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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)

We should recognize that antitrust law is not another form of regulation. It is an alternative to regulation, which by prohibiting certain allegedly anticompetitive practices, fortifies the competitive process.¹

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¹ Richard D. Cudahy, *The Wearing Away of Regulation: What Remains*, 124 PUB. UTIL. FORT., October 12, 1989. This sentiment extends beyond the realm of energy markets. See Marvin S. Cohen, Remarks at *Deregulation and Expanding Antitrust Liability: A New Battleground For Private Antitrust Litigants*, 53 ANTITRUST L.J. 221, 222 (1984) ("When I was involved with getting the airline industry deregulated, we were quite hopeful that competition would substitute for regulation and that much of the antitrust enforcement would be done by private litigation."); *Consolidation in Telecommunications Industry—Senator Metzenbaum's Views*, 7 TRADE REG. REP. (CCH) ¶ 50,126. ("[F]ederal and state regulation of the telecommunications

As this statement suggests, regulation and antitrust are mistakenly viewed as competing methods for correcting market failures. This view of antitrust and regulation as substitutes suggests that if a market is actively regulated, antitrust should play a minor role and actors within that market to a great degree should be protected from antitrust charges.² In contrast, in markets not traditionally regulated or that are in the process of “deregulating,” antitrust laws are viewed as the primary means of enforcing competition and protecting the market from exercises of market power.³

However, the notion that a dichotomy exists between “regulated markets” and competitive markets subject to antitrust scrutiny fails to grasp the crucial role that both antitrust and regulation play in “deregulated” electricity markets.⁴ The dichotomy between regulation and competition breaks down for several reasons. First, the term “deregulation” is a misnomer.⁵

industry has been and will continue to be a poor substitute for aggressive antitrust review.”); Alfred E. Kahn, *Deregulatory Schizophrenia*, 75 CAL. L. REV. 1059 (1987) (“I agree thoroughly with Judge Breyer that the antitrust laws are not just another form of regulation but an alternative to it—indeed, its very opposite.”); cf. Peter C. Carstensen, *Evaluating ‘Deregulation’ of Commercial Air Travel: False Dichotomization, Untenable Theories, and Unimplemented Premises*, 46 WASH. & LEE L. REV. 109, 116 (1989) (noting that dichotomy of regulation/deregulation “is false with respect to analysis of regulation and deregulation of any industry, and is extremely so with respect to commercial air travel”).

² Defendants commonly express this position via an assertion of the filed rate doctrine and state action immunity. See, e.g., *Keogh v. Chicago & N.W. Ry. Co.*, 260 U.S. 156 (1922) (holding railway company immune from private action because railway had set uniform rates approved by the Interstate Commerce Commission). See also *Parker v. Brown*, 317 U.S. 341 (1943) (holding that a California program regulating the marketing of raisins was immune from antitrust attack). The Supreme Court recently has appeared to adopt the view that where a market has regulatory oversight, antitrust laws should play a secondary role. See *Verizon Communications v. Law Offices of Curtis V. Trinker*, 124 S. Ct. 872 (2004).

³ See, e.g., William H. Read & Ronald Alan Weiner, *FCC Reform: Governing Requires a New Standard*, 49 FED. COMM. L.J. 289, 309 (1997) (“[T]he most practical strategy for those who oppose the current regulatory process may be to fortify gradual deregulation by superimposing strictly enforced antitrust principles upon the current regulatory system.”); Ray S. Bolze, John C. Peirce, Linda L. Walsh, *Antitrust Law Regulation: A New Focus for a Competitive Energy Industry*, 21 ENERGY L.J. 79 (2000) (“With the deregulation of both the electric and natural gas markets, however, the antitrust laws are rapidly gaining importance.”).

⁴ Carstensen, *supra* note 1 at 116 (noting regulation plays crucial role in economic order).

⁵ The notion that the term deregulation is a misnomer has been recognized, but not the notion that regulation and antitrust therefore work as complements. See Cudahy, *supra* note 1. See also Louis B. Schwartz, *Legal Restriction of Competition in the Regulated Industries: An Abdication of Judicial Responsibility*, 67 HARV. L.

Deregulated electricity markets are in fact highly regulated, albeit the regulations in place at the inception of competition differ dramatically from regulations in place prior to the opening of the markets to competition.⁶ Nascent electricity markets have idiosyncracies that make exercises in market power highly likely: they are still subject to natural monopoly tendencies (*e.g.*, transmission of electricity) and consumers of electricity are not responsive to price in the short-term. Because the physical characteristics of the markets make “manipulation,”⁷ and exercises in market power highly likely,⁸ active regulation is essential for the proper functioning of these “deregulated” markets.⁹

Second, properly functioning markets and well-functioning regulations designed to allow such markets to perform are essential for the proper application of the antitrust laws to nascent markets.¹⁰ Antitrust laws fail to adequately protect consumers when markets are first developing, in large part due to the uncer-

REV. 436 (1954); Stephen P. Sherwin, *Deregulation of Electricity in New York: A Continuing Odyssey 1996-2001*, 12 ALB. L.J. SCI. & TECH. 263, 270 (2001) (“The term ‘deregulation’ is a bit of a misnomer in describing the changes occurring in New York’s electric industry. Restructuring of the electric industry may be a technically more accurate description.”); Jeff B. Slaton, *Searching for “Green” Electrons in a Deregulated Electricity Market: How Green is Green?*, 22 ENVIRONS ENVTL. L. & POL’Y J. 21, 23 (1998) (“In truth, the term deregulation is a misnomer; a more appropriate term would be ‘re-regulation.’”).

⁶ See Harry First, *Regulated Deregulation: The New York Experience in Electric Utility Deregulation*, 33 LOY. U. CHI. L.J. 911, 912 (2002) (noting that New York’s electricity market was not deregulated, but in fact New York replaced “one regulatory system with another”).

⁷ It is unclear what “manipulation” means in the context of energy markets. One possibility is that market manipulation means a violation of antigaming provisions of FERC-approved tariffs. See Federal Energy Regulatory Commission, Final Report on Price Manipulation in Western Markets: Fact-Finding Investigation of Potential Manipulation of Electric and Natural Gas Prices, Docket No. PA 02-2-000, at ES-2 (2003), available at Staff Report on Western Markets Investigation, <http://www.ferc.gov/legal/staff-rep-elec.asp> (last visited June 20, 2004) [hereinafter Final Report]. However, no consensus has emerged among legal and economic scholars about what behavior would constitute manipulations.

⁸ See *infra* Part III.

⁹ For examples of actual and potential exercises of market power scrutinized under the antitrust laws, see *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973) (refusing to deliver power over utility’s transmission lines); *United States v. City of Stillwell*, No. CIV-96-196 B, 1998 U.S. Dist. LEXIS 18203, 1998 WL 1120779 (E.D. Okla. 1998) (final judgment) (requiring customers to purchase electricity from the city in order to purchase water and sewer service); *United States v. Enova Corp.*, 107 F. Supp. 2d 10 (D.D.C. 2000) (discussing ability of gas provider to raise prices for gas in California market and thus increase profits on provider’s low-cost electric generation within that state).

¹⁰ Carstensen *supra* note 1, at 117 (“Regulation plays an important role at each of

tainty associated with how the markets might appear at the inception of competition.¹¹ Moreover, antitrust is not a panacea for market woes; antitrust cannot cure all market ills, only those specifically arising from certain conduct by the hands of someone wielding market power or by a group of individuals engaging in price fixing or other anticompetitive agreements. Thus, in the context of “deregulated” industries, both antitrust and regulation are essential conditions for the protection of the competitive process.

California’s inability to successfully establish rules that would foster properly functioning markets led to the demise of its electricity markets. California’s foray into “deregulation” was a noble experiment to determine whether competition could be created in power generation on both a wholesale and retail level. However, the experiment collapsed and quickly cursed the citizens of California with brownouts and rolling blackouts,¹² skyrocketing wholesale prices,¹³ and eventually a bankrupt utility,¹⁴ a flailing utility,¹⁵ and substantial retail price increases.¹⁶ The descent from noble experiment to public folly was the culmi-

the four stages of industrial organization: basic conditions, structure, conduct, and performance.”).

¹¹ Robert R. Nordhaus, *Electric Power Regulation: Making Partially-Deregulated Markets Work*, 54 ADMIN. L. REV. 365, 381 (2002) (noting reasons why the “[e]xercise of market power in partially regulated electric power markets is not readily constrained by antitrust enforcement”). One of the goals of antitrust law is to prevent increases in market power resulting from mergers or anticompetitive behavior. If a market begins with a monopoly, antitrust policy is ineffective.

¹² Kathleen Davis, *Mother Nature K-Os San Diego Market, Price Cap Fervor Stings Like a Bee*, 78:8 ELEC. LIGHT & POWER 1 (2000).

¹³ For example, in December of 2000, prices at wholesale rose to \$1400/MWh, or 20 times the price level of December 1999. William A. Borders, Note, *Learning from the Storm: Lessons for Illinois Following California’s Experience with Electricity Restructuring*, 77 CHI.-KENT L. REV. 333, 347 n.91 (2001).

¹⁴ Pacific Gas & Electric filed for bankruptcy on April 6, 2001. Norman A. Pederesen, *Power Play: California is Constrained in its Ability to Respond to the Energy Crisis by the Doctrine of Federal Preemption*, L.A. LAWYER, Apr. 2002, at 28, available at <http://www.lacba.org/Files/LAL/Vol25No2/1111.pdf> (last visited Aug. 1, 2004). See also Tim Reiterman et al., *PG&E Declares Bankruptcy; State’s Crisis Plan Collapse*, L.A. TIMES, Apr. 7, 2001, at A1, available at 2001 WL 2476433.

¹⁵ Richard D. Cudahy, *Electric Deregulation After California: Down But Not Out*, 54 ADMIN. L. REV. 333, 345 n.47 (2002) (noting that Southern California Edison resisted bankruptcy only after pleas from state officials). See also Michael A. Yuffee, *California’s Electricity Crisis: How Best to Respond to the “Perfect Storm,”* 22 ENERGY L.J. 65, 71 (2001) (noting that capped retail rates combined with escalating wholesale prices caused utility insolvency).

¹⁶ The California Public Utilities Commission eventually ordered a forty to fifty percent rate hike to pay for California’s power needs. See *Rate Hikes Ignite Wide-*

nation of relatively unexceptional conditions that allowed for the exercise of pre-existing market power.¹⁷ Because California's regulatory structure to some degree promoted conduct that would create higher prices, it discouraged other conduct that would have led to price reductions. In hindsight, it was not a question of "if," but "when" market power would be exercised, because the market rules created perverse incentives for market participants and the antitrust laws were powerless to restrain such conduct.

In 2000, as conditions in California became progressively worse, regulators, the public, and utilities searched for someone (besides themselves) to blame for the increasingly poor conditions they were experiencing in their relatively young "competitive" energy markets. With the erupting Enron accounting scandal,¹⁸ and with documents describing trading strategies with such sinister names as "Fat Boy," "Get Shorty," and "Death Star," it seemed as if Californians had indeed found the cause of the crises.¹⁹ Senators from California called for an antitrust investigation of Enron,²⁰ and the Governor of the state proclaimed all Texas utilities, many of which controlled some portion of gen-

spread Protests, Yet Are Unlikely to Resolve Calif. Crisis, PLATTS ELEC. UTIL. WEEK, Apr. 2, 2001, at 1.

¹⁷ Many commentators have characterized the conditions in California as "the perfect storm." See, e.g., Borders, *supra* note 13; Yuffee, *supra* note 15; David J. Hayes, *Energy Again—But With A Kicker*, 16 NAT. RESOURCES & ENV'T 215, 218 (2002) (stating that "an unusual set of circumstances in the western electricity markets arguably has combined in the past year to create 'the perfect storm' that has wreaked havoc in the state"). Others disagree:

That "perfect storm" metaphor irks me to no end. I maintain, and this essay is designed to illustrate, that what brought Enron down—at least as far as we know—wasn't a once-in-a-lifetime alignment of elements beyond its control. Rather, Enron's demise was a synergistic combination of human errors and hubris: a "Titanic" miscalculation, rather than a "perfect storm."

Nancy B. Rapaport, *The Legal Profession: Looking Backward: Enron, Titanic, and the Perfect Storm*, 71 FORD. L. REV. 1373, 1375 (2003). The authors disagree with the view that California's market crisis constituted the perfect anything. In any event, the primary condition that caused the crisis, increasing demand eroding away at excess capacity, was well known before competition even took place. See *infra* Section IV.

¹⁸ See generally Nancy B. Rapaport & Bala G. Dharenj, *ENRON: CORPORATE FIASCOS AND THEIR IMPLICATIONS* (2004).

¹⁹ Michael Liedtke, *California May Seek Enron Remedy*, AP ONLINE, May 8, 2002, available at 2002 WL 20250230 (quoting an attorney representing the state as stating that the Enron memos describing these strategies are "a smoking gun connected to a wagon filled with smoking guns").

²⁰ Dena Bunis, *Senator Calls for Counsel to Investigate Manipulation of California*

eration capacity in California—to be evil.²¹

The primary contention of this Article is that California's failed "deregulation" experiment arose largely from the failure of California to create properly functioning market rules, lack of diligence in market oversight, and the expectation that antitrust law would cure that which it was not designed to cure: market ills cultivated by regulatory rules that legitimized anticompetitive conduct and made that conduct the norm. In the context of the regulatory environment developed in California, this Article examines the merits of allegations that Enron exercised market power in violation of antitrust laws. The key question is whether the exercise of market power was unlawful under sections 1 and 2 of the Sherman Act.²²

This Article begins by examining the competitive conditions of markets and the history of the development of California's wholesale and retail markets. This Article then describes how California's markets functioned, followed by a description of how the initial successes of market mechanisms later became serious market failures. This Article then discusses the allegations against Enron, as well as other potential anticompetitive conduct that might have led to the collapse of the market. This Article concludes that while evidence for the most part is lacking thus far as to antitrust violations by Enron, the evidence does point to failures by California's regulators, utilities, and the Federal Energy Regulatory Commission (FERC) to plan for and guard against exercises of market power. Moreover, some evidence points to potential antitrust misconduct by others, although that

Energy Market, ORANGE COUNTY REGISTER, May 16, 2002; *Senators Want Slew of New Post-Enron Measures, Probes*, MEGAWATT DAILY, May 17, 2002, at 7.

²¹ See Ed Mendel, *Davis Intensifies Attacks on Texas Firms*, SAN DIEGO UNION-TRIB., May 19, 2001, at A3 ("We are literally in a war with energy companies who are price-gouging us," Davis told reporters while responding to Bush's energy plan this week. "Many of those companies are in Texas."). The hostility in California towards Texas generators reached new heights when California Attorney General Bill Lockyer stated, "I would love to personally escort [Enron Chairman Kenneth Lay] to an 8-by-10 cell, that he could share with a tattooed dude who says, 'Hi, my name is Spike, honey.'" Vincent J. Schodolski, *State of Outages Awaits President; Bush, Gov. Davis to Discuss Energy Woes in California*, CHI. TRIB., May 28, 2001, at N6.

²² See Robert B. Martin, III, *Sherman Shorts Out: The Dimming of Antitrust Enforcement in the California Electricity Crisis*, 55 HASTINGS L.J. 271 (2003) (arguing that Sherman Act enforcement by private actors against energy companies would be barred by the filed rate doctrine). While private actors cannot collect treble damages against energy companies, federal antitrust enforcement seeking injunctive relief would not encounter this difficulty.

evidence, to date, is far from conclusive. This Article then suggests methods of regulation that would minimize market abuses, and what roles market regulators and antitrust enforcers would play in such a world.

The implication of this analysis is fourfold. First, regulation and antitrust are complements essential to sensible regulation of power markets.²³ As such, a regulatory failure may expose market flaws that are not remedied by antitrust enforcement. Similarly, antitrust does not protect against exercises in market power in yet-to-be created markets, and regulation is an essential protection against such exercises. Second, the nature of the market structure governs and determines the nature of conduct that is illegal under the antitrust laws. Third, the concepts of “deregula-

²³ By stating that antitrust and regulation are complements in a “deregulated” industry we mean that the traditional view of deregulation—that markets should be left to operate independently with only antitrust as the background rule—is inappropriate here. The proper functioning of a “deregulated” market requires the establishment of proper regulation to cure anticompetitive ills beyond the reach of antitrust laws. Without proper regulation, market failures may exist that are beyond the reach of antitrust. *See, e.g., Verizon Communications v. Law Offices of Curtis V. Trinko*, 124 S. Ct. 872 (2004). In *Trinko*, the Supreme Court refused to extend protection to plaintiffs who alleged that Verizon violated section 2 of the Sherman Act by not providing competing local exchange carriers with access to operations support systems, “a set of systems used by incumbent LECs to provide services to customers and ensure quality.” *Id.* at 876. The Court noted in part that the regulated nature of the market in question was a factor in its consideration of whether to extend section 2 protection to the case at hand:

One factor of particular importance is the existence of a regulatory structure designed to deter and remedy anticompetitive harm. Where such a structure exists, the additional benefit to competition provided by antitrust enforcement will tend to be small, and it will be less plausible that the antitrust laws contemplate such additional scrutiny. Where, by contrast, “[t]here is nothing built into the regulatory scheme which performs the antitrust function,” *Silver v. New York Stock Exchange*, 373 U.S. 341, 358, 10 L. Ed. 2d 389, 83 S. Ct. 1246 (1963), the benefits of antitrust are worth its sometimes considerable disadvantages. Just as regulatory context may in other cases serve as a basis for implied immunity, it may also be a consideration in deciding whether to recognize an expansion of the contours of § 2.

Id. at 881 (citation omitted). The Court went on to note that the problem alleged was better suited to regulatory remedy than antitrust remedy:

Effective remediation of violations of regulatory sharing requirements will ordinarily require continuing supervision of a highly detailed decree. We think that Professor Areeda got it exactly right: “No court should impose a duty to deal that it cannot explain or adequately and reasonably supervise. The problem should be deemed irremedia[ble] by antitrust law when compulsory access requires the court to assume the day-to-day controls characteristic of a regulatory agency.”

Id. at 883.

tion” and “competition” are seriously misleading,²⁴ and the rhetoric of deregulation should instill a notion of regulated competition such that regulators, legislators, and antitrust enforcers understand their roles as being complementary. Finally, the points considered above have serious implications for not only the deregulation of the energy industry in the future, but also the deregulation of any industry where it is hoped that market mechanisms might supplant regulation.

I

HISTORY OF MARKET DEVELOPMENT

A. *The Trend Toward Deregulation*

The movement toward deregulation and the beginning of California’s electricity experiment began at the federal level with the passage of the Public Utility Regulatory Policy Act of 1978 (PURPA) and private integration between utilities.²⁵ While neither of these measures was designed to create competition in wholesale energy markets, the unintended consequence of these two actions was the creation of wholesale power markets and a tremendous incentive for some state legislators to deregulate wholesale power markets.²⁶

Congress passed PURPA in reaction to the energy crises of the 1970s as a measure to decrease the nation’s dependence upon foreign oil reserves, promote a more diversified U.S. energy market, and promote the use of efficient alternative energy resources.²⁷ Under PURPA, investor-owned utilities were required to purchase energy from non-utility qualifying facilities

²⁴ See, e.g., Sherwin, *supra* note 5, at 270 (indicating preference for term electricity restructuring).

²⁵ The Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (1978) (codified in scattered sections of 15 U.S.C., 16 U.S.C., 30 U.S.C., 42 U.S.C., and 43 U.S.C.). See also *Fed. Energy Regulatory Comm’n v. Mississippi*, 456 U.S. 742 (1982).

²⁶ See generally Darren David Bush, *Creating Competition in Electricity Generation: Reconciling the Public Utility Regulatory Policies Act of 1978 with the Energy Policy Act of 1992* (1995) (unpublished Ph.D. dissertation, University of Utah) (on file with author).

²⁷ *Id.* at 35. Utilities during the early 1970s typically sought to construct large-capacity coal or nuclear plants. Construction costs for these plants were substantial, while the marginal cost of energy production for these plants was low. As energy prices soared in the 1970s, utilities were denied recovery on these large capacity plants, creating disincentives for the construction of new generation. See generally *id.*

(QFs)²⁸ at “avoided cost”²⁹ rates that were to be set by state regulation, subject to federal guidelines.³⁰ Utilities were also required to “make such interconnections with any qualifying facility as may be necessary to accomplish purchases or sales.”³¹ In short, utilities were required to buy power from QFs and interconnect the QFs to the utility grid.³² The rates, while designed to equal the utility’s avoided cost, were in many states—including California—much higher than the utility’s avoided cost.³³ The inflation of the avoided cost rate was designed to promote growth in energy-efficient generation, but at the same time increased retail rates beyond what they would have been had the utility built its own generation. As a result, states like California, New York, and others faced excessive retail rates because of the inflated avoided cost calculations they undertook.³⁴

The intent behind the avoided cost rate scale and interconnection requirement was not to develop competition in wholesale power generation, but rather to protect privileged QFs from the monopsony power of the utility.³⁵ However, the potential for higher-than-normal profits brought about new entrepreneurial endeavors into the wholesale electricity market. Theoretically,

²⁸ A “qualifying facility” meant meeting federal guidelines for size, operating efficiency, or efficient generation. See 18 C.F.R. § 292.205 (1983).

²⁹ The use of avoided costs as a determinant of electricity rates represents a shift of focus from the seller’s cost to the purchaser’s cost. The QF was paid a rate that (ambiguously) represented the likely costs for both energy and facilities that the utility would have incurred had it produced the generating capacity itself. Since this is an opportunity cost, there is no economic model that can capture its true value. Therefore, states were allowed to set the avoided cost rates themselves. There was a ceiling on the avoided cost rate implied by the congressional statement that these rates would be “just and reasonable to consumers of the utility, in the public interest, and non-discriminatory, or the incremental cost of alternative electric energy.” H.R. REP. NO. 95-1750, at 89 (1978). See also Steven R. Miles, Note, *Full-Avoided Cost Pricing Under the Public Utility Regulatory Policies Act: “Just and Reasonable” to Electric Consumers?*, 69 CORNELL L. REV. 1267 (1984).

³⁰ See 45 Fed. Reg. 12,215 (1980). See also 18 C.F.R. § 292.304(b) (1983).

³¹ 18 C.F.R. § 292.303 (1983).

³² Prior to this, utilities opposed interconnection to independent generators because of fear that increased networking would cause a loss in reliability and compromise the integrity of transmission. Of course, there may have also been the competitive concern about the existence of a competitor on the utility’s grid.

³³ See Bush, *supra* note 26, at 94–99 (noting difficulties with administratively determined avoided cost rates).

³⁴ While FERC was not free to endorse rates in excess of avoided cost, courts have determined that states were not required to keep QF incentives at the avoided cost rate. See STEVEN FERREY, *LAW OF INDEPENDENT POWER: DEVELOPMENT, COGENERATION, UTILITY REGULATION* 7-19 (1989).

