERC achieved some success in implementing its new transmission pricing policy, FERC adopted a new method of determining the geographic scope of a market relevant to a proposed merger that provides a better fit with its new transmission pricing policy. Unfortunately, by then FERC had applied its hub and spokes methodology as the basis for its actions in several merger cases. Before I turn to a description of FERC's current method of determining the geographic scope of a wholesale market relevant to a proposed merger, however, I need to discuss two other structural impediments to FERC's efforts to create efficiently-functioning competitive wholesale markets.

Shortly after it announced its initial restructuring plan, FERC recognized two major structural impediments to its attempt to create efficiently-functioning competitive wholesale markets. First, vertical integration of the transmission and generating functions created an environment in which the many utilities that performed both functions had a powerful incentive to favor sales of their own generating capacity over sales of the generating capacity of their competitors and in which it was extraordinarily difficult for FERC to enforce any duty to provide third parties nondiscriminatory access to transmission lines. (Pierce 1994). The logical solution to that problem was to require all utilities to deintegrate their transmission and generating assets, but FERC lacked statutory power to require utilities to take that action, and only a minority of utilities responded

favorably to FERC's gentle urgings by voluntarily spinning off their generating assets from their transmission assets. Second, the balkanized ownership and control of the three integrated transmission grids was a major obstacle to implementation of any new transmission pricing policy that would be compatible with FERC's attempt to create effectively competitive wholesale markets. (Joskow 2004, Pierce 1997A, Pierce 1999). The logical solution to that problem was to require consolidation of ownership of all the transmission assets that comprised each of the integrated grids into a single firm, but that action was also beyond FERC's statutory powers.

FERC's Efforts to Overcome Structural Barriers to Restructuring—ISOs and RTOs

FERC attempted to overcome the two major structural obstacles to its creation of competitive wholesale markets by urging utilities to adopt a second best solution. FERC urged utilities to create Independent System Operators (ISOs). (FERC 1999). An ISO controls all of the transmission lines owned by its members and operates a competitive wholesale market in the area covered by those lines. FERC believed that it lacked the power to require utilities to create ISOs, so it used a variety of carrots and sticks to encourage utilities to form ISOs voluntarily. By the end of 1999, FERC had succeeded in encouraging utilities to form five ISOs – one in California, one in Texas, one in New York, one in New England, and one in the middle atlantic states (referred to as PJM because it includes Pennsylvania, New Jersey, and Maryland.) Each ISO was flawed in some respects, however, and each differed from the others in important respects. The deficiencies in the ISOs and the variations among the ISOs were attributable primarily to

FERC's belief that it lacked the power to require a utility to create or to join an ISO. Since FERC could only encourage voluntary formation of ISOs, it had no practical choice but to acquiesce in the highly imperfect ISOs that utilities proposed to create. (Pierce 1999).

The PJM ISO came closest to furthering FERC's goals. It was by far the largest of the ISOs from its inception. It has since been expanded significantly to include most of the midwest, as well as the mid-atlantic states. Moreover, PJM adopted a transmission pricing system based on locational marginal price (LMP), the pricing system that maximizes the size of a wholesale market. The California ISO was at the other end of the spectrum. It covered only a fraction of the integrated grid that supports provision of electricity service to the western U.S., and it included two characteristics that made it unusually vulnerable to exercises of market power in the form of unilateral withholding of available capacity – a prohibition on long-term contracts and a below market price cap on retail prices. (Joskow & Kahn 2001, Sweeney 2002, Pierce 2002, Wolak 2003, Pierce 2003, Rosenzweig, Fraser, Falk, & Voll 2003).

FERC Returns to Imposition of Pro-Competitive Conditions in Approving Mergers

In 2000, FERC returned to the tactic it had used with some success in the 1980s – use of its merger policy pro-actively to encourage creation of competitive wholesale markets. (FERC 2000). American Electric Power Company (AEP), the largest utility in the midwest, proposed to merge with Central and Southwest Corporation (CSW), a large utility in the southwest. FERC concluded that the proposed merger would create an

unduly concentrated market if the two utilities continued to use the traditional method of pricing their transmission services, but that the merger would not create an unduly concentrated market if the utilities took actions that had the effect of increasing significantly the size of the market relevant to the merger. FERC conditioned its approval of the proposed merger between AEP and CSW on the merged firm's commitment to join an ISO. AEP eventually complied with that condition, over the objections of two of its state regulators, by joining the PJM ISO, thereby creating the world's largest competitive wholesale electricity market – a market that now covers the middle atlantic states and most of the midwest. (FERC 2004A).

