

# Regulation's Rationale: Learning from the California Energy Crisis

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*Further deregulation of energy markets has been challenged by the California energy crisis of 2000-2001 and the collapse of Enron. Many observers have argued that these events are unrelated, and, therefore, deregulation itself should not be questioned. Each disaster is just a symptom, however, of something more fundamental and structural: the failure of modern American political discourse to appreciate regulation's rationale. In particular, both the California energy crisis and Enron's collapse were caused by legislative and administrative failures to design regulatory institutions that adequately constrained opportunistic behavior. This Article challenges the conventional wisdom about what happened in California and therefore challenges the conventional wisdom about what should be done to avoid similar problems. This inquiry has relevance both for other states considering deregulation (or its euphemistic cousin, "restructuring"), as well as how the federal government approaches its role in a partially-deregulated electricity market. The dominant story of what happened in California is riddled with both factual and conceptual errors, and those errors engendered a series of policy responses that exacerbated, rather than alleviated, the underlying causes of the crisis. Political discourse on the Bush Administration's National Energy Plan suffers from similar problems. Our nation, therefore, runs a serious risk of repeating the conditions that gave rise to the California energy crisis, rather than learning from them.*

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## Introduction

The collapse of Enron Corporation,<sup>1</sup> the criminal indictment of its auditor Arthur Andersen,<sup>2</sup> the bankruptcy of Pacific Gas and Electric

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<sup>1</sup> Enron Corporation filed for Chapter 11 bankruptcy protection on December 2, 2001. The Justice Department formed a task force to investigate the company in early January 2002. Kurt Eichenwald & Jonathan D. Glater, *Justice Dept. to Form Task Force To Investigate Collapse of Enron*, N.Y. TIMES, Jan. 10, 2002, at A1. Washington was also abuzz with concern about the close ties between Chairman Ken Lay and President George W. Bush. See Robert Scheer, *Connect the Enron Dots to Bush*, L.A. TIMES, Dec. 11, 2001, at B13. For a detailed account of Enron’s rise and fall, see Kurt Eichenwald, *Audacious Climb to Success Ended in a Dizzying Plunge*, N.Y. TIMES, Jan. 13, 2002, at A1; see also Bethany McLean, *Why Enron Went Bust*, FORTUNE, Dec. 24, 2001, at 58. Although I had no personal stake in Enron, the University of California lost \$144 million in Enron’s collapse, California teachers lost another \$49 million, and the California public employees pension fund lost \$40 million. See Leslie Wayne, *Enron’s Many Strands: Fallout*, N.Y. TIMES, Jan. 27, 2002, at A32.

<sup>2</sup> The Department of Justice issued a criminal indictment for obstruction of justice against Arthur Andersen of Chicago for destroying documents related to the Enron investigation on March 14, 2002. Kurt Eichenwald, *Andersen Charged with Obstruction in Enron Inquiry*, N.Y. TIMES, Mar. 15, 2002, at A1. Andersen previously settled shareholder lawsuits and/or regulatory actions against its auditing practices regarding the books of Sunbeam and Waste Management, both of which also went bankrupt. See Kurt Eichenwald & Floyd Norris, *Enron’s Auditor Says It Destroyed Documents*, N.Y. TIMES, Jan. 11, 2002, at C1.

Company,<sup>3</sup> and the rolling blackouts and price spikes of the California energy crisis of 2000-2001 all have one thing in common: They were caused by legislative and administrative failures to design regulatory institutions that adequately constrained opportunistic behavior. Each of these specific events has more proximate causes as well, of course, and many analyses will probably point to specific circumstances that suggest each is an aberration. There is great temptation to blame the Enron collapse on unethical, and perhaps illegal, behavior,<sup>4</sup> for example, while the dominant narrative of the California crisis places blame on California legislators and regulators for poorly implementing electricity deregulation. For some, the collapse of Enron illustrates the power of market forces to make intelligent judgments swiftly and without political consideration,<sup>5</sup> and the California crisis would have been averted if politicians had been willing to rely more on the market than politics. Such a perspective leaves the basic thrust of the deregulation project intact. Why throw the baby of deregulation out with the dirty bathwater of Enron's greed and California's incompetence? This view is quite dangerous, however, if we are going to learn useful lessons from these events. Each crisis is, in fact, a symptom of a more fundamental and structural problem: the failure of modern American political discourse to appreciate regulation's rationale.<sup>6</sup>