³⁵ Bush, *supra* note 26, at 45-46.

however, incentives for entry only existed up until the point that the new generator's marginal costs equaled those of the utilities, and the traditional barriers to entry in electricity still existed for non-QFs.³⁶ Nonetheless, because avoided cost rates were set at levels that exceeded the QFs' marginal costs, and often times even above the marginal cost that would have been incurred by the utility had it provided the generation itself, potential QFs were enticed by the chance to earn short-term economic profits.³⁷ The potential for high profits, along with an ineffective system for identifying QFs,³⁸ fostered inefficient entry by producers seeking to provide capacity.³⁹ Because of PURPA, competition, in a loose sense, now existed between the utility and the QF for the generation of the utilities' energy needs.⁴⁰

While QFs were induced to provide generation needs for the utilities, the utilities were increasing the level of integration between and among themselves. In the early stages of electricity production, utilities generally were geographically isolated and disconnected, requiring utilities to supply their own generation needs. However, some utilities were able to buy a portion of their requirements from other utilities, although generally gener-

³⁶ *Id.* at 89-90.

³⁷ See *infra* Part III.

³⁸ There were many complaints that generators were attaching cogeneration sources to their power plants merely to obtain the ability to require the utility to purchase power from them. These questionable QFs were called "PURPA-machines." See William W. Berry, *Competition in the Electric Industry: The Influence of PURPA, PUHCA, and Transmission Access*, 6 NAT. RESOURCES & ENV'T 32 (1991). Cf. Douglas Gagax & Kenneth Nowotny, *Competition and the Electric Utility Industry: An Evaluation*, 10 YALE J. ON REG. 63, 77 n.36 (1993) ("A PURPA machine is a QF which would not exist except by virtue of the requirement that a utility purchase the power it creates. Such QFs are totally in contravention of the idealistic and optimistic purposes of the Public Utilities Regulatory Policy Act of 1978.").

³⁹ Because traditional rate regulation coupled with the existence of overpayment to QFs fostered exceptionally high energy prices in California, the authors do not advocate for a return to rate regulation. It is important that policy makers in the midst of economic crisis remember the underlying reasons for the change to "deregulated" markets. In most cases, "deregulation" is motivated by a poorly functioning regulatory scheme. However, many have advocated for a return to traditional rate regulation in California. See, e.g., Gregory Palast, *Utilities Need Regulation*, WASH. POST NAT'L WEEKLY EDITION, Feb. 5-11, 2001, at 22 ("The only solution to the deregulation debacle is swift, honorable, and complete withdrawal" and the cure for deregulation is a return to regulation.).

⁴⁰ Bush, *supra* note 26, at 32. In fact, it could be considered "competition with an uneven playing field," since QFs were granted a guaranteed market under the PURPA rules. *Id.* at 31.

ation was not bought and sold between utilities.⁴¹ Thus, severe and prolonged blackouts could occur where an intrastate transmission line or major generation station was forced off-line. Moreover, the importation of energy could not take place due to the lack of substantial interconnection between utilities. This self-reliance created a vulnerability that manifested in the form of such tragedies as the “Great Northeast Blackout of 1965,” which affected more than 80,000 square miles and thirty million customers from Buffalo to the eastern border of New Hampshire and from New York City to Ontario.⁴²

In response to the blackout, utilities began to increase interconnectivity in hopes of promoting reliability. In 1968, electric utilities formed the North American Electric Reliability Council (NERC). NERC’s purpose “is to ensure that the bulk electric system in North America is reliable, adequate, and secure.”⁴³ Under NERC, participating utilities and other industry members are organized into ten regional reliability councils,⁴⁴ based upon

⁴¹ AMERICAN BAR ASSOCIATION, *ENERGY ANTITRUST HANDBOOK: A GUIDE TO THE ELECTRIC AND GAS INDUSTRIES 2* (2002).

⁴² It took the Federal Power Commission almost a week to identify the cause of the blackout. Investigators found that the blackout was the consequence of a “cascade” of problems that began when a key transmission line was disconnected as a result of a defective relay at the Sir Adam Beck Station No. 2 in Ontario, Canada. The faulty relay was the impetus for a sequence of escalating line overloads that quickly raced down the main trunk lines of the grid, separating major generation sources from load centers and weakening the entire system with each subsequent separation. On August 14, 2003, the midwest and northeast U.S. and portions of Canada experienced an enormous blackout that affected at least 50 million people. See U.S.-Canada Power System Outage Task Force, *FINAL REPORT ON THE AUGUST 14, 2003 BLACKOUT IN THE UNITED STATES AND CANADA 1* (2004) available at <http://www.ferc.gov/cust-protect/moi/blackout.asp> (last visited Aug. 1, 2004). The report identifies, inter alia, the failure of First Energy Corp. to follow NERC standards as a root cause of the blackout’s ability to spread. Thus, unlike the 1965 New York blackout that was caused by physical isolation, the 2003 blackout’s widespread effects were caused by physical interconnection of electric utilities.

⁴³ See North American Electric Reliability Council, *About NERC*, at <http://www.nerc.com/about/> (last visited June 1, 2004). See also *The Electricity Competition and Reliability Act: Hearings Before the Subcomm. on Energy and Power of the House Comm. on Commerce*, 106th Cong. 243 (1999) (testimony of David R. Nevius, Vice President of the North American Electric Reliability Council).

⁴⁴ These reliability councils are known as the Alaskan Systems Coordination Council, the East Central Area Reliability Coordination Agreement (ECAR), the Electric Reliability Council of Texas (ERCOT), the Mid-Atlantic Area Council (MAAC), the Mid-American Interconnection Network (MAIN), the Mid-Continent Area Power Pool (MAPP), the Northeast Power Coordinating Council (NPCC), the Southeastern Electric Reliability Council (SERC), the Southwest Power Pool (SPP), and the Western Electricity Coordinating Council (WECC). These regions comprise the entirety of the continental United States and Canada.

geographic location and physical interconnection.⁴⁵ The interconnection of utilities via regional councils meant that, should a utility suffer the loss of a transmission line or generator, it could replace the power lost with power imported from another utility within the reliability council.⁴⁶ Because each of the participating utilities had surplus capacity (in order to comply with NERC guidelines), neighboring utilities could be relied upon to provide such power. The development of NERC and its regional councils meant that energy could be traded between utilities. Thus, a loose trading platform was developed such that investor-owned utilities could buy and sell power to other utilities. PURPA facilitated this trading by ensuring a steady growth of excess capacity to funnel into the wholesale market. Thus, while PURPA was designed as a way to decrease reliance on fossil fuels by monetarily encouraging the entry of QFs into the provision of wholesale electricity at excessive rates, it became clear that the passage of PURPA and the creation of NERC had inadvertently developed a wholesale energy market.⁴⁷

When political unrest in the Middle East caused extreme fluctuations in crude oil prices,⁴⁸ it became increasingly evident to Congress that the United States needed to further decrease its reliance on fossil fuels. Congress believed that competition would drive wholesale rate reductions, increase innovation, and force utilities to sell electricity at marginal cost.⁴⁹ To this end, Congress passed the Energy Policy Act (EPAAct) in 1992,⁵⁰ which introduced two major changes to the electricity industry: the cre-

⁴⁵ The WECC and ERCOT are electrically isolated from the other NERC Regions, apart from direct current ties over which power flows occasionally (and to a commercially insignificant degree). There are varying degrees of interconnection between the remainder of the NERC regions. Thus, it is said that there is a "Western Interconnect," an "Eastern Interconnect," and a "Texas Interconnect." PETER C. CHRISTENSEN, *RETAIL WHEELING: A GUIDE FOR END USERS* 21-22, fig. 2-4 (3d ed. 1998).

⁴⁶ See Joe D. Pace & John H. Landon, *Introducing Competition into the Electric Utility Industry: An Economic Appraisal*, 3 *ENERGY* L.J. 1, 8 (1982).

⁴⁷ Bush, *supra* note 26, at 133-34.

⁴⁸ The invasion of Kuwait by Iraq in August of 1990 resulted in a significant increase in oil prices. The Department of Energy expressed President George H.W. Bush's concerns about this situation's potential effects on U.S. energy markets in its National Energy Strategy report. See generally U.S. DEP'T OF ENERGY, *NATIONAL ENERGY STRATEGY: POWERFUL IDEAS FOR AMERICA* (1991).

⁴⁹ Bush, *supra* note 26, at 79.

⁵⁰ Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (codified in scattered sections of 15 U.S.C., 16 U.S.C., 25 U.S.C., 26 U.S.C., 30 U.S.C., 42 U.S.C. (1994)).

ation of a new class of generators and required wholesale wheeling.⁵¹

In order to further facilitate competition in wholesale electricity markets, EPAct relaxed the entry barriers created by the Public Utility Holding Company Act (PUHCA) and established a new class of generators called exempt wholesale generators (EWGs).⁵² Generation facilities that met EPAct's requirements⁵³ were not obligated to endure the onerous regulatory standards of PUHCA.⁵⁴ In addition to increasing the possibility of new generation capacity, EPAct also opened transmission by requiring transmission facility owners to accept reasonable requests for wholesale wheeling.⁵⁵ The wheeling requirement opened up the power grid for independent power producers. As the grid opened to generators, so did the ability of generators to

⁵¹ While utilities already had a general requirement under the antitrust laws to not use transmission to maintain or enhance monopoly power, generators still found it difficult to use incumbent utility transmission, as utilities often found reliability or other justifications to preclude such use. *See* *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973). The Energy Policy Act amended sections 211 and 212 of the Federal Power Act to allow FERC to order "mandatory transmission services for the delivery of wholesale power." *See* AMERICAN BAR ASSOCIATION, *supra* note 41, at 24. *See also* Promoting Wholesale Competition through Open Access, Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) (codified at 18 C.F.R. § 385) [hereinafter FERC Order 888]. Since *Otter Tail*, essential facilities cases have been less than successful. *See* *City of Anaheim v. Southern California Edison Co.*, 955 F.2d 1373 (1992) (explaining that the transmission intertie was not an essential facility); *City of Vernon v. Southern California Edison Co.*, 955 F.2d 1361 (9th Cir. 1992); *see also* *City of Malden v. Union Elec. Co.*, 887 F.2d 157, 161 (8th Cir. 1989) (explaining that plaintiff could have reproduced transmission line in question economically). In addition to declining to consider transmission lines as essential facilities, the courts have also been more likely to consider the legitimate business justification arguments of defendants. *See* *City of Groton v. Connecticut Light & Power Co.*, 662 F.2d 921 (2nd Cir. 1981) (explaining that the utility's case-by-case analysis of wheeling requests was reasonable).

⁵² 15 U.S.C. § 79z-5a (2000).

⁵³ Facilities are eligible for EWG status if their generation and transmission facilities are used in wholesale market transactions exclusively. However, EWGs may participate in retail markets outside the United States. Jeffrey D. Watkiss & Douglas W. Smith, *The Energy Policy Act of 1992: A Watershed for Competition in the Wholesale Power Market*, 10 YALE J. ON REG. 447, 472-73 (1993).

⁵⁴ 15 U.S.C. § 79z-5a(e) (2000).

⁵⁵ 16 U.S.C. §§ 824j(a), 824l(a). Requests for wheeling orders were evaluated by the Federal Energy Regulatory Commission (FERC). The FERC established a due diligence standard for granting wheeling orders that involved the consideration of reliability and property rights and licenses that may be needed should the order involve the enlargement of transmission facilities. Watkiss & Smith, *supra* note 53, at 481.

provide wholesale energy to utilities with which they were not directly interconnected.⁵⁶ Together, the two provisions of EAct helped to enhance and make more robust competitive wholesale markets by opening up the market through increased entry and deliverability of power.

FERC furthered the movement toward fully competitive wholesale markets on April 24, 1996, with the issuance of Order 888.⁵⁷ Through this order, FERC attempted to increase competition in the wholesale electricity market by ridding the market of “undue discrimination in transmission services in interstate commerce and provid[ing] an orderly and fair transition to competitive bulk power markets.”⁵⁸ This “open access rule” was designed to foster competitive wholesale electricity markets, unwittingly created by PURPA and stimulated under EAct, by requiring transmission facility owners to afford competitors both point-to-point⁵⁹ and network transmission services⁶⁰ under terms and conditions comparable to those provided to the transmission owner’s own use of the system. These services were to be offered to *all* generation companies through transmission tariffs.⁶¹ The expected results of this design were lower retail prices, increased reliability of service, and open, fair electric transmission services by public utilities.⁶²

FERC Order 888 also suggested the creation of Independent System Operators (ISOs) to facilitate and coordinate open access.⁶³ FERC sought the creation of ISOs as a way to reduce the

⁵⁶ See Watkiss & Smith, *supra* note 53, at 463-64.

⁵⁷ FERC Order 888, *supra* note 51. At the same time, FERC required the formation of an “OASIS” system (Open Access Same-Time Information System) rule. Open Access Same-Time Information System and Standards of Conduct, 61 Fed. Reg. 21,737, 21,737 (May 10, 1996) (codified at 18 C.F.R. § 37) [hereinafter FERC Order 889]. Order 889 established standards of conduct for the emerging electricity markets, and required public utilities to: 1) obtain information about their transmission system for their own wholesale power transactions, such as available capacity, through the OASIS network, and 2) completely separate their wholesale power marketing and transmission operation functions. *Id.*

⁵⁸ FERC Order 888, *supra* note 51, at 21,543.

⁵⁹ Point-to-point transmission service refers to the movement of power from a designated point of receipt (“source”) to a designated point of delivery (“sink”).

⁶⁰ Network transmission service refers to the ability of a customer to designate network load and resources and the dispatches as dictated by economics and reliability.

⁶¹ Cassandra Burke Robertson, *Bringing the Camel into the Tent: State and Federal Power over Electricity Transmission*, 49 CLEV. ST. L. REV. 71, 75 (2001).

⁶² *Id.*

⁶³ FERC Order 888, *supra* note 51, at 21,551 (“[W]e believe that ISOs have great

potential for utilities to benefit their own generation via discriminatory access to the utility's transmission system. By placing control of the transmission system into the hands of an "independent" organization,⁶⁴ the exercise of vertical market power (e.g., the benefiting of generation via use of the utility's monopoly over transmission) could be minimized. ISOs are subject to FERC approval under Order 888 rules, and guidelines for the establishment and implementation of an ISO were provided in the order.⁶⁵

FERC further encouraged the use of ISOs through its issuance of Order 2000 on December 20, 1999.⁶⁶ However, due to how laden the term ISO had become, FERC switched to the less encumbered Regional Transmission Organization (RTO) terminology.⁶⁷ FERC's RTO order sought to promote competition in wholesale markets by eliminating the discriminatory behavior of transmission line owners,⁶⁸ improving operational efficiency, and increasing reliability through the coordination of the RTO. In

potential to assist us and the industry to help provide regional efficiencies, to facilitate economically efficient pricing, and, especially in the context of power pools, to remedy undue discrimination and mitigate market power." The term ISO has given way to the notion of RTOs, although they both have as basic principles the separation of control of transmission assets. Thus, the notion continues to be that the transmission system shall remain independent in operation, such that there will not be discriminatory access given to the transmission owner's generation facilities. See Joseph P. Tomain, *The Persistence of Natural Monopoly*, 16 NAT. RESOURCES & ENV'T 242, 246 (2002).

⁶⁴ FERC Order 888, *supra* note 51, at 21,595.

⁶⁵ *Id.*

⁶⁶ Regional Transmission Organizations, 65 Fed. Reg. 809, 818 (Jan. 6, 2000) (codified at 18 C.F.R. § 35) [hereinafter FERC Order 2000].

⁶⁷ FERC also sought to be broad minded about how an independent transmission entity might look. Typically, two possibilities were given: (1) an ISO, or a non-profit system operator, or (2) a Transco, a for-profit entity. See Joseph P. Tomain, *The Past and Future of Electricity Regulation*, 32 ENVTL. L. 435, 458 (2002).

⁶⁸ Some studies have suggested that utilities engage in discriminatory behavior to benefit their own generation even after FERC Order 888. See, e.g., Narasimha Rao & Richard D. Tabors, *Transmission Markets: Stretching the Rules for Fun and Profit*, ELECTRICITY J. 20, 21 (June 2000).

Data show that certain vertically integrated transmission providers operated so as to foreclose competition on certain days with higher prices, which allowed their merchant function to continue to sell or even increase sales into profitable load areas for prices that the market affiliates were, in all likelihood, able to influence.

Id. See also Severin Borenstein et al., *The Competitive Effects of Transmission Capacity in a Deregulated Electricity Industry*, University of California Energy Institute Working Paper (on file with author) (noting that limited transmission capacity provides firms with incentive to restrict generation-output in order to create congestion).

order to accomplish these goals, FERC set forth, within this order, a plan involving the creation of independent RTOs that would follow the constructs of an ISO, Transco, or another (yet to be defined) framework.⁶⁹ These efforts were to be complemented by the use of demand side management schemes, open and nondiscriminatory transmission services, and pricing rules for renewable energy sources.⁷⁰ The idea was that the “synergistic” effects of this multidirectional approach to market reconfiguration would greatly assist in the full emergence of electricity markets.⁷¹ The focus of policy had changed such that markets were direct results of institutional changes, rather than unintentional side effects, as had been the case with PURPA.

While FERC had encouraged the development of power markets via numerous mechanisms (e.g., wholesale wheeling, and the development of RTOs), it did not attempt to define what efficient wholesale power markets might look like. FERC left the development of market mechanisms up to the states, the utilities, and the reliability councils. Thus, a web of different power markets developed. Power markets developed in California,⁷² Pennsylvania, New Jersey, Maryland,⁷³ New York,⁷⁴ and the New England states.⁷⁵ Less organized power markets⁷⁶ existed in the Midwest, the South, and in Texas.⁷⁷

With the development of difficulties in California, and with increased difficulties arising from “seams”⁷⁸ between different RTOs, FERC finally stepped in and designed market rules that sought to reduce market manipulation and the transaction costs associated with transmitting energy across RTOs. With the intro-

⁶⁹ See FERC Order 2000, *supra* note 66.

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² See Pac. Gas & Elect. Co., 77 F.E.R.C. ¶ 61,077 (1996); Pac. Gas & Elect. Co., 77 F.E.R.C. ¶ 61,204 (1996); Pac. Gas & Elect. Co., 77 F.E.R.C. ¶ 61,265 (1996).

⁷³ See Pennsylvania-New Jersey-Maryland Interconnection, 81 F.E.R.C. ¶ 61,257 (1997).

⁷⁴ See New York Indep. Sys. Operator, Inc., 99 F.E.R.C. ¶ 61,246 (2002).

⁷⁵ See New England Power Pool, 85 F.E.R.C. ¶ 61,379 (1998).

⁷⁶ These latter power markets are not subject to a central clearing price and Independent System Operator control. Instead, purchasers of energy arrange with the utilities to have the power wheeled across the utility transmission lines from a particular point of origin (the generator) to a point of delivery (the demand source).

⁷⁷ Portions of Texas are now subject to retail competition, with tight wholesale power markets. See generally Electric Reliability Council of Texas, Inc., at <http://www.ercot.com> (last visited June 1, 2004).

⁷⁸ “Seams” are the borders of different RTOs. Transportation of power across these seams may be difficult and costly due to differences between RTO rules.

duction of its Standard Market Design Notice of Proposed Rulemaking (SMD NOPR),⁷⁹ FERC sought to eliminate the pitfalls and perils of regulating markets, and also sought to reduce the level of “seams” between functioning markets.⁸⁰

In sum, the movement towards deregulation of the electricity grid on the national level was largely due to the unintended consequences of regulations designed to create energy conservation. The development of a body of law that sought to increase energy efficiency instead fostered inefficient construction of excess generation capacity while it ironically increased retail electricity rates beyond the level they would have been absent legal intervention. PURPA, combined with the interconnection of utilities, created the development of a loose-market mechanism whereby utilities could sell power to one another. The efficiencies that the loose-market system developed were further encouraged by the passage of EPAct so that generators and non-utility sources of power could participate in the market. However, until recently, FERC was a conspicuously absent parent in determining the parameters of market design, leaving states to devise efficient market rules.

*B. The Nature of Overlapping Jurisdictions:
The Regulatory Hot Potato*

FERC’s “hands off” approach to market development, combined with the traditional utility regulatory model, left the state public utility commissions and FERC in odd roles when the states began deregulating their energy markets. On the one hand, states traditionally have had a primary role in the oversight of utilities on a retail and intrastate level.⁸¹ In other words, states traditionally had jurisdiction over retail rates, the distribution of electricity, and the intrastate generation and transmission of elec-

⁷⁹ Remedying Undue Discrimination Through Open Access Transmission Service and Standard Electricity Market Design, 67 Fed. Reg. 55,452 (August 29, 2002) (codified at 18 C.F.R. § 35) [hereinafter FERC SMD NOPR].

⁸⁰ *Id.* at 55,455, ¶ 6.

⁸¹ In the early stages of electricity, the states were the sole regulators of electric utilities, as most utilities did not expand beyond the confines of a state. As utilities began to consolidate, utility ownership crossed state lines. Given state inability to intervene in interstate commerce matters, consumers were left without regulatory protection until federal intervention under the New Deal. See *Public Util. Comm’n v. Attleboro Steam & Elec. Co.*, 273 U.S. 83 (1927); see also Clinton A. Vince & John S. Moot, *Federal Preemption Versus State Utility Regulation in a Post-Mississippi Era*, 10 ENERGY L.J. 1, 9-10 (1989).

tricity. In contrast, FERC traditionally has jurisdiction over interstate generation and transmission of electricity. The utility has been caught between the Scylla of FERC and the Charybdis of state regulators. For example, in California, utilities found themselves in serious financial difficulty arising directly from being caught between state and federal regulators.⁸²

Utility regulation was traditionally a state matter.⁸³ The use of state governments as electric utility regulators was sufficient for the infancy period of the electricity industry. However, state regulation fell short upon the development of the interstate utility holding company. This form of utility ownership eventually became so popular in the early 1900s that by 1932, seventy-five percent of all electricity produced and sold in the United States was controlled by only sixteen utility holding companies.⁸⁴ At the same time, state governments had no jurisdiction over interstate commercial activity,⁸⁵ and therefore were afforded no control over the rising utility rates resulting from the increased market power garnered through interstate combinations.⁸⁶

To gain control over rising retail rates and increased investment activity⁸⁷ practiced by the concentrated utility holding com-

⁸² The difficulties of the utilities arise from California's receiving from FERC exactly what it wished. FERC pretty much accepted whatever California proposed in terms of market design. And it was California's decisions that prevented hedging in wholesale markets by the load serving entities while capping retail rates. See Borders, *supra* note 13, at 347-48. FERC's reluctance to reverse the structure that California itself imposed was likely the result of concern about how changes in the market structure might exacerbate the crisis.

⁸³ Vince & Moot, *supra* note 81, at 9-10.

⁸⁴ See Rudy Perkins, *Electricity Deregulation, Environmental Externalities and the Limitations of Price*, 39 B.C. L. REV. 903, 999 n.36 (1998) (citing JOHN E. KWOKA, JR., *POWER STRUCTURE: OWNERSHIP, INTEGRATION, AND COMPETITION IN THE U.S. ELECTRICITY INDUSTRY* 3-4 (1996)).