FERC's new use of its conditioning power to further its pro-competitive goals suffers from the same serious limitation as its prior attempt to use its conditioning power for that purpose, however. A firm can avoid becoming subject to any pro-competitive condition FERC might impose in an order authorizing the firm to participate in a merger or acquisition simply by declining to propose any mergers or acquisitions. Utilities in the southeast and west would rather refrain from engaging in any mergers or acquisitions than subject themselves to a FERC order conditioning a merger or acquisition on the firm's agreement to expose itself to competition. As a result, the only entities that are engaged in acquisition of significant utility assets in the southeast and west are financial firms that had no pre-existing role in the industry. (Beck 2004, Burr 2004).

At the end of 1999, FERC issued a rule in which it announced another change in its approach to restructuring. (FERC 1999). It renamed ISOs Regional Transmission Organizations (RTOs), defined RTOs to include most of the features of the PJM ISO, and announced its intention to add more carrots and sticks to its efforts to encourage utilities

to join RTOs. FERC then proposed to follow up on its 1999 rule with another rule that would mandate formation of RTOs using a standard market design (SMD) based primarily on the characteristics of the PJM RTO. (FERC 2002).

The California Debacle and the Enron Scandal Derail FERC's Restructuring Efforts

By 2000, it appeared that FERC was well on its way to creating large, effectively competitive wholesale markets across the country. Then came the California electricity crisis and the Enron scandal. (Pierce 2003, Sweeney 2002). Those two events combined to provide the opponents of restructuring – primarily utilities and state regulators in the west and the southeast – the ammunition they needed to stall FERC's restructuring process. Since 2000, FERC has made little progress in its efforts to restructure the electricity market, and it seems to have abandoned its efforts to mandate formation of RTOs based on an SMD, at least for the time being. (Pierce 2005). As a result, the wholesale electricity markets in the southeast and the west continue to be the small, highly concentrated markets that were created by FERC's initial ineffective restructuring rule in 1996.

FERC's New Weapon to Induce Restructuring—Threats to Withdraw Authority to Make Unregulated Wholesales

FERC has not yet abandoned completely its efforts to create effectively competitive wholesale markets, however. In 2004, FERC added a new stick to its arsenal of weapons to encourage utilities to create the RTOs that are necessary to support

effective competition. FERC announced a new test for determining whether a firm has market power for purposes of deciding whether the firm should be authorized to make unregulated wholesales. (FERC 2004). The new test is nearly identical to FERC's test for determining whether a proposed merger will create an undue concentration of power in the market. If the firm fails the new market power test, FERC says that it will withdraw the firm's authority to make wholesales at unregulated prices.

When FERC announced its initial restructuring plan, it included in the plan a market power test for determining whether a firm is authorized to make unregulated wholesales that was extremely easy to meet. (FERC 1996). The new test FERC announced in 2004 is based on FERC's experience with the performance of restructured markets of various types. Not surprisingly, FERC has discovered that small, highly concentrated markets perform poorly because one or more sellers have the ability to exercise market power unilaterally in such markets. By contrast, large markets perform well because even large firms lack the ability to exercise market power in such markets. Thus, FERC's new market power test yields results that are highly sensitive to the geographic scope of the market in which the firm sells.

Of course, the geographic scope of a market depends critically on the transmission pricing policy that applies to that market. Markets that lack RTOs are characterized by high transmission prices that have the effect of creating small, highly-concentrated markets. Markets with RTOs have low transmission prices that create large geographic markets. (Pierce 1999). Thus, not surprisingly, the initial results of application of FERC's new market power test form a clear pattern. Large firms that are not members of RTOs fail the test, while large firms that are members of RTOs pass the test. (Ecker

2004, Strangmeier 2004). FERC obviously hopes that this carrot and stick use of its power to authorize firms to make unregulated wholesales will induce resistant utilities to propose to create new RTOs or to join existing RTOs.