This Article will explore these issues more deeply with respect to the California energy crisis. In particular, I will correct several common misperceptions about what happened in California and, therefore, challenge the conventional wisdom about what should be done to avoid similar problems in the future. This inquiry has relevance both for other states considering deregulation (or its euphemistic cousin, "restructuring"), as well as for how the federal government approaches its role in a partially deregulated electricity market. Both Congress and the Federal Energy

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3 Pacific Gas and Electric Company of San Francisco filed for Chapter 11 bankruptcy protection on April 6, 2002. The relationship between its bankruptcy filing and the California energy crisis is discussed in detail later in this Article. *See infra* Section III.C.

4 By August 2001, even some of Enron's senior managers were concerned about these practices. Sherron Watkins, a former Andersen auditor who served as Enron's vice president for corporate development, sent a detailed memo to Kenneth Lay in August 2001 raising serious questions about the accounting treatment of "off balance sheet" entities. Her frankness and integrity stand out as exemplary in the Enron debacle. Jim Yardley, *Author of Letter to Enron Chief is Called Tough*, N.Y. TIMES, Jan. 16, 2002, at A1 (the full text of her letter was reproduced at C6).

5 Following Enron's collapse, Treasury Secretary Paul O'Neill said, "Companies come and go. It's part of the genius of capitalism." White House economic advisor Lawrence B. Lindsey described the event as a "tribute to American capitalism." Paul Krugman, *A System Corrupted*, N.Y. TIMES, Jan. 18, 2002, at A25. Neoclassical economic theory is not based on cronyism and corruption, however, which both appear to have been features of Enron's culture.

6 For commentaries on the Enron crisis as just a symptom of our culture, see, for example, John Balzar, *Enron: A Scandal So Good That It Hurts*, L.A. TIMES, Jan. 18, 2002, at B17; and Marjorie Kelly, *Waving Goodbye to the Invisible Hand: How the Enron Mess Grew and Grew*, S.F. CHRON., Feb. 24, 2002, at D1, available at <http://sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2002/02/24/IN83497.DTL> (last visited Apr. 22, 2002).

Regulatory Commission ("FERC") would do well to examine the California case more carefully.<sup>7</sup> The dominant story of what happened in California is riddled with both factual and conceptual errors, and those errors propagated a series of policy responses that exacerbated, rather than alleviated, the underlying causes of the crisis.<sup>8</sup> Many of the same errors appear to permeate the Bush Administration's recently developed National Energy Plan. Learning from the California experience, therefore, has national relevance.

What are the implications of the Enron scandal to this inquiry? Enron was both a leader and prime beneficiary of electricity market deregulation throughout the nation, and it played a central role in the California crisis.<sup>9</sup> In particular, the pervasiveness of Enron's relationships with policymakers illustrates how corporate interests are interwoven with legislative and administrative decision-makers to the point that they are often unable to consider the broader public interest when formulating and implementing policy.<sup>10</sup> Just as Enron's collapse has precipitated Congressional action on

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7 The scope of FERC's authority to regulate electricity markets was recently addressed by the U.S. Supreme Court in *New York v. FERC*, 122 S.Ct. 1012 (2002).

8 The power of rhetoric or narrative to frame both the "problem" and policy responses cannot be overstated. For an illustrative example in the context of electricity planning and regulation, see JAMES A. THROGMORTON, *PLANNING AS PERSUASIVE STORYTELLING: THE RHETORICAL CONSTRUCTION OF CHICAGO'S ELECTRIC FUTURE* (1996). I recognize that I am engaged in a similar exercise by reframing the narrative through this Article. I also recognize that my interpretation will be contested. Arthur O'Donnell, *Bottom Lines: Revisionist History 101*, in CAL. ENERGY MARKETS No. 659 (Mar. 8, 2002), <http://www.newsdata.com/cem/blines.html> (last visited Apr. 22, 2002).