⁸⁵ See, e.g., *Attleboro Steam & Elec. Co.*, 273 U.S. at 83 (holding sale of electricity across state lines interstate commerce). The inability of state regulators to regulate beyond state boundaries became known as the "Attleboro gap" — absent federal regulation, which did not come until 1935, the utilities were beyond the reach of any regulatory authority. David G. Pettinari, *You Can't Always Get What You Want—Will Two Recent State Court Decisions Tarnish the Political Promise of Electricity Industry Deregulation?*, 76 U. DET. MERCY L. REV. 501, 513 (1999).

⁸⁶ See Joseph P. Tomain, *The Dominant Model of United States Energy Policy*, 61 U. COLO. L. REV. 355, 359 (1990).

⁸⁷ In particular, holding companies engaged in pyramid-type schemes with their securities and the securities of their operating companies. See Raymond F. Gordon et al., *Public Utility Underwriting Costs and Regulatory Climate: An Examination of PUC and SEC Multiple Jurisdictions*, 10 YALE J. ON REG. 17, 27 (1993) ("As part of the pyramiding process, securities of operating companies were exchanged for securities of holding companies. Furthermore, additional securities were issued by hold-

panies, Congress passed two federal laws to implement the Commerce Clause: PUHCA⁸⁸ and the Federal Power Act (FPA).⁸⁹

The purpose of federal intervention into the realm of energy was to close the gap created by state inability to regulate energy transported in interstate commerce and an absence of federal regulation. This regulatory gap gave expanding regional interstate utilities free reign in their method of operation and investment decisions. To regulate investment activities, Congress passed PUHCA.⁹⁰

Under the FPA, Congress conferred authority over interstate wholesale electricity transmission and wholesale sales.⁹¹ In 1977, Congress renamed and reengineered the FPC (dubbing the agency FERC). FERC's jurisdiction is essentially an electron flow test. Thus, transactions between two utilities in a single state are FERC-jurisdictional because electrons could flow across state lines.⁹² In contrast, the jurisdiction of state regulators includes retail transactions, such as the setting of retail rates, rate changes, interim retail rates, "the construction and siting of gen-

ing companies taking advantage of the pre-Depression speculation fervor."). The holding companies also had friendly relations with investment bankers, who provided capital at will. *See* S. REP. NO. 74-621, at 56-57 (1935) ("[I]nvestment bankers not only furnished financial aid when requested by holding companies, but solicited it and came to depend upon holding companies for business.").

⁸⁸ 15 U.S.C. §§ 79-79z-6 (2000).

⁸⁹ 16 U.S.C. §§ 791a-828c (2000).

⁹⁰ "[PUHCA's purpose] was to eliminate the evils then existing in public utility holding companies, and to protect the public from the abuses inherent in them as they were then constituted." *American Natural Gas Co. v. U.S.*, 279 F.2d 220, 224 (Ct. Cl. 1960). "The object sought by [PUHCA] is the elimination of abuses in the public utility holding company field." *North American Co. v. Sec. Exch. Comm'n*, 133 F.2d 148, 154 (2d Cir. 1943), *aff'd*, 327 U.S. 686 (1946).

⁹¹ The FPA required that the FPC "provide effective federal regulation of the expanding business of transmitting and selling electric power in interstate commerce," thereby closing the Attleboro gap. *Gulf States Utilities Co. v. Fed. Power Comm'n*, 411 U.S. 747, 758 (1973). Section 201(b) of the FPA gave FERC jurisdiction over "the transmission of electric energy in interstate commerce [and] the sale of electric energy at wholesale in interstate commerce." 16 U.S.C. § 824(b) (2000).

⁹² *Connecticut Light & Power Co. v. FPC*, 324 U.S. 515, 529 (1945); *FPC v. Florida Power & Light Co.*, 404 U.S. 453 (1972). Of course, electrons run like water, and it is impossible to determine in reality which electrons are flowing where. *See* *Jersey Cent. Power & Light Co. v. FERC*, 319 U.S. 61, 71 (1943). Because of this reality, the majority of transmissions can be considered interstate transmission. *See* Donald F. Santa, Jr. & Clifford S. Sikora, *Open Access and Transition Costs: Will the Electric Industry Transition Track the Natural Gas Industry Restructuring?*, 15 *ENERGY L.J.* 273, 284 (1994). A counterexample is the Electric Reliability Council of Texas (ERCOT), which is electrically islanded from the rest of the United States.

eration and transmission facilities, distribution, and interstate transmission.”⁹³

Thus, while California was able to regulate its power markets on the retail level, the wholesale power market established by California was subject to FERC approval.⁹⁴ The reason for the distinction was that California, like most states, is not electrically isolated.⁹⁵ Thus, importation of energy across state lines was required, and therefore FERC approval of California’s wholesale market was required. At the same time, California could establish its retail rates without federal approval. Thus, a regulatory gap still existed, despite the elimination of the traditional Attleboro gap.⁹⁶ The gap that existed in California’s regulation, of course, had more serious consequences.⁹⁷

The tension between state and federal regulation can be seen in New York’s challenge to FERC’s assertion of jurisdiction over certain components of retail rates.⁹⁸ Under Order 888, FERC required the functional unbundling of wholesale and retail transmission services.⁹⁹ It also required open access on unbundled retail transmission in interstate commerce, but did not so require for bundled retail transmission rates.¹⁰⁰ New York had asserted that retail wheeling transactions were subject to only state jurisdiction. The Court disagreed, and held that FERC’s exercise of jurisdiction over retail rates that affected interstate commerce was valid, and its decision to decline to assert jurisdiction over the transmission portion of bundled rates was permissible. The Court also said that FERC could assert jurisdiction over the

⁹³ Santa & Sikora, *supra* note 92 at 284.

⁹⁴ Timothy P. Duane, *Regulation’s Rationale: Learning from the California Energy Crisis*, 19 YALE J. ON REG. 471 (2002).

⁹⁵ Also, California increasingly relied on external generation to meet load. Generation construction has traditionally been limited in California due to environmental and siting regulations. See Mike Stenglein, *The Causes of California’s Energy Crisis*, 16 NAT. RESOURCES & ENV’T 237, 273 (2002) (“No power plant applications were filed with the California Energy Commission between 1994 and 1998, largely because there was so much uncertainty during the restructuring of the electricity industry. Add to this ‘period of uncertainty’ considerations regarding the capital-intensive nature of generation facility construction and the often extended process of regulatory approval for new power plants in California—and you have another key contributing factor to shortage of electricity supplies.”).

⁹⁶ See FERC SMD NOPR, *supra* note 79, at 55,455, ¶ 6.

⁹⁷ See *infra* Section III.

⁹⁸ New York v. Fed. Energy Regulatory Comm’n, 535 U.S. 1 (2002).

⁹⁹ *Id.* at 11-12.

¹⁰⁰ *Id.* at 12.

transmission period of bundled retail rates.¹⁰¹ The result, it appears, is increasing federal regulatory activity in areas traditionally thought of to be within the jurisdiction of state regulatory authorities.¹⁰²

The resulting integration of utility networks, and the impact that intrastate generation and transmission decisions might have on an interstate level has led to an increase in FERC authority over wholesale and retail power markets.¹⁰³ At the same time its power had been expanding, FERC deferred authority over wholesale power markets to the states.¹⁰⁴ As a result, some states designed wholesale power markets that soon were beyond their control. In California, this had significant effects. Following the California crisis, the trend has been towards greater federal intervention into state-specific power markets. As mentioned above, FERC has jurisdiction over unbundled retail transmission rates.¹⁰⁵ The Supreme Court's pronouncement that FERC could invade bundled retail markets has emboldened FERC. Recently, FERC promulgated its SMD NOPR that requires energy markets to have certain characteristics that FERC has found to be procompetitive.¹⁰⁶ Unfortunately, this increased federal intervention came much too late to save California from crisis.

C. California on the Forefront of Deregulation

California was arguably the first state to establish a tight power market at the wholesale level, and was also a pioneer in establishing retail competition. The process of establishing those markets, however, reflects the tension between state and federal jurisdiction and competing political motivations.

¹⁰¹ *Id.* at 27-28.

¹⁰² See Laura Duos, Comment, *Order 888: Has the Federal Energy Regulatory Commission Invaded the States' Jurisdictional Territory?*, 54 ADMIN. L. REV. 1213, 1233 (2002).

¹⁰³ Of course, wholesale power markets directly and significantly impact upon retail power markets, simply because wholesale prices are usually passed through to retail customers. California's refusal to allow its utilities to pass-through increasing wholesale power cost was a perverse exception.

¹⁰⁴ See Martin, *supra* note 22, at 306 (noting that FERC "thought it could wait for the competitive electricity market structure to be fully in place before developing effective monitoring actions").

¹⁰⁵ *New York v. Fed. Energy Regulatory Comm'n*, 535 U.S. 1 (2002).

¹⁰⁶ See *Pennsylvania – New Jersey – Maryland Interconnection*, 81 F.E.R.C. ¶ 61, 257 (1997).

In 1995, California's Public Utilities Commission (CPUC) faced pressure from both industrial customers and other consumers of electricity to lower rates within that state.¹⁰⁷ California's residents were paying on average fifty percent more for electricity than the rest of the country,¹⁰⁸ and predictions for future market fluctuations did not indicate that any relief was in sight. In reaction to these high prices, many of the commercial and industrial consumers were threatening to go off the California electricity grid and import directly for their load or self-generate. Many had also threatened to relocate to states with cheaper electricity costs.¹⁰⁹

Under these immediate conditions and with the confidence of success instilled by the initial results in Great Britain,¹¹⁰ California began blueprinting its steps toward competitive wholesale markets, confident that the use of an ISO would solve all of California's electricity woes, and put the state at the forefront in the race to deregulate. In December 1995, the CPUC prescribed a broad scheme for restructuring,¹¹¹ including an ISO and a central power market called the PX, both of which fell under the juris-

¹⁰⁷ Dan Morain, *Deregulation Bill Signed by Wilson*, L.A. TIMES, Sept. 24, 1996, at A3 ("California has moved faster than other states because of pressure from large industrial users.").

¹⁰⁸ *Id.* See also Severin Borenstein & James Bushnell, *Electricity Restructuring: Deregulation or Reregulation?*, 23(2) REGULATION 46, 47 fig. 1 (2000) (California average retail electricity price was nine cents per kilowatt-hour in 1998, nearly two cents more than the next highest retail price paid on average in the western states), available at <http://www.cato.org/pubs/regulation/regv23n2/boren.pdf> (last visited June 20, 2004).

¹⁰⁹ See Duane, *supra* note 94, at 489, explaining that:

The prospect of leaving the grid altogether to sign a deal with an unregulated generator became very enticing. Self-generation was also an option, leading utility planners to worry about a "death spiral" of ever-increasing rates as industrial customers exited the system leaving only those who could not afford to exit.

See also Larry Foster & David Dodson, *In Dramatic Step, CPUC Proposes Speedy Move to Electric Competition*, INSIDE F.E.R.C., Apr. 25, 1994, at 1. The article quoted John Hughes of the Electricity Consumers Resource Council as stating that deregulation

is needed to stop the "economic hemorrhaging" in California as high utility rates drive industrials to relocate elsewhere, generate their own power or seek other options. Electric rates for industrials in California are almost double the national average and close to three times rates charged in some low-cost states, including some of California's neighbors.

Id.

¹¹⁰ See Cudahy, *supra* note 15, at 340 (noting California's plan in part influenced by United Kingdom's deregulatory scheme).

¹¹¹ See generally Richard D. Cudahy, *Whither Deregulation: A Look at the*

diction of FERC. This restructuring plan, presented to the legislature as Assembly Bill 1890,¹¹² was forged from a series of debates conducted under the auspices of the CPUC and the California state legislature. The plan was believed to be the ideal framework for implementing competition in California.¹¹³ The legislation passed unanimously in both houses of the California legislature, and was signed into law by Governor Pete Wilson on September 23, 1996.¹¹⁴

The California model was designed with the primary goal of eliminating market power engendered by vertical integration. The separation of the generation and transmission markets and the eradication of exclusive dealings through the formation of two independent entities, the PX¹¹⁵ and the ISO,¹¹⁶ ensured that no utility could benefit its own generation via use of its transmission assets. First, utilities were required to divest most of their generation facilities.¹¹⁷ Second, market transactions were fun-

Portents, 58 N.Y.U. ANN. SURV. AM. L. 155 (2001). California's deregulation plan was commonly known as the "Blue Book." Duane, *supra* note 94, at 496.

¹¹² In the 1995-96 Legislative session, AB 1890 was signed into California law as chapter 854. See Assemb. B. 1890, 1995-1996 Leg. Reg. Sess. (Cal. 1996) available at <http://www.leginfo.ca.gov/bilinfo.html>.

¹¹³ Debates surrounding California's deregulation at the time largely centered around the best means of implementing deregulation. One method would be the creation of a tight power market comprised of bidding and central dispatch. Another method considered was bilateral trading. Cudahy, *supra* note 15, at 339. Interestingly, a major voice in the debates was Kenneth Lay, the former chairman of Enron. Duane, *supra* note 94, at 496 n.92 (noting that Lay played a prominent role in California's restructuring debate and also that Lay "may have had considerable influence over how FERC handled the California crisis").

¹¹⁴ Assemb. B. 1890, 1995-1996 Leg. Reg. Sess. (Cal. 1996). Wilson proclaimed the end of the electric monopoly and a new era of competition. See RICHARD F. HIRSH, *POWER LOSS: THE ORIGINS OF DEREGULATION AND RESTRUCTURING IN THE AMERICAN ELECTRIC UTILITY SYSTEM* 259 (1999). Some believe the unanimous vote was a sign that legislators lacked understanding of the implications of the bill. Duane, *supra* note 94, at 497.

¹¹⁵ The PX began operations in April 1998 and was shut down in January 2001. Robert J. Michaels, *Venues and Markets: Regulating Competitive Electricity in the West*, 22 ENERGY L.J. 335, 340 (2001). The ISO is still in operation as of the date of this Article's publication. The PX filed for bankruptcy in March 2001. *Id.* at 340 n.15.

¹¹⁶ AB 1890 included a provision for the recovery of stranded costs called the "competition transition charge." Stranded costs were defined as "past capital investments, including power plants and other generating assets" that were inadequate or obsolete as a result of the shift to competitive electricity markets. See Colin Druker, *Economic Consequences of Electricity Deregulation: A Case Study of San Diego Gas & Electric in a Deregulated Electricity Market*, 36 CAL. W. L. REV. 291, 296 (2000); see also Duane, *supra* note 94, at 501.

¹¹⁷ The utilities were required to sell the energy produced from their remaining

neled solely through the PX, meaning that all generators were required to bid generation into the PX, and all utilities were required to secure power through the PX.¹¹⁸ This insured that the PX would be liquid, but also eliminated the ability of the utilities to hedge volatility through ownership of generation or long-term contracts.¹¹⁹

PX clearing prices were revealed to all market participants, and all generators received the clearing price.¹²⁰ All purchasers, of course, paid that same clearing price.¹²¹ Thus, the PX prices were transparent, although the bid of each generator was not. Moreover, this market was constructed in such a way as to eliminate market power in terms of both the buyer and the seller. Sellers were limited in the exercise of market power to raise price, in theory, by excess capacity ready to displace a generator attempting to exercise such power. Buyers could also not exercise market power to reduce price via a requirement to meet demand with purchases from the PX or, in some minor cases, with generation.¹²²

The PX conducted market transactions through a double-auction procedure, meaning that it coordinated supply bids submitted by generators with demand bids tendered by load serving entities to calculate the market clearing price and quantity for the day-ahead market.¹²³ The bids submitted by generators were in the form of a twenty-four-hour schedule. For each hour, the PX determined an aggregate price and quantity (MWh) based on the price offered by the marginal generation unit that met the

generation plants into the PX. Joseph Perkins, *California Power Crisis*, SAN DIEGO UNION-TRIBUNE, Jan. 26, 2001, at B7, available at 2001 WL 6439470.

¹¹⁸ Ashutosh Bhagwat, *Institutions and Long-Term Planning: Lessons from the California Electricity Crisis*, 55 ADMIN. L. REV. 95, 110 (2003).

¹¹⁹ Stenglein, *supra* note 95, at 239. See James Dukart, *The Aftermath: Where to Now?*, UTIL. BUS., Mar. 1, 2001, at 51, available at 2001 WL 11848905 (noting state prohibited bilateral contracts); Laurence D. Kirsch & Rajesh Rajaraman, *Assuring Enough Generation: Whose Job and How to Do It*, 139 PUB. UTIL. FORT., Apr. 15, 2001, available at 2001 WL 10544658 (noting that the "restructured market design virtually prohibited the regulated utilities from entering into longterm contracts"). Eventually, the utilities were allowed to engage in bilateral contracting, but only after the bilateral contract price converged with the spot market price at extraordinarily high levels. See *infra* Section IV.F.

¹²⁰ "The PX operated hour-ahead energy, day-ahead energy and block-forward markets." Nordhaus, *supra* note 11, at 384 n.61.

¹²¹ Duane, *supra* note 94, at 499-500.

¹²² *Id.*

¹²³ *Id.*

predicted demand capacity.¹²⁴ The marginal generation unit was determined by sequencing the generation bids from lowest to highest, based on per unit price.¹²⁵

Load was again forecast on the relevant day, two hours in advance of the need to call upon generation. One hour before the time at which generation was needed, a clearing price was established based upon the demand needed in this hour-ahead market and the bids submitted by generators. As was the process in the day-ahead market, bids were accepted in order of least-cost up until demand was met.¹²⁶

Finally, a real-time market was controlled by the ISO for the purposes of balancing small, real-time deviations of actual load from forecasted load.¹²⁷ In other words, this feature allows the ISO to adjust for excess capacity or excess demand as the market fluctuates with passing time.¹²⁸ This real-time market was necessary in order to balance supply and demand. The California ISO also operated an ancillary services market. The ancillary services market adjusted power supply in response to unplanned events. Depending on the type of ancillary service, the power could be brought instantaneously or within ten minutes to an hour.¹²⁹ If called upon to operate, they also received the real-time market-clearing price.¹³⁰

¹²⁴ *Id.*

¹²⁵ For example, if demand for a certain hour is expected to be 120 MW, then the bid submitted by the generator that, in order of cost, provides 120 MW of power would set the clearing price that all the generators called upon to operate would receive.

¹²⁶ Michaels, *supra* note 115.

¹²⁷ The ISO operated a “real time energy market,” as well as four “ancillary services” markets and two transmission markets—a “congestion market” and a “firm transmission rights market.” See Nordhaus, *supra* note 11, at 384 n.62.

¹²⁸ In the case of excess capacity, generators are relieved of their obligation to supply electricity. When a shortage is detected, marginal generation units are called upon to compensate. See Joseph P. Tomain & Constance Dowd Burton, *Nuclear Transition: From Three Mile Island to Chernobyl*, 28 WM. & MARY L. REV. 363, 373 (1987).

¹²⁹ The ancillary services market is in fact four different markets. Generation within the “Regulation” market could be brought to bear instantaneously, because it is already synchronized with the grid and can respond to minor changes in demand. “Spinning Reserves” are generation units that are synchronized with the grid that can generate power within ten minutes. “Non-spinning” reserves are generation units that are not synchronized with the grid, but could be started and synchronized within ten minutes. “Replacement reserves” are generation units that could be started and synchronized within an hour.

¹³⁰ Duane, *supra* note 94, at 499-500.

Once Assembly Bill 1890 was passed, all utilities¹³¹ were effectively required to purchase their power through the ISO and the PX.¹³² This affected a vast majority of Californians who received their electricity through the utilities. Those with load who did not purchase their power through a utility, such as municipalities, industrial consumers, and commercial consumers, were still able to purchase power outside the PX by signing bilateral contracts with generators or by using the private exchange (APX), but the transmission of that generation would still involve the ISO's centralized system.¹³³

Wholesale electricity prices in day-ahead, hour-ahead, and real-time markets were unconstrained by forces other than the invisible hand.¹³⁴ However, retail rates were capped at ninety percent of the previous year's price.¹³⁵ Retail customers were given the ability to choose their generation providers, but few were motivated to make any changes, as the default service was provided at a capped price.¹³⁶ Because the default service

¹³¹ Municipalities were exempt from this requirement. See Alexandra I. Metzner, *Were California's Electricity Price Shocks Nothing More than a New Form of Stranded Costs?*, 52 AM. U. L. REV. 535, 553 n.101 (2002).

¹³² See *infra* note 225.

¹³³ Customers who purchased power through bilateral contract usually did so because they have relatively significant bargaining power due to the size of their purchases. The ability to work outside the auspices of the PX allowed for the purchase of generation at a price lower than that of the PX. The PX price would act as a price ceiling in the initial formation of bilateral contracts, and would be especially fruitful for the purchaser in that the long-term contracts gave them the ability to avoid the future price increases in the California market.

Municipalities led a "charmed" existence under California's market rules. Municipalities were exempt from the requirement to divest generation, the retail price cap, the requirement to surrender operational control of transmission to the ISO, and the requirement to purchase power from the PX. Cal. Pub. Util. Code § 365 (Deering 2001). Irrigation districts and cooperatives were also exempt. This meant that almost one-third of California's total load was exempt from California's deregulation scheme. See Michaels, *supra* note 115, at 339 n.11 (2001) (noting that municipalities owned 40% of transmission crossing the state line).

¹³⁴ Price caps were not imposed until the crisis had arisen. See *infra* note 220 and accompanying text.

¹³⁵ A.B. 1890 § 854, 1996 Cal. Stat. 854, codified, in relevant part, at Cal. Pub. Util. Code §§ 330-398.5 (Deering 2001). The retail rate cap was set at \$65/MWh. Utilities agreed to the cap in exchange for recovery of their potential stranded costs. See *infra* note 172.

¹³⁶ Retail competition was eventually suspended in California. See Pac. Gas & Elec. Co., No. 01-09-060, 2-4, 8 (Cal. Pub. Utilities Comm'n Sept. 20, 2001), available at http://www.cpuc.ca.gov/word_pdf/final_decision/9812.pdf (last visited June 5, 2004). However, California's retail competition plan had died on the table long before its death was called by the CPUC.

charged the lowest retail price, other load servers were forced to accept the ninety percent price or else be driven out of the market due to competitive forces.¹³⁷ The retail cap, of course, assumed that competition would reduce prices from their pre-deregulation levels. Thus, the price cap acted as a political guarantee to Californians that their electricity rates would either fall or remain constant. The next section discusses the economic basis underlying the belief that electricity rates would fall.