If FERC continues to adhere to its new policy with respect to a firm's eligibility to make unregulated wholesales, utilities in the southeast and west may finally propose to form the large RTOs require to support effective wholesale competition. If a utility "voluntarily" agrees to join an RTO, state regulators who want to block the utility from doing so are unlikely to be successful. Section 205(a) of the Public Utilities Regulatory Policy Act of 1978 (PURPA) authorizes FERC to "exempt electric utilities . . . from any provision of State law, or from any state rule or regulation, which . . . prevents the voluntary coordination of electrical utilities . . . if the Commission determines that such voluntary coordination is designed to obtain economical utilization of facilities and resources in any area." FERC has already made a well-supported determination that any state law or rule that prohibits a utility from voluntarily joining an RTO precludes utilities from engaging in voluntary coordination that would increase the economical utilization of facilities and resources. (FERC 2004A). Thus, the combination of FERC's new test for eligibility to make unregulated wholesales and FERC's application of PURPA section 205(a) has the potential to allow FERC finally to create the large, effectively-competitive wholesale markets it has been striving to create for over a decade. If FERC can accomplish that goal, it will finally know the scope of the geographic markets relevant to a proposed merger. Those markets will be large enough to support many more efficiency-enhancing mergers without increasing unduly the level of concentration of the markets.

Will FERC Complete the Restructuring Process?

Many contingencies could keep FERC from enjoying success in its efforts to complete the restructuring process, however. FERC could lose its nerve and back down from imposition of either its new test for determining which utilities can make unregulated wholesales or its interpretation of PURPA section 205(a) to authorize it to exempt utilities from state restrictions on their membership in RTOs. Even if FERC remains steadfast in the face of tremendous political pressure to change one or both of those policies, utilities in the southeast and west might choose to give up their authority to make unregulated wholesales rather than to subject themselves to real competition by joining an RTO. Finally, Congress could enact a statute that prohibits FERC from coercing utilities and states into acquiescing in FERC's restructuring plan. Legislators from the southeast have repeatedly attempted to persuade Congress to enact such legislation since 2002. (Pierce 2005). Because of these multiple contingencies, FERC still cannot know the size of the geographic market in which a merged utility will participate in the near future.

How Should an Agency Apply a Merger Policy When It Can Not Know the Characteristics of the Markets that Will Be Affected By Proposed Mergers?

Looking backward, I would give FERC an A minus for the merger policies it adopted and applied. It was wise to adopt the DOJ/FTC merger guidelines and then to attempt to apply those flexible guidelines to the unique characteristics of the electricity

market. FERC's inability to predict with confidence the size and nature of the markets relevant to the proposed mergers that it approved was regrettable but beyond FERC's control. I think FERC should have been more conservative in acting on the proposed mergers that came before it during the long period in which it could not (and still cannot) predict the nature and size of the markets that might be affected by those proposed mergers in the foreseeable future. Specifically, I would have preferred an approach in which FERC disapproved a proposed merger if it would create an undue concentration of power in any market that was likely to be created in the foreseeable future as a result of the ongoing process of restructuring the electricity market. FERC rejected that approach and adopted instead an approach in which it approved a proposed merger if it was not likely to create an undue concentration of power in any presently-existing market, even if the proposed merger would create an undue concentration of power in a market that was likely to be created in the foreseeable future. (Pierce 1996, Pierce 1997, Pierce 1999). FERC's approach created the obvious risk that it would allow a merger to proceed that would then have severe adverse effects on the performance of a market that was created by the restructuring process a year or two after FERC approved the merger.

I must admit, however, that I have not been able to identify a single case in which that risk actually manifested itself. I doubt that FERC's use of the hubs and spokes method of determining the geographic scope of a wholesale market relevant to a proposed merger induced it to approve a merger that will create an undue concentration of power in the much larger wholesale markets that FERC has now created in some parts of the country and that it is in the process of attempting to create in the rest of the

country. Similarly, I doubt that FERC's failure to consider the potential effects of a proposed merger on a retail market that a state might create has done any harm.