9 Richard A. Oppel, Jr. and Jeff Gerth, *Enron Forced Up California Prices, Documents Show*, N.Y. TIMES, May 7, 2002, at A1. Internal Enron memoranda describe a number of market manipulation strategies, but these documents were unavailable for any detailed analysis at this Article went to press. Enron has resisted subpoenas for such documents issued by California investigators. *Cf. supra* note 210.

10 Senator Ernest Hollings has said "[I]n my 35 years in the Senate, I have never witnessed a corporation so extraordinarily committed to buying government. In the last decade, Enron gave campaign contributions to 186 House members and 71 senators, including \$3,500 to me." Ernest F. Hollings, Editorial, *Time for a Special Counsel*, N.Y. TIMES, Feb. 9, 2002, at A27. Enron, its employees, and its political action committee made "soft money" donations equaling an astounding \$1.143 million to Republicans and \$532,065 to Democrats in 1999 and in 2000 alone. *Dollars and Cents: Enron's Political Giving*, N.Y. TIMES, Jan. 12, 2002, at B4 (table). Enron also gave generously to some key Democratic politicians, but the Bush Administration is filled with officials who have ties to Enron. Attorney General John Ashcroft and his key deputy had to recuse themselves from the Justice Department investigation, while the leading fundraiser for the Republican Party is a former Enron lobbyist. Richard L. Berke, *G.O.P. Weighs Chief's Stance on Enron Tie*, N.Y. TIMES, Jan. 18, 2002, at A16. Secretary of the Army Thomas E. White is a former senior Enron manager who sold his Enron shares for \$10 million. Alex Berenson, *Army Official Kept Options on Enron Stock Until January*, N.Y. TIMES, Mar. 7, 2002, at C1. Texas Senator Phil Gramm's wife, Wendy, joined the Enron board shortly after weakening regulatory oversight of the company while as a member of the Commodity Futures Exchange Commission. She subsequently served on the Enron board's audit committee and earned between \$915,000 and \$1.85 million from Enron from 1993 to 2001. Bob Herbert, *Enron and the Gramms*, N.Y. TIMES, Jan. 17, 2002, at A29; Alison Mitchell, *Enron's Ties to a Leader of House Republicans Went Beyond Contributions to His Campaign*, N.Y. TIMES, Jan. 16, 2002, at C1; Richard A. Oppel, Jr. & Don Van Natta, Jr., *Bush and Democrats Disputing Ties to Enron*, N.Y. TIMES, Jan. 12, 2002, at C1. Conservative political strategist Ralph Reed was also given

campaign finance reform, the relationship between Enron and policymakers should give pause to those considering a further extension of electricity deregulation consistent with Enron's vision. Instead, it is time to step back and re-think some fundamental assumptions. Why did we abandon the previous regulated, cost-of-service system for providing electricity services? What are the benefits and risks of going forward with further deregulation or restructuring of the electricity industry? Is further deregulation inexorably destined? Most importantly, what is the proper role for regulation in relation to whatever form of electricity market and industry that we now have?

The answers to these questions require an inquiry into both the historical rationale for electricity industry regulation and the specific history of how California altered that system. I will demonstrate in this Article that an understanding of both the specific regulatory history of the industry and technically complex economic and engineering analysis is necessary for the development of successful policy and the design of enduring institutions that meet the broad purposes of promoting the public interest. We would do well, therefore, to incorporate similar analyses into our consideration of what to do next in all regulatory arenas