II

THE EFFICIENCY OF ENERGY MARKETS, IN THEORY

Mainstream economic theory of competitive markets dictates that in order for a market to be considered perfectly competitive,¹³⁸ four conditions must hold: (1) the product sold must be uniform across all sellers, or, in other words, consumers are not compelled to choose one producer's output over the other based on product differentiation; (2) there must be many buyers and sellers, such that no one seller's or buyer's actions alone will change the prevailing market price;¹³⁹ (3) all agents participating in the market must have perfect information; and (4) no barriers of entry may exist for sellers considering entering the market.¹⁴⁰ When these particular conditions hold in a market, then the conclusion of the theory is that market forces, compelled by an "invisible hand,"¹⁴¹ will lead the market price to a level that

¹³⁷ Although price caps worked poorly in the California deregulation scheme, they were successful in the case of New York, where the New York Public Service Commission negotiated rate reductions with New York's utilities. *See* First, *supra* note 6, at 916.

¹³⁸ Perfectly competitive markets are considered ideal under the mainstream "neoclassical" approach to economic theory. When the conditions for perfect competition hold for a particular market, then it is said that the market will naturally produce an equilibrium price and production level that optimizes social welfare. DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 56-57 (3d ed. 2000).

¹³⁹ It may, however, only be necessary that the market be subject to "quick hit" entry and exit. *See* WILLIAM J. BAUMOL ET AL., *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* 4-8 (1982). *See also* William J. Baumol, *Contestable Markets: An Uprising in the Theory of Industry Structure*, 72 *AM. ECON. REV.* 1 (1982).

¹⁴⁰ *See* JOE S. BAIN, *INDUSTRIAL ORGANIZATION* 8 (2d ed. 1968) (stating that entry conditions determine "the relative force of potential competition as an influence or regulator on the conduct and performance in a market").

¹⁴¹ *See generally* ADAM SMITH, *AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS* 423 (Edwin Cannan ed., 1937). *See also* EMMA ROTH-

coordinates the desires of both the producers (i.e., supply) and consumers (i.e., demand) of the market.

The amount of the commodity that the producer is willing to supply at a given price in a perfectly competitive market will be dictated by the producer's marginal cost. In other words, given the competitive nature of the market, producers will only be able to sell their commodity at a price that will compensate them for the additional costs incurred by the production of that unit. Any producer who prices her commodity at a level above marginal cost will be pushed out of the market by those selling the same product at the lower (marginal cost) price. Because there are many sellers and buyers, and because the commodity being traded in this market cannot be differentiated between sellers, no possibility exists of charging a higher price than other producers in the market.

Competition essentially puts downward pressure on prices until that point at which the price exactly compensates the seller for the cost of producing that unit. At this market equilibrium, profits are zero, and welfare¹⁴² is maximized. The phenomenon of zero-profit equilibrium is associated with the long run; in the short run it is possible for producers in perfectly competitive markets to earn above-normal profits. For example, an external source that touts the benefits resulting from the use of a certain commodity¹⁴³ may cause a sudden increase in consumer preference for the commodity. This increase in demand will drive the equilibrium price upward, and producers will earn positive economic profit.¹⁴⁴ When an increase in profitability of a particular market occurs, new entrants are induced to enter the market for the chance of garnering a share of the short-run profits. As new producers enter the market, supply increases, driving the equilib-

CHILD, *ECONOMIC SENTIMENTS: ADAM SMITH, CONDORCET, AND THE ENLIGHTENMENT* (2001) (noting Smith's sporadic use of the term).

¹⁴² This economic profit includes both accounting profit and opportunity costs. In other words, when economic profit is zero, the producer is generating exactly enough revenue to pay all sunk costs and per-unit costs, and receives the "normal" rate of return for that industry. See CARLTON & PERLOFF, *supra* note 138, at 239. Economic welfare is the sum of consumer and producer surplus. Consumer surplus is measured as the difference between the prices consumers are willing to pay for each unit of a good and the prices they actually pay (market price). Producer surplus is the difference between the price the producer is willing to charge for each unit of a good and the actual price paid by consumers. *Id.* at 71-72.

¹⁴³ For simplicity, assume the advertising campaign to be costless.

¹⁴⁴ The amount of the increase in economic profit will depend on the elasticity of supply, which is dictated by the nature of the producers' costs.

rium price back down. Producers enter incrementally, as long as there are positive economic profits to be earned in the market, and eventually the price drops back down to the level for which economic profits are zero. In this sense, price acts as a tool of discipline in perfectly competitive markets, and the laissez-faire approach brings about the best possible outcome for both producers and consumers in the market.

In contrast to commodities that might be subject to this perfect vision of competition, electricity has unique features that limit the ability of regulators and market monitors to rely on the traditional aspects of competitive markets. First, generation typically cannot be stored. This means that, absent consumer price responsiveness, the only market mechanism by which to discipline price is additional capacity available to generate at a particular time period. Future capacity, in other words, is not a substitute for present capacity.¹⁴⁵ Second, in order for the grid to function without brownout or blackout, generation and demand must be balanced at all times; no surplus or shortage can exist in the wires. Thus, unlike with other commodities, energy generated in one hour of production is not fungible with energy generated in another hour.¹⁴⁶ In addition, due to the minute changes in demand that occur on a regular basis, excess capacity must be available to respond rapidly to changing demand conditions.¹⁴⁷ This reserve generation is of varying qualities, making some reserve more expensive (and more reliable) than others.¹⁴⁸ Once a generator is running, its power cannot be directed over a particular

¹⁴⁵ The one major exception to this is pumped-storage hydroelectric facilities. These facilities use off-peak power to pump water uphill. During peak demand times, the water is released downhill to create energy. See, e.g., Tennessee Valley Authority, *Hydroelectric Power*, at <http://tva.gov/power/hydro.htm> (last visited June 5, 2004).

¹⁴⁶ See Severin Borenstein, *The Trouble with Electricity Markets: Understanding California's Restructuring Disaster*, 16 J. ECON. PERSP. 191 (2002).

¹⁴⁷ In actuality, generators are typically called upon to run with ten-minute notice. For a discussion of reserve markets, see *Report of the Electric Utility Regulation Committee*, 24 ENERGY L.J. 191, 215 (2003). Regulation service provides for even faster response times through automated generation control, which allows generation units so equipped to have their output increased or decreased on a second-by-second basis to follow load.

¹⁴⁸ Reserves are typically broken down into three categories: spinning, non-spinning, and operational or 30-minute reserve. Spinning reserve refers to generation currently synchronized with the system that is not serving load. Ten-minute non-spinning reserve refers to non-synchronized generation able to become synchronized and serve load within 10 minutes. Thirty-minute reserve refers to generation that is available to serve load within 30 minutes. Spinning reserve is of higher quality than

transmission line. The electricity instead follows the path of least resistance, and thus may flow over numerous transmission lines at once. This creates enormous network problems. A generator brought on to meet additional demand may actually decrease the overall level of generation available to serve demand, as the generator clogs transmission lines and blocks out the power of other generators.

In addition to these nontrivial issues, electricity itself is not a homogeneous product. Specifically, certain generators supply power on a continual basis. These generators are known as "baseload" generators. Nuclear power, coal, hydroelectric facilities, solar, and wind¹⁴⁹ are typical baseload sources in the Northwest.¹⁵⁰ The generators that supply baseload power are not able to "ramp up" or "ramp down" the power that these units supply to any great degree. Other generators supply power during peak periods of demand. These generators are typically natural gas and oil-fired units, and, aside from in the Northwest, some hydroelectric facilities. These units have the ability to ramp up or down fairly quickly, assuring, along with generation-providing ancillary services, that demand and supply are in balance.¹⁵¹

Another aspect of the heterogeneity of electricity is that generators located in particular areas are more valuable than others. As stated above, a generator producing electricity may clog transmission lines and reduce the overall level of generation.¹⁵²

Another characteristic of electricity markets is that the end-user of electricity is typically unable to respond to or know of the

the other two types because the generator is already running, and thus the potential for non-start is minimized. *Id.*

¹⁴⁹ Assuming wind is available.

¹⁵⁰ Elsewhere, some hydroelectric facilities are often used for peaking.

¹⁵¹ Kemm Farney & Ralph Russo, *Electric Power Outlook: The Cost of New Capacity and the Price of Electric Power* (1998), available at <http://www.retailenergy.com/archives/electric.htm> (last visited June 5, 2004).

¹⁵² This point can also be made with respect to transactions that wheel power from another area. See Paul A. Centolella, *The Organization of Competitive Wholesale Power Markets and Spot Price Pools* (1996), available at <http://www.ncouncil.org/pool/htm> (last visited June 5, 2004). Centolella notes:

The total loading of transmission circuits will affect whether a given incremental transaction may contribute to congestion in the transmission system. Congestion in the transmission system may alter the dispatch of other units, preclude other cost-effective power transfers, impact generation reserve requirements or reduce the reserve capacity of the transmission system.

Id.

changes that occur in the price of energy. Demand, in most cases, is inelastic due to a lack of information as to prices.¹⁵³ The consumer rarely faces the fluctuating real-time prices that actually occur with the constant adjusting of wholesale market equilibria through the hour-ahead market, the day-ahead market, and ancillary services markets.¹⁵⁴ Instead, retail electricity prices are fixed at some (arbitrary) average rate. In this sense, too, demand is relatively inelastic. Consumers, not being hit by the increases in price during peak hours, are not forced to adjust their behavior as supply tightens. Thus, because demand is not responsive, and because demand and supply must be equal at all times throughout the system, excess generation must be available. Another result is a high average price due to the volatility of demand throughout any given day, and extreme peaking prices during times of scarcity.

In addition, because demand does not change when prices change, energy markets rely upon excess capacity from generation sources to discipline price. There are three difficulties with the use of excess capacity to discipline price. First, generation sources have different marginal costs.¹⁵⁵ The reason why generators are different is due to the physical characteristics of each plant. A generator may use a different fuel type than its next best substitute, ensuring differences in input costs. Second, even if two generators use the same primary fuel, the plants may have

¹⁵³ There are a few exceptions. In California, the ISO had contracts with larger industrial concerns to cut power usage. Such customers receive power on an “interruptible basis” and are compensated for the interruption. However, most consumers of electricity are unwilling to receive power on that basis. However, it is conceivable that demand, with proper metering to allow customers to determine price in a particular hour, might be elastic. See Severin Borenstein & Stephen P. Holland, *Investment Efficiency in Competitive Electricity Markets With and Without Time-Varying Retail Prices*, (U. Cal. Energy Inst. Working Paper No. CSEMWP-106R, 2003), available at <http://www.ucei.berkeley.edu/ucei/pubs-csemwp.html> (last visited June 5, 2004).

¹⁵⁴ There were some exceptions to this. Some industrial consumers entered into contracts with ISOs where, if the real-time wholesale market price of electricity rose above an agreed upon level, the ISO would pay the industrial consumer to cut back their demand.

¹⁵⁵ Peter Navarro & Michael Shames, *Electricity Deregulation: Lessons Learned from California*, 24 ENERGY L.J. 33, 35 (2003) (explaining that “market participants will have different marginal costs of production which reflect factors such as the vintage and efficiency of a given plant and its fuel source, e.g., a new natural gas-fired, combined cycle combustion turbine will produce power at a substantially lower marginal cost than an older vintage plant”).

different heat rates.¹⁵⁶ Thus, one generator using natural gas may require more fuel to produce the same amount of energy that another generator using the same gas may require. Third, each generator may affect transmission differently and may therefore possess different congestion costs. Therefore, since generators have different marginal costs, the ability of a generator to discipline the price charged (or the bid) of another generator is limited.¹⁵⁷

In sum, energy markets have unique characteristics that foreclose them from operating like other markets. Electricity supply and demand must be balanced at all times. Because demand is unresponsive to price, the only mechanism to discipline price in times of scarcity is additional capacity.¹⁵⁸ If excess capacity does not exist, then the market will be out of equilibrium. In addition, the ability of excess capacity to discipline price is limited by the physical characteristics of the generation plant and its location, as well as by any transmission limitations. Thus, generation sources are not perfect substitutes for one another, leaving price disparities between sellers of generation.

It was hoped in California that excess capacity would discipline price, even as consumers remained protected from the vagaries of the wholesale market. Market experts had also predicted continuing decreases in fuel prices, which would grant generators the ability to recover stranded costs without putting undue financial strain on the generation owners or regulatory agencies. As will be discussed next, the absence of excess capacity and the heterogeneity of the capacity that did function within the market left the California energy market in an unstable state. The crisis eventually led to higher consumer rates, in contravention of California's goals.

¹⁵⁶ A heat rate is a measure of thermal efficiency. The hotter the generator runs, the less efficient it is.

¹⁵⁷ It should be noted that generators also have different fixed costs. Generators with high fixed costs tend to have low marginal costs (nuclear units, coal units, etc.). In energy markets, these facilities tend to be price takers, bidding a price of \$0. Those plants with low fixed costs and high marginal costs tend to be single-cycle gas plants and oil-fired plants. These plants tend to bid in some relation to marginal cost.

¹⁵⁸ The fact that capacity disciplines price does not, however, mean that each generator will receive its marginal cost of production. Generators with low marginal costs may receive payments substantially higher than their marginal costs, even in competitive markets. See Severin Borenstein, UNDERSTANDING COMPETITIVE PRICING AND MARKET POWER IN WHOLESALE ELECTRICITY MARKETS, (UC Berkeley Competition Policy Center, Working Paper No. CPC99-08, 1999).

III

THE DEFICIENCIES OF CALIFORNIA'S MARKETS,
IN PRACTICE

While signs of impending trouble existed well before the establishment of California's energy markets,¹⁵⁹ problems within the structure of the markets did not manifest themselves until summer 2000. The problems that arose in California's energy markets stemmed from a series of defects within the market design and implementation: (a) a lack of excess capacity; (b) a lack of demand responsiveness; (c) the implementation of retail price caps; (d) the implementation of wholesale price caps in California and then across the West; (e) the pervasiveness of plant outages in the fall; (f) the inability of utilities to hedge volatility; (g) the inability of the insolvent utilities to procure power in the winter; (h) the misconception that monopsony power wielded on behalf of the state would lower energy prices; and (i) the wielding of market power by generators. A brief discussion of each defect follows.

*A. Lack of Excess Capacity*¹⁶⁰

As discussed above, California's market model was based upon the notion that excess capacity would discipline market prices such that a marginal generation unit would be constrained in its exercise of market power by the next-highest cost unit. The basic theory for this design was that the least cost producer would generate first, followed by the second lowest, and so on. Thus, dispatch of power plants would be welfare-maximizing. Firms would bid based upon their costs, because they would otherwise fear not being selected in the market, when the next highest cost generator might be taken instead.¹⁶¹ The price for all

¹⁵⁹ The California Public Utility Commission had forecasted a net shortfall of capacity in the early 1990s. See Michael Kahn & Loretta Lynch, *California's Electricity Options and Challenges Report*, Aug. 2, 2000, available at http://www.cpuc.ca.gov/word_pdf/REPORT/report.pdf (last visited June 19, 2004).

¹⁶⁰ See Navarro & Shames, *supra* note 155, at 34 (explaining "Don't Deregulate into a Power Plant Shortage").

¹⁶¹ In other words, the existence of excess generation capacity disciplines the exercise of market power. *Id.* In an imperfectly competitive electricity generating market, the presence of real physical shortages may increase incentives for market participants to artificially withhold capacity, which exacerbates the shortage condition and thereby sustains higher prices over a longer period of time than might otherwise exist in a perfectly competitive market.

generation would be set by the bid of marginal generation that met the last increment of demand.

This system would typically provide competitive markets where excess capacity disciplines generation prices. If a generator bids too high, it might not get called to supply, and thus some other generator may get paid. However, California did not benefit from excess capacity. In fact, for some hours, supply no longer intersected demand, or at least intersected demand where the marginal plants were high-cost producers, causing prices to skyrocket.¹⁶²

There were two reasons for this problem. First, the supply of generation capacity barely grew in California. In-state generation grew between 1996 and 1999 by only 672 megawatts.¹⁶³ During the same time period, California's peak load grew by 5,522 megawatts.¹⁶⁴ Additionally, no new interstate transmission lines had been built to enable capacity from outside the state to supply energy needs inside the state.¹⁶⁵ Moreover, California's generation plants were aging.¹⁶⁶ For practical purposes, this meant that the capacity factors,¹⁶⁷ a measurement of the expectation that the plant will be on-line to supply a certain amount of energy, declined as the plants became more frequently unavailable due to unanticipated maintenance.¹⁶⁸ Finally, because California is at the forefront of environmental regulation (or bringing up the rear, depending on your view of the direction of environmental policy),¹⁶⁹ many plants were limited in their hours of op-

¹⁶² If supply does not meet demand, the result is a brownout or blackout.

¹⁶³ Kahn & Lynch, *supra* note 159, at 36. Note that this figure is "net" generation. That is, generation capacity may reduce the amount of generation that the system is able to utilize from other sources (requiring the ISO to "step down" that generation). *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ *Id.* at 39.

¹⁶⁷ The capacity factor is the ratio of actual production to production capacity. See Leah Ayala, *Nuclear Power Companies Suing the Department of Energy: A Legal Remedy Magnifying Nuclear Ends*, 3 NEV. L.J. 449, 451 (2002/2003).

¹⁶⁸ Some have asserted that the relatively high outage figure for California's generation plants indicates an exercise in market power. However, older plants are more likely to require maintenance, and need maintenance more frequently, than newer generation plants. Kahn & Lynch, *supra* note 159, at 39.

¹⁶⁹ Many power plants that serve California's generation needs have been constructed outside California's borders. It can thus be said that California's environmental regulations have led to the export of California pollution. For a recent examination of California's net import needs, see CAISO 2004 Summer Assessment

eration and therefore bid high prices.¹⁷⁰ Because these plants by necessity had to recover all of their fixed and variable costs in a limited number of hours, their bids were dictated by opportunity costs—the foregone revenue that would have been received had they bid in other hours. In short, these plants operated only at “needle peaks,” or levels of exceptionally high demand.

California’s capacity shortage was exacerbated by numerous rules and regulations that had the combined effect of delaying entry for numerous generators in California. In the early stages of regulation, it was taboo for utilities to continue to build generation.¹⁷¹ After all, California had spent millions compensating utilities for stranded investment via the Competition Transition Charge (CTC). Even prior to the recovery of stranded costs,¹⁷² utilities were unsure as to what the competitive landscape would look like. This caused understandable reluctance to build new generation for which utilities might not be sufficiently compensated.

Moreover, the CPUC provided incentives for the utilities not to engage in long-term resource planning. Incentive-based ratemaking, implemented in the early 1990s, provided incentives for the utilities to forgo long-term investment and reduce short-term cost in order to make short-term profits. Capital outlays reduced the certainty with which one could recover profits.¹⁷³ In contrast, short-term and immediate cost reductions guaranteed increased profits.

Even after the (de)regulatory scheme was well-known, generation failed to enter California. Investors likely felt that invest-

(Cal. Indep. Sys. Operator, Apr. 16, 2004), available at <http://www.aiso.com/docs/09003a6080/2f/ca/09003a60802fca50.pdf> (last visited June 5, 2004).

¹⁷⁰ Generation plants may be limited in their emissions of NOX and SOX, emissions common for coal and gas-fired generation capacity.

¹⁷¹ See S. REP. NO. 95-442, at 23 (1977) (noting that construction costs between 1970 and 1975 grew by 68%, compared to a 45% increase in the Consumer Price Index for the same period).

¹⁷² Recovery of stranded costs refers to taxpayer compensation for utility investments in generation that would not be profitable to operate in a competitive market. Given the lack of excess capacity in California, it is difficult to see how any imprudent generation might exist in that state. The recovery of stranded costs was accomplished through a competition transition charge, which appeared as a line item on each consumer’s electric bill. See generally Borders, *supra* note 13, at 343; Robert C. Fellmeth, *Plunging Into Darkness: Energy Deregulation Collides with Scarcity*, 33 LOY. U. CHI. L.J. 823 (2002); John C. Hilke & Michael Wise, *Who Turned out the Lights? Competition and California’s Power Crisis*, 15 ANTITRUST 76 (2001).

¹⁷³ Kahn & Lynch, *supra* note 159, at 36.

ment in generation in California was a high-risk strategy. They were likely correct for several reasons. First, potential generation entrants were instantaneously immersed in a Rube-Goldbergesque set of rules and regulations pertaining to permitting and siting of electric power plants.¹⁷⁴ While a component of these hurdles is environmental,¹⁷⁵ other siting requirements must be met as well. For example, generation plants must undergo an interconnection study to determine whether the addition of the plant to the grid would adversely affect the grid's efficiency in terms of net generation resources and import capability.¹⁷⁶ Regardless of the cause of lack of new generation entry, the California "Challenges" Report indicated a result that environmentalists might find ironic: "The failure [of California] to build new, clean and efficient capacity as demand increases means that California is facing even worse air quality because of the need to keep the old plants."¹⁷⁷

One potential substitute to new in-state generation is the expansion of transmission facilities connecting California with

¹⁷⁴ *Id.*

¹⁷⁵ Among the hurdles a proposed generation plant must overcome are the California Environmental Quality Act (CEQA) and the Clean Air Act. CEQA requires any proposed generation plant to undergo an environmental impact study, and possibly mitigate any impacts to the public health that are determined by the study. This portion of the siting process could potentially cause extensive delays, because typically all of the impact studies of all power plant projects using a non-renewable prime mover could be subject to challenge by "Not In My Back Yard" (NIMBY) groups. However, no evidence appears to have surfaced that this indeed caused delay in the construction of new generation. See Jacqueline Lang Weaver, *Can Energy Markets Be Trusted? The Effect of the Rise and Fall of Enron on Energy Markets*, 4 HOUS. BUS. & TAX L.J. 1 (2004).

A thorough review of permitting since 1990 showed that major power plant developers did not seek siting permits until California had adopted its electricity restructuring program in 1997 and the "rules of the game" were known to investors. After that date, all of the 23 applications for new plants were approved by the California Energy Commission with an average approval time of 14 months.

Id.

¹⁷⁶ For the old interconnection procedures and the proposed revised procedures, see *Interconnection of New Facilities to the ISO Controlled Grid*, at <http://www.caiso.com/docs/2001/04/04/2001040410114523946.pdf> (last visited June 5, 2004). The CEC's rudimentary data indicates that few applications were submitted prior to the establishment of the market in 1998, and that generators did not start coming on-line until 2001. See California Energy Commission, *Update on Energy Commission's Review of California Power Projects*, at <http://www.energy.ca.gov/sitingcases/backgrounder.html> (last visited June 20, 2004).

¹⁷⁷ Kahn & Lynch, *supra* note 159, at 44.

other states.¹⁷⁸ In other words, even if California failed to build new power plants, it might obtain generation from other states if sufficient transmission capacity existed. Sadly, imports were insufficient to satisfy California's problems even if the state had built sufficient transmission capacity to meet load, given its existing levels of generation as hydroelectric power dried up and demand in the rest of the Western Electric Coordinating Council (WECC) increased. Historically, California had been a net importer from neighboring states. However, due to the increased electricity demand and decreased supply due to low rainfall in the WECC,¹⁷⁹ neighboring states have had less energy to sell to energy-starved California.¹⁸⁰ Thus, California was unable to obtain resources from outside the state and was unwilling to build resources inside the state.