The proposed merger that most clearly raised that issue – the proposed merger between Baltimore Gas & Electric and Potomac Electric Power Company – was never consummated for reasons independent of FERC's approval of the proposed merger. (The District of Columbia Public Service Commission disapproved the merger.) More broadly, it has become clear that effectively competitive retail markets are extraordinarily difficult to create for reasons independent of the number of electric utilities that provide service in the area in which a state authorizes creation of a competitive retail market. Indeed, many proponents of FERC's restructuring plan, including many that once supported creation of retail markets, now believe that retail markets accessible to small customers are not viable today and are unlikely to become viable in the near future. There are many reasons for this growing belief that have been discussed in detail elsewhere. (Joskow 2000, Pierce 2005). For present purposes, it is enough to note that it is extraordinarily difficult, if not impossible, to design a retail market in which small consumers have a realistic prospect of attaining benefits that exceed the extremely high transactions costs they confront in an attempt to participate in such a market. Of course, all consumers benefit substantially if indirectly from creation of effectively competitive wholesale markets even if some have no practical means of benefiting directly from participation in effectively competitive retail markets.

The serious problems that have arisen in FERC's lengthy and still incomplete process of restructuring the electricity market are attributable to factors other than FERC's merger policy. Basically, Congress gave FERC a mandate to restructure the

market but refused to give FERC the tools required to implement that mandate. To the extent that merger policy has played some role in rendering it difficult to implement a restructuring plan that will allow the country to rely primarily on competition to yield improved results in the electricity market, the problem is that we have had too few mergers, rather than too many mergers. In that respect, the situation has not changed much since Breyer and MacAvoy completed their excellent study of the electricity market in 1974. (Breyer & MacAvoy 1974, pp. 89-121).

The Need for Mergers in the Restructured Market

We still have too many firms that are too small to take advantage of the available economies of scale in generating and wholesaling power. (Bilicic 2003, Bilicic & Connor 2004, Marks 2004). That problem is likely to dissipate if, and to the extent that, FERC is successful in creating large wholesale markets by coercing utilities to join RTOs. The resulting competition will force participants in the generating and wholesale markets to consolidate to the extent required to become efficient participants in those markets. Of course, many of those socially-beneficial mergers cannot take place until Congress takes the long-overdue action of repealing the Public Utility Holding Company Act. (Bilicic 2003). That would still leave us with a very poor industry structure in an even more important context, however. The balkanized pattern of ownership and control of the three integrated transmission grids that support provision of electricity service to the U.S. is continuing to cause severe problems that eventually will doom any

restructuring plan to failure unless they are addressed effectively. (Henney & Russell 2002, Joskow 2004, Pierce 2005).

FERC is attempting to address the problems caused by the balkanized structure of the transmission sector of the industry by inducing utilities to adopt the second best solution of RTOs – entities that control but do not own large portions of an integrated grid. There is increasing evidence that this second best solution addresses one set of problems reasonably well, but that it creates a new set of serious problems. Generally, any legal regime that separates ownership from control of major assets is certain to create problems. The problems that are emerging in the context of electricity transmission include inadequate incentives for anyone to make the investments in new transmission capacity or the expenditures on maintenance of existing transmission assets that are essential both to maintain reliable service and to support newly-created competitive wholesale markets. (Henney & Russell 2002, Joskow 2004, Hirst 2004, Pierce 2005). If we do not solve this problem quickly, we are certain to see a large increase in the incidence of cascading blackouts and the evolution of markets that are so geographically limited by transmission capacity constraints that they will perform poorly and will be extremely vulnerable to unilateral exercises of market power even by relatively small market participants.

In theory, it is easy to identify a solution to this problem. We need to induce the owners of the transmission assets that comprise each integrated grid to engage in the widespread consolidation of ownership required to create a single firm that owns and controls all of the assets that comprise each integrated grid. At the same time, of course, we need to induce each of those vertically-integrated firms to split off into separate firms

all of the generating plants and other assets that they use to participate in the newly-competitive wholesale markets. (Pierce 1994). We then need to give FERC plenary and exclusive power to regulate transmission. Once we take those steps, FERC can adopt a performance-based method of regulating each of the new transmission-only firms that will encourage those firms to make all needed expansions of capacity and maintenance of existing capacity. None of that can happen, however, without enactment of legislation that Congress will not even consider enacting today. I am afraid that the U.S. has no chance of completing a beneficial restructuring of the U.S. electricity unless Congress first enacts legislation that Congress will not consider enacting until the U.S. experiences the large increase in the incidence of cascading blackouts that I see as inevitable without additional major changes in the structure of the market. Ironically, the changes we desperately need today are generally the same changes that Breyer and MacAvoy urged over thirty years ago. (Breyer & MacAvoy 1974).

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