The Article proceeds as follows. In Part I, I describe the original rationale for electricity regulation in the United States and how the "utility consensus" that dominated the industry from the 1920s began to erode in the 1970s. I then show how California responded to the challenges of the 1970s in an unusual way, charting a path that emphasized improved end-use efficiency, robust development of alternative generation sources, and adoption of an integrated resource planning approach by the late-1980s. Part II shows how this approach was challenged by national deregulation efforts and industry restructuring in the 1990s. In particular, I describe the specific market and regulatory structure adopted by California in response to those pressures and how that structure laid the foundation for the crisis of 2000-2001. Part III then examines the proximate causes of the crisis and the inadequacy of policy responses by both state and federal regulators. Part IV explores alternative policy options and discusses the ramifications of the adopted responses for the future of California. The Conclusion then presents specific lessons for regulating electricity markets from my analysis of the California crisis. It also suggests that there are more general

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an Enron contract for \$10,000 to \$20,000 per month during the Bush campaign for President, apparently to ensure his support for Bush. Richard L. Berke, *Associates of Bush Aide Say He Helped Strategist Win an Enron Contract*, N.Y. TIMES, Jan. 25, 2002, at C1. Enron also paid a wide range of influential figures \$50,000 per year to serve on its advisory board—including President Bush's senior economic advisor, Lawrence B. Lindsey. David E. Sanger & Don Van Natta, Jr., *White House Says Economics Adviser Saw Little Risk on Enron*, N.Y. TIMES, Jan. 17, 2002, at C1. New York Times columnist Paul Krugman also served on the advisory group. Paul Krugman, *Enron Goes Overboard*, N.Y. TIMES, Aug. 17, 2001, at A19.

lessons regarding regulation's rationale in a wide variety of contexts. These lessons have potentially profound implications for our entire society.

## I. Evolutionary Regulation: When the State Still Played a Central Role

### A. *The "Utility Consensus": 1920s-1970s*

The history of modern electricity regulation begins a century ago with the development of what Richard F. Hirsh calls the "utility consensus" in the United States to regulate investor-owned electric utilities as "natural monopolies."<sup>11</sup> Michael D. Reagan describes the natural monopoly argument for regulation, which he himself challenges as the primary motivation for regulation, in this way:

The meaning is that the competitive running of wires and pipes above or below the ground in duplicate, triplicate, or more would be so obviously inefficient and costly a use of resources that we "naturally" permit monopolistic supply of such goods with decreasing average costs. However, price gouging of the consumer will not be prevented by the classic workings of the competitive elements, and too little electricity will be produced and consumed, so regulation substitutes for the missing competition.<sup>12</sup>

The theory of natural monopoly has been the subject of extensive study by economists,<sup>13</sup> and it is a standard part of any college-level introductory economics course. Economic theory alone is insufficient to explain the development of the "utility consensus," however, and the institutional literature is dominated by two general explanations for regulation: (1) that "the rise of regulatory programs could be explained as a response to political demands from victimized groups for protection,"<sup>14</sup> or (2) that "regulation is acquired by the industry and is designed and operated for its benefit."<sup>15</sup> These two rationales converged in the case of electricity. The regulatory approach adopted in the U.S. granted individual companies

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11 RICHARD F. HIRSH, POWER LOSS: THE ORIGINS OF DEREGULATION AND RESTRUCTURING IN THE AMERICAN ELECTRIC UTILITY SYSTEM 11 (1999).

12 MICHAEL D. REAGAN, REGULATION: THE POLITICS OF POLICY 36-37 (1987).

13 See, e.g., WILLIAM W. SHARKEY, THE THEORY OF NATURAL MONOPOLY (1982). Some empirical studies of this assumption, however, have found lower costs in some areas with direct competition. See WALTER J. PRIMEAUX, JR., DIRECT ELECTRIC UTILITY COMPETITION: THE NATURAL MONOPOLY MYTH (1986).