Expansion of transmission facilities internal to California would also enable California to supply itself with additional power. For example, the now famous "Path 15"¹⁸¹ constrained power flows between northern and southern California.¹⁸² Expansion of Path 15 would have brought about a reduced need to import from other states. Also, because of transmission shortages, California undoubtedly was forced to run some power plants at lower levels¹⁸³ in order to prevent transmission system overflows.¹⁸⁴ Additional transmission would thus potentially increase California's ability to ramp up certain plants to their maximum output. However, siting transmission lines is equally as

¹⁷⁸ Hilke & Wise, *supra* note 172, at 79 ("Transmission and generation can be substitutes, as increased demand could be met either by turning on additional generators or by bringing in power from more distant ones."). California also had congested transmission lines running within the state, such as the notorious Path 15. See *infra* notes 181-91 and accompanying text.

¹⁷⁹ Despite California's undeserved reputation as an energy hog, demand in other states in the WECC has grown by a greater rate than California's demand.

¹⁸⁰ See CAISO 2001 Summer Assessment (Cal. Indep. Sys. Operator), available at <http://www.caiso.com/docs/09003a6080/0c/af/09003a60800cafcd.pdf> (last visited June 5, 2004).

¹⁸¹ Path 15 is a transmission path that runs north-south. Path 15 is commonly congested, leaving southern California and northern California electrically isolated from one another.

¹⁸² Navarro & Shames, *supra* note 155, at 39 ("[T]here were a number of times in which there was sufficient power in the south to prevent supply disruptions in northern California if there had been enough transmission capacity.").

¹⁸³ Environmental restrictions on plant operations also limited the output of some generation plants.

¹⁸⁴ Kahn & Lynch, *supra* note 159, at 12-13.

difficult in California as siting power plants, and thus there was limited expansion of the capabilities of the power grid.

Thus, California actively prevented the entry of capacity and transmission that would have operated to eliminate the capacity shortages that it faced. Additional capacity would have constrained price escalation associated with capacity shortages.

Demand also continued to increase, although at a slower rate for California than for the rest of the WECC.¹⁸⁵ Demand in California grew by eight percent annually.¹⁸⁶ The result was a crisis caused by capacity shortages. If summer 2001 in California had not been blissfully cooler than expected, the ISO had expected that demand would exceed 47,000 megawatts while supply would be at around 42,000 megawatts.¹⁸⁷ With an import capability of approximately 6,000 to 9,000 megawatts, this left a projected deficit of 600 to 3000 megawatts.¹⁸⁸ In winter 2000, supplies were limited as plants attempted to schedule maintenance after a long summer of running flat out to meet California's electricity needs.¹⁸⁹ The shortened maintenance period, coupled with low hydro levels¹⁹⁰ and plants shut down due to reaching their maximum emissions levels, caused the preceding summer's crisis to carry on into the winter.¹⁹¹

The increase in demand, unmitigated by any proportional increase in supply, left California in the midst of a capacity shortage. This meant that its markets were no longer disciplined by excess capacity that could limit the level at which bids were submitted.

B. Lack of Demand Responsiveness

Additionally, California failed to take the step of providing

¹⁸⁵ The WECC is an electrically interconnected region defined essentially by those regions west of the Rocky Mountains. See North American Electric Reliability Council, at <http://www.nerc.com/regional/wecc.html> (last visited June 19, 2004).

¹⁸⁶ California Energy Commission, *California Electricity Consumption by Sector*, at http://www.energy.ca.gov/electricity/consumption_by_sector.html (last visited June 5, 2004).

¹⁸⁷ CAISO 2001 Summer Assessment, *supra* note 180.

¹⁸⁸ *Id.* Importation of energy may cause decreases in the amount of internal generation available for use. Thus, there is not a one-to-one correspondence between the amount the ISO could import and the amount of demand met.

¹⁸⁹ There are, of course, allegations that some plants were shut down in an act of physical withholding to drive energy prices even higher.

¹⁹⁰ Kahn & Lynch, *supra* note 159, at 13.

¹⁹¹ Nancy Vogel, *California and the West: Worse May Come in State's Lingering Power Emergency*, L.A. TIMES, Dec. 10, 2000, at A1.

mechanisms through which consumers would have been able to respond to rising prices via changes in their consumption patterns. As wholesale prices were rising, few customers in California noticed. This is because consumers were held harmless to the fluctuations of the market due to the retail price cap.¹⁹² Indeed, one of the goals of deregulation in California was to protect consumers from the vagaries of the market.¹⁹³ Because consumers failed to notice fluctuations in the price of wholesale power, their consumption decisions were independent of scarcity.¹⁹⁴ This in turn continued to produce bad incentives to frivolously consume a scarce good.

More striking, however, is that generators are responsible for responding to shortages, because demand is unable to respond. As more generators are brought on-line to meet demand, prices by definition increase. Plus, on a hot summer day when demand is at its peak, prices can spike enormously and without mitigation.

Figure 1 demonstrates a situation in which demand increases.¹⁹⁵ Demand, unresponsive as it is to prices, is assumed for purposes of discussion to be inelastic. As demand increases, prices rise rapidly as more uneconomical generation is brought on-line, including generators subject to NOX and SOX constraints¹⁹⁶ that might not otherwise have run. Prices rise enor-

¹⁹² See *infra* note 209.

¹⁹³ See A.B. 1890 § 854, 1996 Cal. Stat. 854, codified, in relevant part, at Cal. Pub. Util. Code §§ 330-98.5 (Deering 2001). See William Safire, *California Power Failure*, N.Y. TIMES, Jan. 11, 2001, at A31 (“California’s politicians deregulated halfway, which is the worst way: wholesale prices were freed from controls, but retail prices were not.”); Rene Sanchez & William Booth, *California Orders Rolling Blackouts; Governor Declares Emergency; State to Buy Electricity*, WASH. POST, Jan. 18, 2001, at A1 (stating that the energy crisis was due to the “failure of a partial deregulation plan, which allowed wholesale electricity to soar on the free market as it continued to place caps on the rates that the utility companies could charge customers”).

¹⁹⁴ Even without price caps, consumers would be limited in their ability to respond to changes in price because they lack real-time metering. However, some price signals would affect long-term consumption patterns, as was the case when California increased its retail rates at the end of the crisis. See *infra* note 203.

¹⁹⁵ Figures are provided at the end of the Article.

¹⁹⁶ Generation owners purchase marketable emissions credits that provide for a certain level of emissions per year. When these generators bid, their price includes opportunity costs. For example, an emission-constrained generation unit would not want to be called when prices are “low,” preferring to receive a higher price for the limited number of hours the generator operates. In contrast, in California, prices were so high that many emissions-constrained generators were forced off-line in the face of fines for exceeding their emissions credits. See *FERC Softens Cap on Cali-*

mously in these situations. Blackouts, like those during the summer of 2000, occur when demand does not intersect supply at any price.¹⁹⁷ During those hours, California was forced to engage in a futile but desperate task to meet its power needs. Because supply was unavailable at any price, California faced blackouts and brownouts for many periods during the summer.¹⁹⁸ Demand, oblivious by regulatory design to price fluctuations, did not respond to any great degree.¹⁹⁹

It should be noted that when retail rates were eventually hiked,²⁰⁰ consumers in California began to feel the rate increases in their pocketbooks and reduced consumption by fourteen percent.²⁰¹ This indicates that if demand had some method of relating to price, then the price spikes could be mitigated by reductions in load. Time-of-day metering might have enabled California consumers to better regulate their demand responses. However, it is unlikely that California or any other electricity market will implement that technology anytime soon on a broad scale.²⁰²

formia Power Prices, GENERATION WEEK, Dec. 13, 2000, available at 2000 WL 16063588 (noting plants forced offline for exceeding emissions credits).

¹⁹⁷ See *infra* Figure 1.

¹⁹⁸ On June 14, 2000, Pacific Gas & Electric was forced to interrupt service to some of its customers (500 MW of load) for the first time in its history when a supply imbalance occurred in the San Francisco bay area. Kahn & Lynch, *supra* note 159, at 22.

¹⁹⁹ One notable exception were the aluminum smelters in the Northwest. During days of high demand and scarce capacity, the aluminum plants would forgo delivery of power they procured under long-term contract and would sell that power to California, making a profit on the sale. There were numerous consequences to such sales. While the resale of smelter power (and the reduction of load associated with the smelters not running) helped reduce the specter of brownouts, the aluminum companies were accused of gouging California customers by selling them power they desperately needed. Moreover, the aluminum companies were accused of using the energy crisis as an excuse to engage in concerted action to raise aluminum prices by shutting down smelters. See Stanley Holmes, *How Tinmen Smelt a Quick Profit*, BUS. WK., Feb. 26, 2001, at 8 (quoting a Bonneville Power spokesperson as stating that the aluminum companies are "taking advantage of the power crisis"); *Markets/Your Money; Aluminum Stocks Rise Amid Calls for Limits*, L.A. TIMES, April 11, 2001, at C4.

²⁰⁰ See Steven Ferrey, *The Eagles of Deregulation: The Role of the Courts in a Restructured Environment*, 32 ENVTL. L. 297, 321 (2002). See also *Rate Hikes Ignite Widespread Protests, Yet Are Unlikely to Resolve Calif. Crisis*, PLATTS ELEC. UTIL. WK., Apr. 2, 2001, at 1.

²⁰¹ See Peter H. King, *Surprise! Californians Answer the Call In Crisis*, L.A. TIMES, July 26, 2001, at B1 (noting fourteen-percent reduction in peak demand in July year-to-year).

²⁰² However, California has already begun to reap the benefits of real-time meter-

C. Retail Price Caps

One of the methods legislators typically use to “sell” the notion of retail choice to their population is to convince them that their rates will actually drop. However, depending on the region being deregulated, competitive markets may cause prices to increase, decline, or remain the same. Where demand is increasing and supply is scarce, prices are likely to increase. In California, consumers were immunized against rising prices caused by increasing demand and scarce generation.

California imposed a \$65/MWh retail price cap,²⁰³ essentially providing a guarantee to the state’s consumers that they would not pay more for electricity once electricity markets commenced operation. Eventually, only Southern California Edison and Pacific Gas & Electric were subject to this cap while San Diego Gas & Electric was not.²⁰⁴ Thus, while San Diegoans screamed as wholesale prices escalated and San Diego Gas & Electric passed those price increases on to retail customers in its territory,²⁰⁵ retail customers in the other investor-owned utilities service territories remained blissfully ignorant of wholesale price spikes.

The retail rate cap had two effects. First, it ensured that no consumer had any incentive to decrease electricity consumption in the state. It is to the credit of Californians that they experienced any demand-responsiveness at all prior to the sixty percent rate hikes recently invoked by the CPUC.²⁰⁶ However, in times of peak load, when demand reduction measures could have drastically reduced wholesale prices and eliminated the need for blackouts, demand was virtually inelastic.²⁰⁷ The only alternative

ing use by industrial customers. Real-time metering caused industrial customers to reduce load by 550 MW in the summer of 2002. See California Energy Commission Report to the Legislature on Assembly Bill 29X, *available at* http://www.energy.ca.gov/reports/2002-06-27_400-02-004F.PDF.

²⁰³ Yuffee, *supra* note 15, at 71.

²⁰⁴ San Diego Gas and Electric had already fully recovered its stranded costs. See *infra* note 242. Complete recovery of stranded costs triggered the removal of the retail cap.

²⁰⁵ Eventually, however, as prices soared, San Diego Gas & Electric’s service territory became subject to the same rate caps imposed by FERC upon California and eventually the rest of the Western Interconnection. Borders, *supra* note 13, at 348-49.

²⁰⁶ See *supra* note 16.

²⁰⁷ The ISO did have some contracts with some larger commercial and industrial customers to allow some degree of demand responsiveness. When demand was high, the ISO was able to call upon these customers to cut demand. However, the contracts provided for only a limited amount of interruption. The ISO, during its

to control demand was to impose rolling blackouts, a meat-ax approach in lieu of the signal sent by a properly functioning market informing consumers what the price of their demand was when they imposed their individual demand.

Second, the rate caps ensured that the two utilities subject to them would quickly find themselves in the midst of a revenue shortfall. There is no mystery to why San Diego Gas & Electric is solvent while Southern California Edison and Pacific Gas & Electric are at or near bankruptcy.²⁰⁸ When wholesale prices exceeded the retail price cap, San Diego Gas & Electric could pass the costs on to its end users while Southern California Edison and Pacific Gas & Electric could not.

The rate cap also affected the nature of retail competition. In their efforts to sell retail choice, legislators sought to protect consumers via two methods. First, legislators offered “default” service to those customers who do not elect an energy service provider.²⁰⁹ Thus, no one was left without a supplier. Second and more importantly, the legislators set a “default” rate (a flat retail rate set below the then existing regulated rate) to protect those customers oblivious to deregulation.²¹⁰ The “default” rate is essentially the price to beat, because a price equal to the default rate will offer no inducement for customers to switch. Connecticut, for example, set the default rate well below the wholesale rate, causing little entry by energy service providers.²¹¹ In California, the rate caps served to squeeze marketers and aggregators out.²¹² They could not compete effectively as wholesale prices escalated and retail prices remained flat.²¹³ California

capacity crisis, quickly reached those levels. Arthur O'Donnell, *Unplugged; The Struggle for Solutions*, SAN DIEGO UNION-TRIB., Jan. 28, 2001, at G1.

²⁰⁸ See *infra* note 242.

²⁰⁹ Cudahy, *supra* note 15, at 341 n.28.

²¹⁰ *Id.* at 341 n.29.

²¹¹ While this article uses Connecticut as an example, it is not the only state to suffer from this problem. Massachusetts, for example, suffered from the same regulatory failure and achieved a .3 percent switching rate after two years of competition. See Paul Gromer, *The Standard Offer: State-by-State Evolution; A Look at the Various Approaches Regulators Have Taken to Pricing Energy in Competitive Markets, and How Some are Rethinking Those Plans*, PUBLIC UTIL. FORT., Aug. 2000, at 42.

²¹² Eventually, load-serving entities like Enron withdrew from the retail market. See Dean Calbreath, *Two More Electricity Retailers Pulling Out*, SAN DIEGO UNION-TRIB., Feb. 2, 2001, at A23.

²¹³ *Id.* (noting Enron's withdrawal from California's retail market due to the market's unprofitable nature). Strangely, Enron tried a marketing campaign that essentially was “buy one year, get two weeks free.” This campaign failed to attract even

actually guaranteed its residents that they would receive a ten percent reduction in their electricity bill, whether they switched to an energy service provider or not.²¹⁴

The promise that retail competition will not negatively impact consumer electricity prices has effects entirely opposite of its intent. In California, it assured that retail competition was nonexistent. It also assured that prices would increase and that eventually California consumers would experience the largest rate hike in the state's history.

*D. More Price Caps*²¹⁵

In a desperate attempt to stop price volatility, California asked FERC to implement a series of wholesale price caps.²¹⁶ The price caps were designed to prevent generators from engaging in market power by capping the rate they would receive in the real-time market. However, due to the fact that the caps were at first implemented only in California, the caps were largely unsuccessful.²¹⁷ Generators scheduled their deliveries for points outside of California, where the wholesale price was still volatile and not subject to a price cap.²¹⁸ However, the ISO would purchase

one percent of the customers. Ahmad Faruqi, *Electric Retailing: When Will I See Profits?*, PUBLIC UTIL. FORT., June 1, 2000, at 30.

²¹⁴ See Federal Trade Commission Staff, *Competition and Consumer Protection Prospectives of Electric Power Regulatory Reform: Focus on Retail Competition* (Sept. 2001) (explaining statistics on switching and switching rates) available at http://www.ftc.gov/reports/elec/electricity_report.pdf (last visited June 12, 2004).

²¹⁵ Price caps are upper boundaries on the clearing price paid by all customers for a particular market. The retail price caps in California, for example, placed an upper boundary on what utilities could require retail customers to pay for electricity. Wholesale price caps limited the clearing price in California's wholesale markets, meaning that each generator—regardless of generator cost—would receive the cap amount even if shortages ordinarily would have driven prices above the cap. The result, of course, is scarcity.

In contrast, bid caps are limitations upon the bid submitted by individual generators (or generation units). This latter type of cap is useful to limit the ability of generators that set the clearing price (marginal generation) to exercise market power in the manner discussed *infra* section V.B.2.

²¹⁶ In actuality, the price caps were many, and varied greatly as California scrambled to regain hold of its markets.

²¹⁷ One measure of the success of the price cap might be how often the cap was changed. The initial price cap was a \$250/MWh cap in the ISO real-time market. The price cap was raised to \$750/MWh on September 30, 1999. That cap was reduced to \$500/MWh on July 1, 2000. On August, 7, 2000, price caps were reduced to \$250/MWh.

²¹⁸ See Debra Raggio Bolton, *Restructuring of the Electric Utility Industry*, 1274 Practising Law Institute, Corp. Law and Practice Course Handbook Series 303, 326 (2001).

power from out of state at uncapped rates when it desperately needed power. Many generators began shipping power outside of California and shipping the power back in at uncapped rates.²¹⁹ In any event, the price caps, until implemented throughout the WECC, only caused greater desperation on the part of the ISO in its search to find power sources and did nothing to prevent the exercise of market power.²²⁰

E. Fall Crisis: Plant Outages and the Curse of Entry Barriers

The problems created by a hot summer, lack of excess capacity, and low hydro availability continued throughout the fall and winter of 2000.²²¹ In the fall and winter, an unusually high number of plants were taken off-line.²²² The large number of plants taken off-line for “maintenance” may have been the result of exercises in market power,²²³ or caused by the delaying of scheduled maintenance due to a long summer of running at full speed, a hot fall, and demand that did not drop as quickly as it should have due to the atypical fall heat wave.²²⁴ Regardless of the cause, the effect of the shrinking of available capacity was high energy clearing prices and scarcity.

F. Inability of Utilities to Hedge Volatility

One potential solution that was available to protect the utilities from the volatility taking place in the PX and ISO was to allow the utilities to hedge via long-term contract. As stated above,

²¹⁹ See *infra* Section IV.B.2 (discussing exports of California power).

²²⁰ San Diego Gas & Elec. Co., 95 F.E.R.C. ¶ 61,418, at 62,549 (2001).

²²¹ See generally Kahn & Lynch, *supra* note 159.

²²² See Duane, *supra* note 94, at 513 n.140 (noting that during the period between January 2001 and May 2001, 25% or 14,400 MW of California’s 57,660 MW of generation was unavailable during the rolling blackouts).

²²³ The ISO suggested that physical withholding caused approximately ten percent of the price increase in 2000. See ANJALI SHEFFRIN, EMPIRICAL EVIDENCE OF STRATEGIC BIDDING IN CALIFORNIA ISO REAL TIME MARKET (Cal. Indep. Sys. Operator, Mar. 21, 2001), available at <http://www.caiso.com/docs/2001/04/27/2001042710505919478.pdf> (last visited June 5, 2004); see also ERIC HILDEBRANDT, FURTHER ANALYSES OF THE EXERCISE AND COST IMPACTS OF MARKET POWER IN CALIFORNIA’S WHOLESALE ENERGY MARKET (Cal. Indep. Sys. Operator, Mar. 2001), available at <http://www.caiso.com/docs/2001/04/27/2001042710273418872.pdf> (last visited June 5, 2004).

²²⁴ See Hilke & Wise, *supra* note 172, at 77-78 (“Outages for repairs that had been scheduled for the normally lower-demand winter period coincided with unusually cold weather. Some other plants were taken out of service unexpectedly—and whether these withdrawals were strategic moves to keep prices up is one of the points of debate.”).

California effectively barred its utilities from procuring power via long-term contract.²²⁵ However, once the crisis began, hedging proved useless, as long-term contract prices and spot market prices tend to converge during times of increased spot market volatility.

Hedging, loosely defined, is the ability to reduce risk. The risk here stems from volatility in the spot market.²²⁶ The utilities were unable to avert this risk, and indeed until very late in the game were ordered to purchase all of their power needs through the risky system of the spot market. Thus, the utilities faced the fully volatile spot market without any ability to mitigate the price spikes.

Hedging could have been accomplished by two mechanisms. First, if allowed, a utility could have engaged in physical hedging. That is, the utility could have owned physical assets, such as generation, which could have been used to decrease demand for energy procured in the spot market. Utilities in California were required to sell the power produced from whatever physical assets they owned into the energy market.²²⁷ However, in December 2000, FERC issued an order that enabled the utilities to keep 25,000 MW of power they had previously been ordered to sell.²²⁸

Second, utilities could have hedged the risk of spot market volatility through long-term contracting. However, as with physical hedging, California effectively barred utilities from engaging in long-term contracting, even when the utilities begged to do so.²²⁹

Eventually, FERC's December 2000 Order²³⁰ enabled the utilities to engage in contracting with power suppliers without going

²²⁵ California considered utility investment in long-term contracts "imprudent," meaning that the utilities would be denied rate recovery for such investments. California later recognized its mistake. See MARKET SURVEILLANCE COMMITTEE OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR, AN ANALYSIS OF THE JUNE 2000 PRICE SPIKES IN THE CALIFORNIA ISO'S ENERGY AND ANCILLARY SERVICE MARKETS, at 7 (Sep. 6, 2000), available at <http://www.caiso.com/docs/2000/09/26/200009261407245692.pdf> (last visited June 5, 2004) ("With complete freedom to purchase forward both energy and ancillary services from generation unit owners in or outside the ISO control area, the [utility distribution companies] could have eliminated or significantly reduced (depending [on the] quantity of forward energy or capacity purchased) their exposure to spot market price volatility.").

²²⁶ Yuffee, *supra* note 15, at 69.

²²⁷ *Id.*

²²⁸ FERC Issues Final Order on California's Market Problems; Response is Mixed, FOSTER ELEC. REP., December 27, 2000, at 2.

²²⁹ *Id.*

²³⁰ *San Diego Gas & Elec. Co.*, 93 F.E.R.C. ¶ 61,294 (2000).

through the spot market. However, enabling the utilities to engage in long-term contracting came too late for two reasons. First, two of the utilities were already making clear that they were insolvent. Second, the long-term contracting market price for power and the spot market price for power predictably converged. Because demand was inelastic, and because the spot market price was fairly well known through the operations of the PX and ISO, it was not difficult for the generators to negotiate prices for power on a long-term basis that would have been unheard of prior to the crisis.²³¹

The ability to long-term contract would have proven more useful prior to the crisis, because the spot market's trends were relatively unknown, and the utilities were not as desperate for power. Instead, the utilities, and eventually the state of California, walked into the long-term contract market fully exposed.

California erred by going to the other extreme. It recognized that if utilities were able to sell and buy power under long-term contracts, the spot market might not have sufficient liquidity to function properly.

G. Winter Crisis: The Curse of the Insolvent

Recall that the summer shortages were caused by hot temperatures, high demand, and straightforward legitimate or illegitimate capacity shortages. The fall shortages were caused because plants were taken off-line (for maintenance and emissions reasons). In winter 2000 and early spring 2001, however, an additional menace to capacity reared its ugly head.

As Pacific Gas & Electric and Southern California Edison suddenly realized that their income was exceeded by their costs of supplying power,²³² each company made public statements threatening bankruptcy and claiming insolvency. Gas suppliers,

²³¹ The movement of utilities away from the PX and into long-term contracts eventually caused the cessation of PX operations. Yuffee, *supra* note 15, at 75. FERC recognized the issue of long-term contract pricing. It created a \$74/MWh price for a five-year 7x24 product (i.e., the price for a five-year contract to provide power twenty-four hours per day, seven days a week). Bilateral contract prices at or below that level would be presumptively just and reasonable. *Id.* at 76-77.

²³² California's aggregate energy costs in 1999 were \$7 billion, \$27 billion in 2000, and projected to be \$50 billion in 2001. Merrill Goozner, *Free Market Shock*, THE AMERICAN PROSPECT, Aug. 27, 2001, at 27. See also Rebecca Smith, *Probe of California Power Prices Begins, but New Plants Aren't Seen as Solution*, WALL ST. J., Sept. 11, 2000, at A4 (noting that Pacific Gas & Electric and Southern California Edison had incurred debts equivalent to half of their net worth).

out-of-state generators, and marketers began to refuse to sell to these utilities because of concerns that the utilities might file for bankruptcy.²³³ This, of course, was a reasonable reaction to declarations of insolvency, job and dividend cutbacks, and other proclamations by the utilities. A creditor to an insolvent company is unlikely to be paid. And, because these suppliers were owed money, it appeared reasonable to stop supplying someone who had a history of not paying.²³⁴ By March 2001, the withdrawal of these suppliers from California had crucial impacts upon the state's grid. Rolling blackouts in that month were in part caused by the refusal of these suppliers to continue to supply power for free.²³⁵

It should come as no surprise why San Diego Gas & Electric was not having the same financial difficulty. San Diego Gas & Electric was offered a cost pass-through that enabled it to pass on the costs of rising wholesale power prices to its customers. Thus, San Diego Gas & Electric was guaranteed financial solvency²³⁶ while the other two California utilities, saddled with price caps, were essentially guaranteed insolvency.

In short, power suppliers understandably would refuse to continue as unsecured creditors—the last to be paid when a company goes bankrupt—and instead would cease supplying power.

H. Monopsony Power as a Solution

California's response to the crises of 2000 was to purchase power for its utilities and the customers of these utilities. This move was largely necessary after regulatory errors, market manipulations, and weather conditions drove one of its utilities into

²³³ Chris Kraul, *Natural Gas Suppliers are Refusing to Sell to PG & E*, L.A. TIMES, Dec. 30, 2000, at C1.

²³⁴ Ironically, one of the gas suppliers that refused to sell to Pacific Gas & Electric was a sister company.

²³⁵ Julie Tamaki, *Small Power Firms' Cutbacks Contribute to Blackouts*, L.A. TIMES, Mar. 20, 2001, at A19. Many of the larger out-of-state producers continued to be paid because the State was using its sizeable surplus to aid the utilities in procuring power. However, smaller producers, including "green power" producers, had received no payments since November of 2000. *Id.*

²³⁶ However, this meant that San Diego residents did indeed feel the effects of the power crisis in their rates. President Clinton offered low-income San Diegoans relief from such rates. Melissa Healy & Nancy Vogel, *Flat Charge for San Diego Electricity Urged*, L.A. TIMES, Aug. 24, 2000, at A3 ("Help . . . came from Washington on Wednesday, as President Clinton released \$2.6 million for additional relief to about 12,000 low-income households in San Diego County and southern Orange County that have seen their electric bills more than double this summer.").

financial ruin while another was on the brink. In order to get power flowing into the state, the state convened an auction, directed by the Los Angeles Department of Water and Power.²³⁷

Strangely, California's actions may have had the effect of increasing the prices it paid for power. The auction opened on January 23, 2001. During that time, gas prices were high due to cold fronts in the Northwest and Northeast. Gas supplies were dwindling. Power suppliers seeking to bid in California's market attempted to line up gas supply before making a bid in order to determine the cost of an essential input into the production of electricity.²³⁸ With natural gas demand increasing for the aforementioned reasons, generators were submitting bids well above what might have been expected were gas more readily available. Thus, California began procuring energy at top dollar.²³⁹

California, as it managed to procure sufficient power supplies to endure what was predicted to be a fierce summer of blackouts, capacity shortages, and high prices,²⁴⁰ received a bit of good fortune. The good fortune was that the temperature in the state for June and July was mild. Thus, California found itself "long" (i.e., with excess energy) and was forced to sell the power at a loss. While traders engage in selling and buying power all the time (although they typically try to buy low and sell high), California was an unseasoned energy trader and thus found that it was eating losses.²⁴¹

Clearly, had the summer proven to be as predicted, California's energy procurers, the Department of Water and Power (DWP), perhaps would have appeared as heroes. However, after a painful two-year journey the state was not feeling particularly grateful at a loss of \$80/MWh.²⁴² At the same time it was selling power at a loss, the DWP raised its estimate of how much it would cost to procure power through December 2002.²⁴³

²³⁷ Ed Mendel, *State Will Take Bids for Electricity; Governor Hopes Web Auction Today Reduces Prices*, SAN DIEGO UNION-TRIB., Jan. 23, 2001, at A1, available at 2001 WL 6438901.

²³⁸ Nancy Vogel et al., *State Electricity Auction May Push Prices Up*, L.A. TIMES, Jan. 23, 2001, at A1.

²³⁹ *Id.*

²⁴⁰ CAISO 2001 Summer Assessment, *supra* note 180.

²⁴¹ See Mark Martin et al., *Attempt to Kill Energy Pacts Resisted; State Asks Relief—Firms Cry Foul*, SAN FRANCISCO CHRON., Feb. 25, 2002, at A1.

²⁴² Nancy Vogel, *Surplus Power Sold at a Loss*, L.A. TIMES, July 24, 2001, at B8.

²⁴³ Nancy Rivera Brooks, *State Agency Raises Power Cost Estimate*, L.A. TIMES, Aug. 9, 2001, at C2.

The goal of the DWP, of course, was to exercise some degree of market power by using state funds to “bulk up” the state’s electricity needs. However, California made several bad assumptions in this process. California believed that “bulking up” would translate into monopsony power that would reduce electricity prices. That assumption was wrong for two reasons. First, California was not a monopsony; the same power suppliers could very well sell their wares to other agencies outside of California for higher prices (at least until FERC implemented the wholesale price cap).²⁴⁴ Second, a desperate monopsonist is hardly a credible market threat. It is akin to being the lone patient dying of cancer and negotiating with the drug companies. There may be many drug companies competing, but “monopsony power” is nonexistent. Thus, it was unlikely that, after the rate cap, the state’s procurement mechanism would achieve any reduction of wholesale prices based upon consolidation of the procurement functions of the three utilities.

In addition to acting as the sole purchaser of energy for the state, California sought to purchase the electricity grid from California’s three utilities.²⁴⁵ The decision to purchase was based upon the belief that this would be the best mechanism by which to: (a) bail the insolvent utilities out from under their debts; (b) bypass FERC jurisdiction, because FERC was perceived by the state as being unsympathetic and enacting mandates contrary to the good of California; and (c) be seen as engaging in action and perhaps even be perceived as saving California from the brink of electricity disaster.²⁴⁶

Two comments should be made about California’s proposal. First, Pacific Gas & Electric’s bankruptcy proceedings likely quashed any deal Pacific Gas & Electric made or would have made regarding the sale of the transmission grid.²⁴⁷ The grid’s fate was now in the hands of the trustee in bankruptcy, who was

²⁴⁴ We have not listed wholesale price caps as a mistake by California, because whether a wholesale price cap is a mistake is determined in part by the duration of the price cap. If the price cap is credibly temporary, it will not deter entry and should not make matters worse. If the price cap is seen as permanent or likely to disappear only to return again, then the price cap may deter entry. In any event, if the wholesale price cap is a mistake, then it is one generated by FERC and not California and is thus beyond the scope of this Article.

²⁴⁵ Miguel Bustillo & Nancy Vogel, *Failure to Buy Entire Network May Doom Davis’ Power Deal*, L.A. TIMES, Apr. 12, 2001, at A3.

²⁴⁶ *Id.*

²⁴⁷ *Id.*

unlikely to allow for a fire sale of the utilities' most precious assets. Without the sale of Pacific Gas & Electric's transmission system, the state's plan to operate the grid failed: Operation of two-thirds of a grid is not as likely to produce the same effects as operating the whole grid, whatever the effects hoped.

One possible noble goal of purchasing the grid, and the only one that actually deals with the capacity shortage faced by Californians until the cool summer of 2001, was to enable California to perform badly needed maintenance functions, such as expansion of the now infamous Path 15. Expansion of transmission facilities is of course both a complement to and substitute for generation. Thus, if California had been successful in acquiring the grid, it could have focused on this aspect of acting as a system operator.

I. Market Power

The issue that has been raised the most in the public setting, apart from the lack of demand responsiveness, is the market power possessed by generators operating in the California markets.

To review, market power in electricity is exercisable due to a number of phenomena. First, energy is not storable.²⁴⁸ Thus, market power in electricity has a temporal element not found in many other industries, where inventories may be able to limit the exercise of market power. Second, demand in electricity markets has been virtually inelastic, at least thus far. Therefore, market power is not limited by consumer reaction, as it typically is in other industries. Third, market power can be exercised in numerous ways in electricity markets. For example, market power can be exercised by withholding capacity or by raising the price at which the capacity is offered for sale. Fourth, market power may be enhanced in electricity markets because supply response may be limited. This is especially true during peak hours, when demand is high and all available alternative resources may already be on-line. Fifth, not all generation plants are created equally. Generation plants all have different heat rates and fuel costs, and because of these differences in efficiency levels their marginal costs are different. Withholding of a generation plant, therefore, may increase the price of electricity as the next high-

²⁴⁸ See *supra* Section II.

est-cost generator is brought on-line to replace it. Finally, some power plants have “locational market power” because they are necessary in order to assure system stability. A plant with locational market power may be called upon to run to assure voltage stability or to assure adequate transmission capacity (e.g., because the plant provides counterflow).²⁴⁹

The incentive to exercise market power is twofold. First, by withholding the generation plant that might otherwise set the clearing price for all generation in the market, the next highest-cost plant is called into operation. This raises the clearing price for all generation in the market. Thus, many generation owners with infra-marginal plants²⁵⁰ have the incentive to exercise market power.²⁵¹

Most generation companies like to own a diversity of assets. This means that they own baseload generation (generation that typically runs all the time) and peaking facilities (generation called upon in peak hours). Baseload generation is typically infra-marginal while peaking facilities are frequently marginal. Thus, each owner of generation in California is likely to have the ability to exercise market power independent of collusion in hours where demand is at its peak.

If demand is not at peak, generators may have an incentive to collude. Suppose, for example, that if Energex withholds its marginal generator, which bid at \$3, the ISO will merely call upon Edison generator, which bid at \$3.01. Independently withholding capacity may not make sense here for Energex because it is losing the money it would otherwise make on the marginal generator, and is only gaining \$.01 over the output of its other assets. However, suppose that the next generator after Energex has a fairly well known fuel cost and heat rate that makes its minimum

²⁴⁹ These plants, known as reliability-must-run (RMR) plants, were subject in California to contract-based prices if they were called upon for reliability purposes. However, such contract prices were also subject to gaming: Should the RMR unit's owner suspect that the price for power would be lower in the market than the contract price paid by the ISO, the owner could bid the unit so as not to be called on to run in the market and instead receive the higher contract price. For a discussion of market power associated with RMR units, see Frank A. Wolak & James Bushnell, *Reliability Must-Run Contracts for the California Electricity Market* (Mkt. Surveillance Comm. of the Cal. ISO, Apr. 2, 1999), available at <http://faculty-gsb.stanford.edu/wilson/archive/E542/classfiles/RMRreport.pdf> (last visited June 5, 2004).

²⁵⁰ In other words, baseload generation with low marginal costs. Note, however, that combined cycle gas plants are often intermediate load generation, but nonetheless are oftentimes infra-marginal.

²⁵¹ See *infra* Figure 1.

bid \$5.00. Here, Energex and Edison may have large incentives to collude to withhold their marginal plants. Withholding could mean bidding at \$6.00.²⁵² The previous discussion raises the issue of unplanned outages. Unprecedented levels of shutdowns occurred during several months in 2001.²⁵³ Nearly 15,000 megawatts were off-line in April 2001.²⁵⁴ Average monthly electricity prices jumped from \$30/MWh in 2000 to \$1,500/MWh in 2001.²⁵⁵ It is not clear whether or not the outages (both forced and planned) were due to market power exercises or due to genuine maintenance concerns.²⁵⁶ One of the reasons it is difficult to discern the difference is that the generators, due to capacity shortages, were running at higher rates for longer periods of time than has normally been the case.²⁵⁷ Additionally, in order to keep other generators running longer, emissions control equipment had to be installed.²⁵⁸ Moreover, California had asked the operators of numerous critical plants to postpone routine maintenance in the face of continued shortages.²⁵⁹ Thus, many plants may have shut down in April to apply necessary maintenance prior to the peak summer months.

The problem is akin to having a mechanic tell a mechanically inept automobile owner that the alternator needs replacing. The owner may not recognize fraud, and even if the mechanic brings out a broken alternator, the owner is never sure whether or not the device belongs to the owner's car or even whether it is indeed

²⁵² Also, because of the operational characteristics of power plants, one could alter the minimum run time of a power plant to ensure that when it is called upon, it is called to run for a length of time in excess of the run time dictated by engineering standards. Thus, manipulation of baseload and intermediate load facilities could also extract excess profits from the market.

²⁵³ Duane, *supra* note 94, at 513 n.146.

²⁵⁴ Mitchell Landsberg, *Plant Shutdowns Tied to Power Costs*, L.A. TIMES, May 12, 2001, at A1.

²⁵⁵ *Id.*

²⁵⁶ There are, of course, some hints that at least some of the plant shutdowns were for anticompetitive purposes. Paul Joskow, *California's Electricity Crisis*, 17 OXFORD REV. ECON. POL'Y 365, 381 (2001) (noting that amount of generating capacity out of service was "unusually large"). A paper cowritten by Joskow suggests that the outages were due to incentives to withhold power. See Paul Joskow & Edward Kahn, *Identifying the Exercise of Market Power: Refining the Estimates* 3 (2001). The CPUC appears to have amassed some evidence of physical withholding. See Report on Wholesale Electric Generation Investigation (September 2002), available at <http://www.cpuc.ca.gov/static/industry/electric/wholesale+generator+report.pdf>.

²⁵⁷ Landsberg, *supra* note 254.

²⁵⁸ *Id.*

²⁵⁹ *Id.*

an alternator. State regulatory officials may be able to monitor such conduct by subpoena of maintenance records, but again they are unlikely to recognize a broken alternator when they see one.

There is some evidence, however, that generators may not be savvy at hiding market power exercises. The Department of Justice (DOJ) was allegedly investigating whether AES Corporation and Williams Energy Services conspired to withhold generation from the California market.²⁶⁰ While it is unclear whether the DOJ was investigating if the units were forced out for illegitimate reasons or if they were kept off longer than normal for illegitimate reasons, the thrust of the investigation is apparently whether the units were withheld from service in order to enable Williams to gain higher prices by selling power from other units it owns. The units pulled out of service supply power to utilities at a relatively low price.²⁶¹

The CPUC has also asserted that it found evidence of collusion to withhold capacity through unplanned outages.²⁶² Among the allegations the CPUC head asserted was that during Stage 1 alerts,²⁶³ plants are pulled off-line quickly, exacerbating the shortage.²⁶⁴

IV

THE ANTITRUST LAWS

The electricity industry has traditionally been subject to anti-trust law. As stated above, electricity is typically subject to both federal and state jurisdiction. In general, FERC regulates the wholesale aspects of the electricity industry²⁶⁵ while the states regulate the retail components. Deregulation has simultaneously increased the tension between the federal and state regulators while opening up a broader range of conduct to both segments.

It was at one time a common misperception in the industry that because FERC must examine the antitrust implications of its

²⁶⁰ Peter Behr, *Justice Probes AES's Electricity Deal*, WASH. POST, June 6, 2001, at A11.

²⁶¹ *Id.*

²⁶² Rich Connell & Robert Lopez, *PUC Chief Alleges Plot to Raise Prices*, L.A. TIMES, May 18, 2001, at A1.

²⁶³ A Stage 1 alert occurs when reserves drop below seven percent.

²⁶⁴ Connell & Lopez, *supra* note 262.

²⁶⁵ *But see* New York v. Fed. Energy Regulatory Comm'n, 535 U.S. 1 (2002).

policies under the Federal Power Act,²⁶⁶ FERC regulation immunizes industry conduct from scrutiny by the Federal Trade Commission (FTC) and the DOJ. As the U.S. Supreme Court stated in *Otter Tail Power v. United States*, the legislative history of the Federal Power Act indicates that:

Congress rejected a pervasive regulatory scheme for controlling the interstate distribution of power in favor of voluntary commercial relationships. When these relationships are governed in the first instance by business judgment and not regulatory coercion, courts must be hesitant to conclude that Congress intended to override the fundamental national policies embodied in the antitrust laws.²⁶⁷

The antitrust laws have been applied to various types of conduct within the electric power industry. Specifically, three key provisions govern most conduct within that industry. First, section 1 of the Sherman Act prohibits contracts, combinations, or conspiracies in restraint of trade or commerce.²⁶⁸ Conduct that has been found to violate this section includes horizontal territorial divisions,²⁶⁹ agreements not to compete,²⁷⁰ tying arrange-

²⁶⁶ See, e.g., *Gulf State Utilities Co. v. Fed. Power Comm'n*, 411 U.S. 747, 759-60 (1973).

²⁶⁷ *Otter Tail Power Co. v. United States*, 410 U.S. 366, 374 (1973).

²⁶⁸

Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal. Every person who shall make any contract or engage in any combination or conspiracy hereby declared to be illegal shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding \$10,000,000 if a corporation, or, if any other person, \$350,000, or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court.

15 U.S.C. § 1 (2000).

²⁶⁹ See, e.g., *Gainesville Utilities Dep't v. Florida Power & Light Co.*, 573 F.2d 292, 300 (5th Cir. 1978) (explaining that an agreement to divide territories per se is unlawful under § 1); *Pennsylvania Water & Power Co. v. Consol. Gas, Elec. Light & Power Co.*, 184 F.2d 552, 567-68 (4th Cir. 1950) (explaining that an agreement allowing one utility to control the wholesale energy prices of the second is per se illegal under § 1); *United States v. Florida Power Corp.*, 1971 Trade Cas. (CCH) ¶ 73,637 (M.D. Fla. 1971).

²⁷⁰ See, e.g., *United States v. Rochester Gas & Elec. Corp.*, 4 F. Supp. 2d 172 (W.D.N.Y. 1998). RG&E offered to supply the University of Rochester electricity at reduced rates if the University agreed "not to solicit or join with other customers of RG&E to participate in any plan designed to provide them with electric power and/or thermal energy from any source other than RG&E." *Id.* at 174. After RG&E lost its summary judgment motion, the case settled with a consent decree forbidding RG&E from enforcing any agreement not to compete. See *United States v. Rochester Gas & Elec. Corp.*, 1998-1 Trade Cas. (CCH) ¶ 72,200 (W.D.N.Y. 1998).

ments,²⁷¹ and mergers.²⁷²

Electric utilities are also subject to section 2 of the Sherman Act, which prohibits monopolization, attempted monopolization, and conspiracies to monopolize.²⁷³ Numerous types of conduct have been halted using this section, including denial of access to transmission service,²⁷⁴ leveraging of monopoly power into other markets,²⁷⁵ and price squeezes.²⁷⁶

Electric utility mergers and acquisitions are subject to section 7 of the Clayton Act, which prohibits stock or asset acquisitions

²⁷¹ See *United States v. City of Stillwell*, 1999-1 Trade Cas. (CCH) ¶ 72,398 (E.D. Okla. 1998) (final judgment). The City of Stillwell required that customers purchase electric power from the city if they wished to receive water and sewer service. The City held monopoly power in water and sewer service but not in the provision of electric power.

²⁷² See *City of Pittsburgh v. West Penn Power Co.*, 147 F.3d 256 (3rd Cir. 1998) (affirming dismissal of city's antitrust suit against two power companies due to a lack of potential competition); see also Darren Bush & Salvatore Massa, *Rethinking the Potential Competition Doctrine* (working paper on file with author).

²⁷³

Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding \$10,000,000 if a corporation, or, if any other person, \$350,000, or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court.

15 U.S.C. § 2 (2000).

²⁷⁴ See *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973) (describing a refusal to sell power at wholesale or wheel power to former retail customer municipalities); *Florida Mun. Power Agency v. Florida Power & Light Co.*, 64 F.3d 614 (11th Cir. 1995); cf. *City of Anaheim v. S. California Edison Co.*, 955 F.2d 1373 (9th Cir. 1992) (explaining that the utility had legitimate business justification for denying transmission service in that providing such service would cause utility to forego use of its own transmission lines and thereby increase the utility's own costs); *City of Vernon v. S. California Edison Co.*, 955 F.2d 1361 (9th Cir. 1992) (describing a refusal to enter into an operating agreement to integrate city's power purchases into the transmission system).

²⁷⁵ See *Yeager's Fuel, Inc. v. Pennsylvania Power & Light Co.*, 22 F.3d 1260 (3rd Cir. 1994) (offering of reduced electric rates for purchases of homes electrically heated); cf. *Aquatherm Indus., Inc. v. Florida Power & Light Co.*, 145 F.3d 1258 (11th Cir. 1998) (leveraging did not exist where utility did not sell products related to plaintiff's market).

²⁷⁶ See *City of Kirkwood v. Union Elec. Co.*, 671 F.2d 1173 (8th Cir. 1982) (rejecting filed rate doctrine as a defense); *City of Mishawaka v. Am. Elec. Power Co.*, 465 F. Supp. 1320 (N.D. Ind. 1979), *aff'd in part and vacated in part*, 616 F.2d 976 (7th Cir. 1980) (finding illegal price squeeze by utility that precluded its wholesale customers from competing with utility for retail customers); *Fed. Power Comm'n v. Conway Corp.*, 426 U.S. 271 (1976); *Town of Norwood v. New England Power Co.*, 202 F.3d 408 (1st Cir. 2000); cf. *Town of Concord v. Boston Edison Co.*, 915 F.2d 17 (1st Cir. 1990).

that “tend to lessen competition” or that tend to “create a monopoly.”²⁷⁷ Numerous mergers have been challenged, some leading to the requirement that the merging utilities divest assets in order for the transaction to go forward.²⁷⁸

A. Acquisition of Strategic Generation Prior to Commencement of Competition

One possible avenue that perhaps would have caused fewer exercises of market power in the deregulated electricity market is the elimination of the incentive and ability, *ex ante*, for generators to exercise market power. While regulatory mechanisms may offer security *ex post* by mitigating the exercise of market power and while antitrust may remedy harms *ex post* as well, *ex ante* mechanisms would ensure that such exercises never took place.

In California, every generator in most hours had the ability to exercise market power. This is because, as explained above, in most hours California was short on capacity. During such times, any withholding strategy would cause the clearing price to rise dramatically. However, such ability without an incentive means very little. Sadly, many generation owners in California had the incentive to increase prices within California due to the location of the plants they owned on the bid curve.

There were two reasons why the exercise of market power by generation owners was not foreseeable, and, even if foreseeable, non-resolvable under the antitrust laws. First, the pre-competition acquisition of generation passed muster under the Horizontal Merger Guidelines promulgated by the DOJ and FTC (and

²⁷⁷ Section 7 reads, in part:

No person engaged in commerce or in any activity affecting commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no person subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another person engaged also in commerce or in any activity affecting commerce, where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

15 U.S.C. § 18 (2000).

²⁷⁸ See, e.g., *United States v. Enova Corp.*, 107 F. Supp. 2d 10 (D.D.C. 2000). A transaction between Consolidated Edison and Orange & Rockland Utilities was cleared after the parties divested certain assets. See Press Release, U.S. Dept. of Justice, *Divestitures Resolve Department of Justice Investigation of New York Utility Merger* (July 2, 1999), available at http://www.usdoj.gov/atr/public/press_releases/1999/2550.htm.

followed to some degree by FERC). Second, there was no anticipation that the acquisitions would enable the generation owners to exercise something akin to vertical market power by using disparate generation resources to benefit other units in the generation owner's fleet.

To see why the purchase of power plants failed to attract antitrust scrutiny, consider the following hypothetical: California Utility Corp. (CUC) has ten generation assets up for sale, five base load units and five peaking facilities. Suppose that in the first sale, CUC sold one base load facility and one peaking facility to Gulf of Texas Energy (GOTE), conferring upon GOTE a 20% market share based upon capacity of its baseload plant and a 1% market share based upon the capacity of its peaking plant. The acquisition of the two units will survive antitrust scrutiny: the effect of the transaction is deconcentrating (the 21% market share gained by GOTE is substantially less than the 100% market share that CUC controlled). Thus, the transaction is unlikely to be challenged by antitrust enforcers.

Even if the purchases of generation were sequential, they are unlikely to be challenged. Suppose that GOTE first purchased a plant conferring upon it a 20% market share in the California market. It then purchased in a subsequent auction a peaking facility, increasing its market share by 1%. Under the Horizontal Merger Guidelines,²⁷⁹ there would be no challenge, because the market share is sufficiently low in the relevant market and the transaction does not dramatically increase it. Again, the overall transaction's effect would appear deconcentrating because of the substantial market share that the utility held over pre-sale capacity.

However, such a purchase could very well have anticompetitive effects. For example, suppose that GOTE's peaking unit is the unit whose bid is the last selected in the PX most hours. Assume further that demand is perfectly inelastic. GOTE may know that its unit is typically called upon under these weather conditions. Thus, GOTE may bid that unit higher (or have an "accident") that causes the plant to be either physically or economically withheld. As a result, the next highest-cost plant is selected, causing prices in the market to increase. As a result,

²⁷⁹ United States Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines § 1.1, *reprinted in* JOHN J. FLYNN ET AL., ANTITRUST: STATUTES, TREATIES, REGULATIONS, GUIDELINES, AND POLICIES 121-22 (2001).

GOTE's baseload unit will have conferred upon it rents accrued due to GOTE's exercise of market power over its peaking unit.

This phenomenon is depicted in Figure 2 at the end of this Article. In Figure 2, GOTE withholds its marginal generation unit, causing the next-lowest priced unit to come on-line, lifting the clearing price paid to all units in the market. Absent perfect mitigation measures, GOTE continues to have an incentive to engage in this activity so long as it owns a diversity of assets and is assured that its unit will not be replaced by a unit of equal price.

During the period prior to launching of the California "deregulated" market, a flurry of generation sales were approved by the FERC. In each instance, FERC applied its market power test from its merger policy statement.²⁸⁰ Also in each instance, FERC approved the transaction because there was no indication of market power, given that no generator held more than 20 percent of the assets (by design of the CPUC)²⁸¹ and that each transaction had a deconcentrating effect on the market.²⁸² Moreover, the sales were necessary in order for generation to be separated from transmission to ensure that vertical market power would not take place. Finally, the sales were necessary in order for California's energy market to commence, something that FERC wished to see take place. California supported the power plant buyers' requests to supply power at market-based rates.

Market power could potentially be exercised even in instances where the generation company does not own the marginal unit that sets the market clearing price. Suppose, for example, that

²⁸⁰ Order No. 592, Inquiry Concerning the Commission's Merger Policy Under the Federal Power Act; Policy Statement, 61 Fed. Reg. 68,595, (1996), *on recons.*, Order No. 592-A, 79 F.E.R.C. ¶ 61,321 (1997). FERC has recently modified its market power test. See FERC, Order on Rehearing and Modifying Interim Generation Market Power Analysis and Mitigation Policy (issued April 14, 2004). The new market power tests use a series of screens to test for market power, raising the risk that, as with prior FERC screens, market power might go undetected by the screens.

²⁸¹ Duane, *supra* note 94, at 515.

²⁸² The notion that rudimentary market power concentration measures are ineffective determinants of the existence of market power in energy markets is not new. See, e.g., Robert J. Michaels, *Market Power in Electric Utility Mergers: Access, Energy, and the Guidelines*, 17 ENERGY L.J. 401, 419 (1996) ("Measures of concentration become particularly suspect when analyzing efficient plants because they will depend on market prices of the future that are intrinsically unknowable today."); Borenstein & Bushnell, *supra* note 108, at 49 ("The ability of firms with . . . modest market shares to exercise market power is greater [in electricity] than in most [other] markets. That is why concentration measures that are widely used to diagnose the potential for market power are not very informative when applied to electricity markets.").

the purchaser of baseload generation owns no marginal generation, but owns a gas pipeline that is the sole supplier of gas to the unit setting the clearing price during most hours.²⁸³ The pipeline owner will possess an incentive and ability to exercise market power without ownership of significant generation resources by increasing the cost of fuel to the marginal unit. Such a scenario is impervious to FERC's market power screen.²⁸⁴

In applying the superficial market power screen in the merger policy statement, FERC and California ignored potential supply and demand conditions, vertical issues associated with gas ownership, and bid-curve strategies such as the ones outlined above.²⁸⁵ Moreover, the DOJ was unable to challenge these transactions because they were on their face procompetitive, and projections of how the markets might function at some point in the distant future would prove too tenuous a case to survive dismissal.

In bringing such a case, the DOJ would also face the difficulty of defining relevant markets in a way meaningful in antitrust law. There would be two possibilities. First, the relevant market might be the market as defined by the CPUC—i.e., the day-ahead market and the hour-ahead market. The analysis under this approach would mimic that of FERC's merger policy statement. Since no generator owned more than 20% of the market's capacity, a complaint based upon the accumulation of a 20% market share (with a pre-acquisition share of 0%!) would be unlikely to survive a motion to dismiss.

Another option would have been to allege a relevant market along the following lines: the relevant market is the capacity provided by the marginal generation unit during the daytime hours during the months of June through August, two years from now, had that unit bid normally but for an exercise of market power. The allegation appears tautological—as the relevant market is in fact the generation unit.

Intuitively, however, the latter approach makes sense. During hours in which demand intersects supply at the marginal unit to

²⁸³ See Navarro & Shames, *supra* note 155, at 46 (explaining that there can be no free market in electricity if the gas pipeline system is plagued by market power).

²⁸⁴ See, e.g., *United States v. Enova Corp.*, 107 F. Supp. 2d 10 (D.D.C. 2000) (describing a consent decree discussing ability of gas provider to raise prices for gas in California market and thus increase profits on provider's low cost electric generation within that state).

²⁸⁵ It is unclear yet whether FERC's new screens will prove Santayana right.

be owned by the acquiring firm and where the supply curve is particularly steep, there is no substitute for that generation. Thus, it would indeed be the case that the generation unit would have some degree of market power. If this were the only unit owned by the acquiring company, the case would fall short because the generator would lack an incentive to withhold. However, where the acquiring company owns multiple units, including baseload, the incentive is present in hours where its peaking facility is on the margin to withhold.

However, to a presiding judge, the approach will seem contrived, and the DOJ likely could never bring such a case. Plus, the fewer the hours the unit is on the margin, the less likely the case will be a winner. Moreover, the evidence presented in such a case will be speculative: forecasted demand projected several years out with a supply curve based upon marginal cost.

In sum, the antitrust laws cannot prevent the acquisition of generation sufficient to exercise market power where there is no straightforward horizontal concentration. Thus, market rules must prevent the acquisition of a combination of generation units that give rise to the incentive and ability to exercise market power.

B. Allegations Against Enron

In memoranda prepared by Enron's attorneys in response to FERC staff's investigation of the California power crisis, Enron's various trading strategies were detailed. These strategies have been the focus of much outrage. Senators from California, for example, publicly called for an antitrust investigation of Enron and other energy traders in the California energy market.²⁸⁶

Enron allegedly used numerous strategies to manipulate market prices in California. What follows is a brief description of each strategy and a discussion of whether that conduct violated the antitrust laws.

1. Load Shift

Enron's load shift strategy involved the receipt of interzonal

²⁸⁶ See Nancy Rivera Brooks et al., *Memo Shows Enron Role in Hiking Prices*, L.A. TIMES, May 7, 2002, at A1 (quoting Sen. Boxer as stating that the documents "confirm what I've been saying for months, that Enron manipulated the California energy market and needs to be held accountable. It is high time we see some indictments handed down in this case," and calling for an antitrust investigation.).

congestion payments²⁸⁷ by submitting artificial schedules. Enron would, for example, artificially create congestion in California's southern zone by over-scheduling in the southern zone and under-scheduling by a corresponding amount in the northern zone.²⁸⁸ By creating this imbalance, Enron forced the ISO to find additional transmission capacity (flowing from north to south). Load was thus shifted from north to south, and Enron was paid congestion rents, because it owned 62% of the Firm Transmission Rights (FTRs)²⁸⁹ for north-south transmission on Path 26.²⁹⁰ This created an incentive for Enron to shift load in order to collect congestion rents. According to FERC, Enron received the vast majority of its payments during July and August of 2000.²⁹¹ These payments totaled approximately \$33 million for those two months.²⁹²

However, while Enron was able to increase the amount and duration of congestion, it was unsuccessful in its attempts to increase the price it was paid for congestion. This is because the two largest load-serving entities (LSEs), Pacific Gas & Electric and Southern California Edison, often set the price for congestion relief.²⁹³ LSEs would bid to decrease or increase their load in this congestion market. If load were required to be shed or increased, bids would be accepted based upon stacked bid submissions from all LSEs. For the vast majority of hours in the California market, Pacific Gas & Electric and Southern California Edison set the price for congestion relief (ranging from 1500 megawatts to 4000 megawatts).²⁹⁴ Thus, while Enron could increase the volume of congestion, it could not increase the clearing price paid for congestion relief because in most hours the major utilities set the price for congestion relief.²⁹⁵ Nor could Enron's strategy affect real-time prices, for those were deter-

²⁸⁷ Federal Energy Regulatory Commission, Initial Report on Company-Specific Separate Proceedings and Generic Reevaluations; Published Natural Gas Price Data; and Enron Trading Strategies: Fact-Finding Investigation of Potential Manipulation of Electric and Natural Gas Prices, Docket No. PA02-2-000, at 84 (2002), available at <http://www.ferc.gov/legal/staff-rep-elec.asp> (last visited June 5, 2004) [hereinafter Enron Report].

²⁸⁸ *Id.* at 85.

²⁸⁹ *Id.*

²⁹⁰ *Id.* at 85-86. Enron paid \$3.6 million for these FTRs. *Id.* at 85.

²⁹¹ *Id.* at 86.

²⁹² *Id.*

²⁹³ *Id.*

²⁹⁴ *Id.*

²⁹⁵ See Final Report, *supra* note 7, at VI-13, VI-14 (noting that while "Enron was

mined only after corrections had been made to Enron's load forecasts.

The load shift strategy pursued by Enron appears to be largely a phenomenon of California's quirky regulation. Specifically, because Enron was not required to internalize the costs of congestion that Enron by itself created, Enron could receive revenues by causing more congestion in the day-ahead market and be paid to relieve congestion in real time.²⁹⁶

The strategy is impossible to alleviate via antitrust means. While the FTRs received by Enron were a substantial portion of the FTRs on Path 26,²⁹⁷ Enron did not use its FTRs in any monopolistic fashion. Rather, any generation plant had the potential of creating greater congestion (and benefiting Enron's bottom line through congestion payments) without bearing any market power. And, because the strategy is typically unilateral, it is unlikely to be assailable under section 1 of the Sherman Act.

2. *Exports of California Power and Ricochet*

Enron also engaged in strategies called "exports of California Power" and "Ricochet."²⁹⁸ Because the two strategies are similar, they will both be discussed here. The exports of California power strategy involved buying energy at the PX for export outside of California. This strategy was implemented during the time period in which California wholesale prices remained capped, while the rest of the WECC faced uncapped wholesale rates. In order to obtain higher wholesale prices outside of the price cap (and to meet increased demand in the western states), Enron exported power that it purchased in the PX at a capped price at a time when California desperately needed imports.²⁹⁹ The result was an increase in the real-time costs of power for the ISO seeking imports, and an assurance that the day-ahead price would remain at capped price levels.

The Ricochet (a.k.a. "megawatt laundering" and "round trip

generally not able to move the cost of congestion," it nonetheless added to the "confusion" of the market).

²⁹⁶ This strategy could not take place in energy markets in other regions of the country. See FERC SMD NOPR, *supra* note 79, at 55,582, ¶ 4.

²⁹⁷ See Enron Report, *supra* note 287, at 85-86.

²⁹⁸ *Id.* at 88, 92.

²⁹⁹ FERC staff has noted that Enron is unlikely to have been the only firm engaging in this strategy. California exports were substantially greater during the summer of 2000 than in previous years—between 40% and 230%. *Id.* at 90.

trading”) trading strategy involved purchasing power from the California day-ahead market and exporting it to a second entity outside of the state.³⁰⁰ The energy was then resold to the California ISO in the real-time market or an out-of-market sale.³⁰¹ To engage in this strategy, transmission resources and generation resources are necessary.³⁰² Because Enron did not own transmission in California, Enron used the transmission systems³⁰³ of the City of Los Angeles Department of Water and Power (LADWP), the Transmission Agency of Northern California (TANC), Bonneville Power Administration (BPA), its own public utility affiliate, Portland General Electric (PGE), and others.³⁰⁴

As with exports of California power, this strategy was employed when the FERC price cap only governed California’s real-time market and not the WECC. California typically imported power from outside of California in the real-time market and also from “out of market.” Thus, Ricochet was used to avoid regulation of wholesale prices.

The goal of these strategies was to equilibrate the uncapped wholesale prices faced by the WECC (except California) with the capped prices being paid in the California market (\$250/MWh). The strategies worked because when the ISO needed power from outside the state, the ISO procured that power at uncapped rates. Thus, as California and the WECC were scrambling to find power, it was unsurprising that California would be the losing party in this competition for power. The strategies were never prohibited under California’s market rules.

While these strategies contributed to scarcity within California, they did so only to the extent that California was unwilling to

³⁰⁰ Final Report, *supra* note 7, at VI-17.

³⁰¹ Enron Report, *supra* note 287, at 92.

³⁰² *Id.* at 94.

³⁰³ Other market participants also appear to have engaged in this strategy. See Final Report, *supra* note 7, at VI-18, VI-19.

³⁰⁴ Enron Report, *supra* note 287, at 93. The use of its public utility affiliate raises interesting antitrust issues. Typically Section 1 Sherman Act cases against related companies would be barred under the intra-enterprise conspiracy doctrine. Specifically, related companies may not be capable of conspiring with one another because they have a “complete unity of interest . . . [such that] there is no sudden joining of economic resources that had previously served different interests.” *Copperweld Corp. v. Indep. Tube Corp.*, 467 U.S. 752, 771 (1984). However, one could potentially assert that a combination of resources that regulation had mandated remain separate could in fact violate section 1 of the Sherman Act. See Darren Bush, *Conspiracies of One: When Violation of FERC’s Code of Conduct Rules Constitutes a Conspiracy in Restraint of Trade* (working paper on file with authors).

compete with the rest of the WECC for procurement of power. Indeed, California exacerbated the situation with the help of FERC by continually asking and receiving lower price caps. In July 2000, California asked FERC to establish a \$750/MWh price cap. In August 2000, California asked FERC to lower the price cap to \$500/MWh. In September 2000, California asked FERC to lower the price cap to \$250/MWh. And in November 2000, California ISO admitted that the flat price caps were a failure when the state faced a lack of imports, and asked FERC to void the \$250/MWh price cap. In December 2000, FERC issued a price cap of \$150/MWh plus actual variable costs for fuel and emissions.³⁰⁵

No antitrust violation was involved in this strategy, absent evidence that Enron had coordinated its behavior with others. Enron chose to charge a high price for the power it supplied. A long line of antitrust cases allows even monopolists to charge whatever price they wish for their products, absent some other conduct.³⁰⁶ The increase in prices within California was not the result of some withholding strategy or otherwise anticompetitive conduct, but due to the very nature of California's regulation. By not recognizing that the WECC should be a single ISO due to the high level of dependency among the western states, California and federal regulators set up a barrier that created incentives to export power, all the while allowing such export.

3. *Fat Boy (Inc-ing of Load)*

"Fat Boy" was a mechanism by which a scheduling coordinator³⁰⁷ could artificially increase ("inc") load on the schedule it

³⁰⁵ See Bolton, *supra* note 218.

³⁰⁶ See, e.g., *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 275 n.12 (2d Cir. 1979).

Nor is a lawful monopolist ordinarily precluded from charging as high a price for its product as the market will accept. True, this is a use of economic power; indeed, the differential between price and marginal cost is used as an indication of the degree of monopoly power; . . . but high prices, far from damaging competition, invite new competitors into the monopolized market.

³⁰⁷ Enron was a scheduling coordinator because it served some load in California. Scheduling coordinators (SCs) submit balanced schedules and provide settlement-ready meter data to the ISO. The strategy here should be contrasted with anticompetitive strategies that typically involve security coordinators. For example, security coordinators might use their control over transmission lines to benefit their affiliate generation. In the Midwest, for example, security coordinators might call for the unloading of a line through transmission loading relief procedures in ways that

submitted to the California ISO. Under California rules, all schedules submitted by a scheduling coordinator would have to be balanced, i.e., supply would have to equal demand.³⁰⁸ The scheduling coordinator could meet demand by running generation it scheduled and/or by purchasing power on the market. Enron's overestimation of load meant that Enron would schedule additional generation that was not meeting demand. Thus, Enron guaranteed itself any energy payment by overscheduling load.³⁰⁹

Oddly enough, the strategy was designed to counter the monopsony strategies developed by the three major California LSEs. During the time this conduct was taking place, the real-time market price was capped, whereas the day-ahead market was not.³¹⁰ Thus, to minimize costs, the utilities would only purchase power on the day-ahead market at prices that were below the real-time cap.³¹¹

The utilities' strategy created enormous scheduling problems for the ISO. The real-time market was meant to be a balancing market serving less than five percent of the supply needed to balance supply and demand.³¹² By transforming this balancing market into a full-scale commodity market, the utilities caused severe reliability problems for the ISO. Moreover, the strategy of the utilities drove the California PX price below efficient levels.

Enron's Fat Boy strategy actually helped the ISO balance load, and the ISO to some degree helped Enron engage in the Fat Boy trading strategy.³¹³ The Fat Boy strategy alleviated the under-scheduling problem by supplying the ISO with "phantom" load—scheduling of load to artificial delivery points. The ISO actually helped Enron in this strategy to ensure that the ISO did not have to scramble for power on a market that was designed to supply no more than twenty percent of California's energy needs.

The Fat Boy trading strategy did not constitute a violation of the antitrust laws. The strategy, while involving deception and a

might benefit affiliate generation. *See* Rao & Tabors, *supra* note 68, at 21 (noting that vertically integrated transmission providers may foreclose generators from competing with affiliate generation via use of their transmission systems).

³⁰⁸ Enron Report, *supra* note 287, at 94.

³⁰⁹ *Id.*

³¹⁰ *Id.* at 95. The PX day-ahead cap was approximately ten times higher than the ISO price cap.

³¹¹ *Id.*

³¹² *Id.*

³¹³ *Id.*

contortion of market rules, is just that—a contortion of market rules. Moreover, the strategy involved substantial risk for Enron and is more akin to arbitrage than a market power exercise. Enron was essentially wagering that more load would need to be served than the ISO was anticipating.³¹⁴ If Enron was correct in its guess, then it would be paid a higher price than it would receive in the day-ahead market.³¹⁵ If Enron was wrong, it would receive a lower price or perhaps nothing. Enron was unable to manipulate these prices or exclude other generation from these markets.

There is, however, some degree of concerted action between the ISO and Enron, akin to a vertical restraint of trade subject to the rule of reason. The justification for the collusion, of course, is system reliability in the wake of potential brownouts and enormous scheduling problems. Moreover, the strategy was a defense against market power exercised by the utilities. Consumers suffered no injury from this strategy—in fact, their lot may have been improved given that they were less likely to suffer brownouts.

4. *Non-Firm Export, Death Star, Wheel Out, and Other Counterflow Strategies*

Enron engaged in several trading strategies designed to enable Enron to be paid for counterflow.³¹⁶ Specifically, Enron took advantage of flaws in California's congestion management software to receive payment for "reducing congestion" without ever having to move a single megawatt.³¹⁷ While they varied to some degree by name and pattern, the ultimate goal of the strategy was always the receipt of this payment for reducing congestion. In many instances, the strategies involved multiple parties.

"Death Star" referred to the strategy of scheduling energy in the opposite direction of a congestion point, providing counterflow. However, no energy was ever moved, because the counterflow was typically provided against another Enron transaction moving in the direction of the congestion. The moves cancelled

³¹⁴ This was a safe bet given the exercises of monopsony power taking place by the utilities.

³¹⁵ Given California's market conditions, Enron was engaging in a relatively safe bet.

³¹⁶ See *supra* note 249 and accompanying text for an explanation of counterflow.

³¹⁷ Enron Report, *supra* note 287, at 96.

each other out, except that Enron received a congestion payment.

“Wheel Out” referred to the practice of scheduling the moving of power in the direction of congestion on a fully constrained intertie, knowing full well that the transaction would be cut and Enron would receive a congestion payment.³¹⁸ Once again, no actual energy need be moved to engage in this strategy.

“Non-Firm Export” refers to the strategy of receiving a congestion payment for counterflow by scheduling non-firm energy from a point in California to a control area outside the state, and then cutting the transaction once the congestion payment is received.³¹⁹

The existence of the counterflow strategies largely arose from poor congestion-management software design and faulty market rules, not from exercises of market power. Specifically, Enron could schedule power to flow across lines that were full or out of service and receive congestion payments for backing off the power. Moreover, the market rules allowed such behavior to flourish on a first-mover basis. Because the transmission lines in question were typically always constrained, the first to provide phantom counterflow would receive the payment. Thus, Enron is blamed here for being the quickest to exploit the weakness in the market rules and congestion software, whereas others would have done so as well.³²⁰

FERC claims that this strategy would not be practicable under FERC’s SMD NOPR or under more efficiently designed systems such as PJM and the New York Independent System Operator (NYISO).³²¹ A properly functioning market would have made this strategy unprofitable because the entity creating the congestion would be required to pay for it. However, under California’s rules, the entity creating the congestion was never required to pay for the congestion it created. Instead, it would be paid to alleviate it.

³¹⁸ Hilariously, in many instances, the tie was never in service. Ross Perot’s company, Perot Systems, provided this software, and it is these strategies that are the subject of discussion with respect to Perot’s involvement in the California crisis. *See California State Senator Accuses Perot Systems and Three California Municipal Utilities of Market Corruption*, FOSTER ELEC. REP., June 12, 2002, at 9.

³¹⁹ Enron Report, *supra* note 287, at 96. California forbade this practice in August 2000. *Id.* at 97.

³²⁰ *Id.* at 98.

³²¹ FERC SMD NOPR, *supra* note 79, at Appendix E.

5. *Get Shorty*

The “Get Shorty” trading strategy was designed to take advantage of flaws in the ancillary services market. Enron would bid to provide ancillary services in the California PX’s day-ahead market and then cover in the real-time market. This strategy permitted Enron to sell ancillary services at a high price and purchase them at a low price. Such arbitrage was permitted by the ISO, except that Enron submitted false information as to the origin of its ancillary service coverage.³²² Using this strategy, Enron sought to arbitrage the day-ahead ancillary services market with the real-time market. Specifically, Enron would sell ancillary services in the day-ahead market and purchase them in the real-time market, making money off the spread.

There are two grievances with this strategy, neither of which are antitrust related. First, Enron, by committing to sell ancillary services in the day-ahead market, submitted false information to the ISO indicating from which facilities ancillary services would be provided.³²³ The purpose, of course, was to ensure system reliability by giving the ISO notice as to which facilities would be available to provide ancillary services. Had the ISO called upon Enron to provide such ancillary services, the ISO would have been up a congested path without counterflow.

FERC’s SMD NOPR³²⁴ suggested that it would allow for virtual bidding, which would allow convergence of day-ahead market and hour-ahead market prices. It would allow traders to submit bids to provide ancillary services not backed by physical units if they are so identified. Thus, FERC would establish a two-tier ancillary services market, one in which ancillary services are backed by physical assets and one in which ancillary services are simply financial trades.

In sum, Enron’s strategy did nothing to impact the California crisis, although it did attempt to make the day-ahead market and hour-ahead ancillary services markets converge. The bad con-

³²² Enron sought to profit from Get Shorty by getting paid for a firm ancillary service even though it had not incurred the costs to line up resources to provide the service. If called upon by the ISO, Enron’s strategy was to go to the real-time market to fulfill its obligation. Under the ISO rules, Enron was required to line up resources (and thus to have incurred costs) prior to bidding in the day-ahead market. In short, Enron used the physical ancillary services market as a financial market. Enron Report, *supra* note 287, at 98.

³²³ *Id.* at 99.

³²⁴ See FERC SMD NOPR, *supra* note 79.

duct was misinformation, but no exercise of market power violative of antitrust laws occurred here.

6. *Selling Non-Firm Energy as Firm Energy*

Enron also sold low-quality product as high-quality product, thereby making profit on the margin. Specifically, Enron would purchase non-firm energy outside of California and sell it into California as firm energy. Firm energy is a superior product to non-firm energy because it is backed by reserve generation. This strategy had the effect of bringing more non-firm power into California with no impact on PX prices.³²⁵

Enron created this strategy in order to be paid for ancillary services. Under California's regime, if the energy were labeled as firm, Enron would receive an ancillary service payment. Non-firm energy could not receive such a payment.³²⁶

Again, the problem with this strategy is not that it affects prices in California's markets (it does not), but rather that it violates NERC's interchange rules and compromises system reliability in California.³²⁷

While it may be true that Enron's strategies did violate NERC rules, the risk of a system meltdown due to Enron's strategies was de minimis.³²⁸ Insofar as a risk existed, it was largely associated with transporting power from outside of California to inside the state. As FERC recognized in its SMD NOPR, whether the ancillary services are backed by capacity from individual units is immaterial so long as the total capacity available is able to meet demand (and flow across the appropriate interties). Thus, FERC's SMD NOPR proposes that all transmission services be provided on network basis, "so there would be no difference in the ancillary service requirements . . . [and] [t]hus . . . no reason for this strategy."³²⁹

7. *Evidence of Collusion*

FERC's Enron Report also outlines evidence of concerted action among Enron and some of its competitors designed to influ-

³²⁵ *Id.* at 55,582.

³²⁶ Enron Report, *supra* note 287, at 100.

³²⁷ See John Falk, *Enron's Strategies in California and the Benefits of Arbitrage* 13-14, (NERA, Working Paper, 2002) (on file with authors).

³²⁸ *Id.*

³²⁹ FERC SMD NOPR, *supra* note 79, at Appendix E.

ence prices in the California energy market. A summary of the evidence presented in the FERC report follows.³³⁰

The first allegation suggests concerted action between Enron and El Paso Electric. According to FERC, El Paso's trading desk was manned with Enron staff seventy-five percent of the time.³³¹ A letter from Enron to three senior El Paso executives allegedly discusses how the two companies "had taken advantage of the unseasonably hot weather and unit outages that occurred in the West during a single month in the summer of 2000" and led El Paso to receive "revenues in excess of \$7 million from that month's joint dealings between El Paso Electric and Enron."³³² One of the senior executives wrote back and suggested that the results were a "great illustration of what is possible when teamwork, knowledge, initiative and accountability all come together."³³³

FERC staff suggested that the joint dealings may have adversely affected energy prices in the West. However, as evidence of price manipulation, they only pointed to "a high level of revenues" for which they could not account.³³⁴ The staff recognized, however, that such evidence does not implicate improper conduct, but does suggest that further investigation is necessary. The agreements that FERC staff referred to are operating agreements between Enron and El Paso. In those agreements, known as tolling agreements, Enron performed management services and controlled the operations of some of El Paso's plants.³³⁵

Another allegation against Enron is that it violated FERC's code of conduct by engaging in barred affiliate transactions.³³⁶ Specifically, certain types of transactions are barred absent FERC approval, including the sale of energy by an unregulated affiliate with market-based rate authority to a regulated affiliate with captive customers.³³⁷ Also, information flowing between the regulated and unregulated affiliates must be disclosed to the public.³³⁸ Moreover, entities with both a merchant function and

³³⁰ Enron Report, *supra* note 287, at 25-31.

³³¹ *Id.* at 26.

³³² *Id.*

³³³ *Id.* at 26.

³³⁴ *Id.* at 27.

³³⁵ There are also allegations that El Paso gave preferential treatment to its generating facilities over its transmission lines in contravention to FERC Order 888. *Id.*

³³⁶ *Id.* at 29.

³³⁷ *Id.*

³³⁸ *Id.*

a transmission function must act independently of one another. The FERC staff, in its Enron report, noted communication between Enron and PGE that may have violated code-of-conduct restrictions.

One way around the code-of-conduct regulations was to engage in affiliate transactions through intermediaries. The FERC staff alleged that Enron did precisely this using PGE. The use of the intermediary was designed to circumvent affiliate rules.

Thus far, the allegations against Enron have failed to demonstrate concerted action in violation of section 1 of the Sherman Act or provide evidence of Enron's ability to raise prices or exclude competition. Rather, the conduct described thus far appears at best to be regulatory evasion, at worst fraud. None of the charges would support an antitrust claim.

However, where two competitors agree to restrain trade and engage in concerted action to do so, the antitrust laws clearly apply. The strength of the allegations depends upon what further evidence FERC might uncover in its investigation.

Several possibilities exist for antitrust action against Enron and El Paso in this regard involving section 1 of the Sherman Act.³³⁹ At worst, the conversations between El Paso and Enron might be evidence of per se violations of section 1 of the Sherman Act. Specifically, Enron and El Paso might have conspired to fix prices and withhold generation in order to increase revenues for both companies. One could potentially infer such conduct from the conversations discussed above. However, more evidence would be necessary for a successful prosecution under that theory.

C. Other Conduct Potentially Violating the Antitrust Laws

1. Bidding High (Economic Withholding)

Some have asserted that the mere act of bidding high constitutes an exercise of market power that violates the antitrust laws. Specifically, the act of bidding a marginal generation unit above cost in an effort to withhold it from the market is monopolization under section 2 of the Sherman Act.³⁴⁰

There are difficulties with this assertion, both pragmatically and with respect to antitrust policy. With respect to the latter,

³³⁹ 15 U.S.C. § 1 (2000).

³⁴⁰ *Id.* § 2.

charging a high price has never, by itself, been sufficient to sustain a monopolization claim. Monopolization means the use of monopoly power to unlawfully maintain or extend a monopoly, but does not include the exercise of monopoly power legitimately obtained.³⁴¹ Artificially inflating prices falls into this latter category of conduct. As the Second Circuit stated:

Excessive prices, maintained through exercise of a monopolist's control of the market, constituted one of the primary evils that the Sherman Act was intended to correct Where a monopolist has acquired or maintained its power by anticompetitive conduct, therefore, a direct purchaser may recover the overcharge caused by the violation of § 2 But unless the monopoly has bolstered its power by wrongful actions, it will not be required to pay damages merely because its prices may later be found excessive. Setting a high price may be a use of monopoly power, but it is not in itself anticompetitive. Indeed, although a monopolist may be expected to charge a somewhat higher price than would prevail in a competitive market, there is probably no better way for it to guarantee that its dominance will be challenged than by greedily extracting the highest price it can.³⁴²

Thus, merely bidding high, a practice undertaken by essentially all the generation companies with marginal generation units in California, is insufficient to sustain an antitrust claim. However, bidding high has serious repercussions for market performance, especially in times of capacity shortage.

Numerous mechanisms might protect against the exercise of market power in this manner.³⁴³ However, no antitrust mechanism can protect against this particular exercise of market power.

2. *Withholding of Capacity Through Plant Outages (Physical Withholding)*

Physical withholding achieves the same result as economic withholding within an energy market. The generator who raises prices or takes its plant off-line causes the ISO to substitute more

³⁴¹ A section 2 monopolization violation requires proof of two elements: "(1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident." United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966) (emphasis added).

³⁴² Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263, 294 (2d Cir. 1979); Endsley v. City of Chicago, 230 F.3d 276, 283-84 (7th Cir. 2000) (explaining that a price increase is an insufficient basis for a monopolization claim); see also Alaska Airlines v. United Airlines, Inc., 948 F.2d 536, 548-49 (9th Cir. 1991).

³⁴³ See *infra* Section V.

expensive generation for that unit. This increases the price paid to all infra-marginal generation assets, including the withholder's infra-marginal generation. In other words, the generation owner is sacrificing profits on its marginal generation unit to benefit infra-marginal generation. The difficulty in painting this story as a violation of section 2 of the Sherman Act is that both physical and economic withholding are perfectly rational strategies for joint profit maximization of the firm's different generation units. Thus, antitrust law will not cure the price increase caused by physical or economic withholding, unless some concerted action was required between generation owners that would violate section 1 of the Sherman Act. The conduct discussed here, however, does not exclude rivals or enhance monopoly power. Thus, it cannot be said to violate section 2 of the Sherman Act.

If any distinction is to be made, it is a regulatory distinction. Physical withholding for anticompetitive reasons is more difficult to detect than economic withholding. While the amount of capacity off-line due to shutdowns was unprecedented in 2004, there may be various causes for the increase in shutdowns. The shutdowns may have been due to the exercise of market power. Most generators owned infra-marginal and marginal assets. However, the shutdowns may have been due to the long, hot summer in which plants were kept on-line to meet demand, deferring maintenance until the fall. Thus, whether the abnormal amount of generation off-line was an intentional exercise of market power or a legitimate attempt to repair damaged plants is unclear. Regardless, average monthly electricity prices year to year grew from \$30 MW/hr to \$1500 MW/hr during that same time period.

However, as discussed above, if the physical or economic withholding requires more than one firm to enact, then the firms might have violated section 1 of the Sherman Act. One possible example of such an agreement arises in the context of the DOJ's investigation of AES and Williams. The agreement alleged by the DOJ centered upon AES's Alamitos and Huntington Beach plants.³⁴⁴ The agreement, commonly known as a tolling agreement, was that AES would take Williams' gas and generate electricity, which it would then sell back to Williams at a given price. The DOJ is apparently investigating whether Williams had asked that AES keep the generation units off-line in an effort to affect

³⁴⁴ Behr, *supra* note 260.

energy clearing prices in California in April and May of 2000. This allowed Williams to sell power from its other assets at higher prices. If this conduct is proven, it may be a per se violation of section 1 of the Sherman Act.

In short, the unilateral physical withholding of power from generation units is not a cognizable claim under the antitrust laws. Thus, regulation must be the method used to ensure that there is no incentive to withhold marginal generation to benefit infra-marginal generation.

V

PRESCRIPTIONS

Despite the peculiarities of the California market, regulatory mechanisms do not necessarily instill incentives upon market participants to engage in acts that may ultimately damage the market. And while furor erupted about the unworkability of markets in the context of California, the relative successes of markets in PJM, New York, and New England have gone largely ignored.

In reaction to the California situation, FERC issued its SMD NOPR.³⁴⁵ FERC's goal was to create seamless markets across ISOs. Currently, all of the ISOs have different rules,³⁴⁶ causing the importation of energy across ISOs to be difficult. FERC also sought to correct market formation errors evident in California's market design by ensuring that markets developed in the future would adhere to certain principles designed to encourage the proper functioning of these markets.

There are certain concepts central to FERC's SMD NOPR. First, load-serving entities would be required to meet resource adequacy requirements.³⁴⁷ Spot-market purchases of energy, of course, would still be available to meet marginal generation needs. In addition, ISOs would still operate ancillary service markets in conjunction with the operation of transmission services. The energy markets would be day-ahead and hour-ahead in nature, as were the California markets.

However, the key difference between California's markets and

³⁴⁵ FERC SMD NOPR, *supra* note 79.

³⁴⁶ And some regions of the country are not within an ISO.

³⁴⁷ The FERC SMD NOPR does not say how load-serving entities should meet resource adequacy requirements. However, bilateral contracts, effectively prohibited in the California model, would be one way of meeting the requirement.

the SMD NOPR is the nature of congestion management relief. Under FERC's NOPR, ISOs would adopt Location-Based Marginal Pricing (LBMP). Under LBMP, the prices paid to generators and charged to load differ throughout the system as a function of congestion. If no congestion is present, the prices throughout the system are the same. However, if congestion is present, the ISO will add or subtract to prices at the various buses³⁴⁸ based upon the level of congestion. For example, suppose that there is congestion on a path between Generator X and City A in the direction of City A. The congestion created on the path would change the price at both City A and Generator X. To relieve congestion, the LBMP at the City A bus would increase relative to a reference bus price, which would cause the dispatch of more expensive generation and discourage purchases at the City. The price at Generator X's bus would decrease relative to a reference bus price, discouraging generation. Thus, if Generator X chose to sell power, it would pay for the congestion it created. The congestion system established by LBMP and FERC's SMD NOPR makes congestion costs transparent so that the market can respond.

FERC claims that the SMD NOPR is effective in eliminating many of the Enron strategies that proved successful in California. For example, the FERC claims that the Fat Boy strategy would be eliminated because most of a load-serving entity's load would be met through long-term contract—there would be no requirement that “load or generation submit balanced day-ahead schedules.”³⁴⁹ Similarly, Enron's congestion relief strategies and load shift strategies would not work because the entity that causes congestion is required to pay for it through the differential price.³⁵⁰ Get Shorty, FERC asserts, similarly would not be practicable because financial trading of ancillary services would be isolated from physical sales of ancillary services.³⁵¹ Market mitigation measures, properly implemented, would ensure that penalties are assessed for utilizing this strategy. The sale of non-firm energy as firm energy would not be possible because, under SMD, “all transmission service would be under Network Access service so there would be no difference in the ancillary service

³⁴⁸ A bus refers to the point at which power exits a generation facility, and may also refer to the location of load.

³⁴⁹ FERC SMD NOPR, *supra* note 79, at Appendix E, at 55,581.

³⁵⁰ *Id.* at 55,581-82.

³⁵¹ *Id.* at 55,582.

requirements . . . [and thus] no reason for this strategy.”³⁵²

One strategy that might not be cured through the market mechanisms above is the Exports of California Power strategy. However, the creation of geographically meaningful ISOs would ensure that this strategy would fail. One of the difficulties of California’s energy market was that the market suppliers extended well beyond the borders of California and California’s regulation. The creation of a geographically meaningful ISO would mean that power would typically not leave the ISO, absent significant price differentials among the ISOs.³⁵³ Moreover, the incentive to export was in part due to capped wholesale power rates. While the wholesale power rates may have protected the wholesale markets in California, they had the effect of increasing the overall procurement costs of the ISO and causing scheduling havoc. Thus, the elimination of wholesale price caps, the establishment of properly sized ISOs, and the creation of appropriate mitigation measures ensure that any regulatory evasion (assuming rules do not permit export where market is capacity short) will lead to a disincentive to export.

The difficulty with FERC’s SMD NOPR is that it is not clear whether market participants will be able to manipulate the market under its design. If so, the market rules should allow for flexibility such that ISOs can remedy market power arising due to particular physical or geographical idiosyncracies within their

³⁵² *Id.*

³⁵³ The DOJ has numerous times stressed the importance of properly sized ISOs. *See also* Remedying Undue Discrimination through Open Access Transmission Service and Standard Electricity Market Design: Wholesale Power Market Platform White Paper, Comment of the Staff of the Bureau of Econ. & the Office of the Gen. Counsel Fed. Trade Comm’n, Docket No. RM 01-12-000 (2003), *available at* <http://www.ftc.gov/OS/2003/07/03062ferc.htm> (last visited June 29, 2004).

One large assumption about the potential for regulation to cure market ills is that regulation is backed by some enforcement. Regulation without enforcement provides no deterrence to firms engaging in conduct in violation of the regulation. Moreover, penalties for violating an agency regulation must exceed disgorgement of profits obtained from such violations. Otherwise, an incentive will always exist to engage in the conduct.

This is, of course, one of the primary reasons that antitrust provides for treble damages awards. FERC currently lacks the ability to impose punitive or treble damages that might deter such conduct, although it does have the ability to revoke market-based rates. The California ISO made the argument that disgorgement does not provide a disincentive to engage in conduct that would violate anti-gaming provisions, but its argument was rejected by FERC. *See* Am. Elec. Power Serv. Corp., 106 F.E.R.C. ¶ 61,020 (2004).

markets. Thus, it may be the case that the SMD ends up in the final instance being rather heterogeneous in application.

CONCLUSION

The conclusion of this complicated article is simple: antitrust fails to cure ills of markets where regulatory mechanisms sanction the ills, or create the ills where markets are nascent. Thus, regulation and antitrust must work in tandem to create efficient markets, and the rhetoric that competition is inspired by “deregulation” is misleading at best and dangerous at worst, especially when paired with the notion that antitrust law will protect these “deregulated markets.”

Clearly, there is a role for antitrust in energy markets. Antitrust law can cure numerous ills, including naked price fixing, monopolization, and mergers that tend to lessen competition. Within the context of monopolization, a caveat is necessary: Antitrust will not necessarily cure exercises of preexisting market power. Thus, economic and physical withholding may very well be beyond the scope of antitrust. Another caveat is necessary with respect to mergers: Antitrust law is best able to review mergers in the context of well-defined markets. Thus, acquisitions of power plants in markets yet to operate are likely to be approved, because antitrust officials are unlikely to have the tools to determine whether the acquisitions will injure those markets. In sum, manipulations of the market not arising from concerted action may be unassailable under the antitrust laws, as well as precompetition acquisitions of generation that create market power.

Because antitrust is not a panacea for market functionality, proper regulation is an essential complement to antitrust in oversight of energy markets. Certain aspects of market power are curable through regulation, even prior to the launching of market-based pricing. Similarly, precompetition acquisitions of plants that may give rise to the incentive and ability to exercise market power may be thwarted through regulatory bar. Also, actions that have no impact on price but that might give rise to system instability may also be curable through regulation.

However, regulation itself is not a panacea, either. Uncurable through regulation are actions allowed by the market rules. Enron’s activities, for example, in many instances were created by perverse market incentives arising from flawed market design.

Moreover, where market power mitigation rules are not properly designed, market power may be exercised.

The position of this Article is that Enron did not cause the California power crisis. In many instances, Enron's conduct did not even violate state and federal regulation. In most instances, it is unlikely that Enron's conduct violated the antitrust laws. Enron most likely took advantage of market flaws that were patent to most market participants. Instead of shooting the messenger, the failed market mechanisms should have been cured. Thus, "blame" for the power crisis should not fall upon Enron, but rather upon the regulators who failed to correct the market mechanisms that gave rise to incentives contrary to the healthy functioning of the markets.

In most cases, regulation is better than antitrust at remedying problems with market power that are inherent within an industry. Regulation can fix problems *ex ante*, whereas antitrust cures problems only after they arise. And, as stated above, regulation has the potential to cure market abuses beyond those curable through antitrust. Thus, it is important for the market mechanisms to be properly established at the onset of market competition, and that the market mechanisms be sufficiently flexible to allow for changes in the rules where issues arise. However, both antitrust and regulation will fail to protect consumers if regulations are not properly formatted. Thus, the term "deregulated markets" does not mean the abdication of market control. Rather, the promotion of competition in "regulated" markets requires active "re-regulation" combined with vigorous antitrust enforcement.

FIGURES

FIGURE 1: As demand increases, the market clearing price increases as supply is generated by more costly generation. However, if demand is significantly high, generation is not obtainable at any price, resulting in brownouts and blackouts.

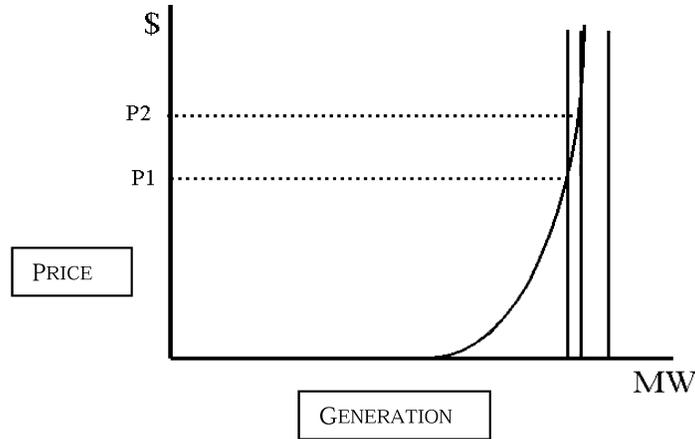


FIGURE 2: By withholding a tiny amount of marginal generation, GOTE can substantially increase its profits on its infra-marginal baseload unit, as the next most costly generator sets the market clearing price.