14 REAGAN, *supra* note 12, at 28.

15 George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. 3, 3 (1971).

exclusive franchises to provide power within a specific geographic area as long as their rates were regulated by state regulatory commissions based on the cost of providing service, including a reasonable return on investment. This arrangement simultaneously served the political goals of preventing monopoly abuses (to the benefit of ratepayers) and staving off efforts by municipalities to take over the private systems (to the benefit of utility company shareholders). As Edward Kahn puts it, “[r]egulation provided stability by limiting competition, while controlling the worst monopoly abuses.”<sup>16</sup>

Michael D. Reagan places regulation of the electricity industry within the historical (political) context of the 1887 establishment of the Interstate Commerce Commission (“ICC”), which initially regulated railroad rates to prevent monopoly abuses over grain shipments on many shipping routes. Concern about “the growing economic power of late nineteenth century industrialization”<sup>17</sup> led to Congressional passage of the anti-trust statutes (in particular, the Sherman Act of 1890,<sup>18</sup> the Clayton Act of 1914,<sup>19</sup> and the Federal Trade Commission Act of 1914<sup>20</sup>). Neither these statutes, nor indirect oversight by the ICC or the Federal Trade Commission (“FTC”), were deemed adequate to curb the monopoly risks attending electricity generation, however, due to some of the distinguishing technological characteristics of the industry. In particular, the need to produce electricity instantaneously at the moment it is consumed means that shortages cannot be alleviated (economically) through storage.<sup>21</sup> This lack of storage capability increases the likelihood of both volatile prices and periodic shortages. Moreover, the interconnectedness of the electricity grid means that shortages on any part of the grid could threaten the stability of the entire system.<sup>22</sup>

These distinctive technological features also make the electricity industry especially vulnerable to market power abuse: Any generator controlling any amount of generation capacity necessary to meet the demand at a given moment can threaten to blackout the entire grid by

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16 EDWARD KAHN, *ELECTRIC UTILITY PLANNING & REGULATION* 1 (1988).

17 REAGAN, *supra* note 12, at 20-21.

18 ch. 647, 26 Stat. 209 (codified as amended at 15 U.S.C. §§ 1-7 (2000)).

19 ch. 323, 38 Stat. 730 (codified as amended in scattered sections of 15 U.S.C. and 29 U.S.C.)

20 ch. 311, 38 Stat. 717 (codified as amended at 15 U.S.C. §§ 41-58 (2000)).

21 Either consumers, producers, or intermediaries can store electricity in batteries or invest in stand-by generation to reduce the risk of shortages, but these capital-intensive technologies are extremely costly compared to ensuring reliability for the entire grid through investments in system-wide generation that will be used more frequently.

22 This threat can occur due to either frequency or voltage considerations. This is why California instituted rolling blackouts from January 2001 to May 2001—By “dropping” the load (demand) from a limited number of customers, the integrity of the rest of the grid could be maintained as long as the remaining generation could meet the remaining demand.

withholding power from the market. Such a generator can therefore demand almost an infinite price for the last (necessary) units of electricity, because all consumers' demand will go unmet if that price is not paid. The alternative to shortages is, therefore, highly volatile prices and recurring risks of outages, which present an economic climate that is too unstable and unpredictable for broader business investment.<sup>23</sup> Sam Insull also shows how, from 1911 to 1913, ever-larger generating units lowered per-unit costs just as expanding markets allowed greater efficiencies through complementary use patterns among different customers.<sup>24</sup> Individual firms, therefore, tended to acquire complete control of electricity markets within specific areas, presenting opportunities for monopolistic abuses. Regulation theoretically prevented such abuses and stabilized the economic climate for an increasingly essential input to economic activity while ensuring continued profits for investors. Whether motivated primarily by the interests of consumers or producers or both, cost-of-service regulation became the utility consensus, and it was adopted in some form by nearly every state in the nation.<sup>25</sup> As Bruce M. Owen and Ronald Braeutigam suggest, this was not resisted by the industry: "No industry offered the opportunity to be regulated should decline it. Few industries have done so."<sup>26</sup>

Many commentators' analyses of how the "utility consensus" developed, including Hirsh's, are laid out within an institutional perspective that focuses on the role of various elites in the formation of public policy.<sup>27</sup> With the rise of public choice theory, regulators' behavior has been scrutinized primarily in terms of allocating benefits among the

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23 Such an unstable and unpredictable electricity system would also burden residential consumers, of course, as well as threaten public health and safety through the loss of power to hospitals and traffic safety lights. Electricity has, therefore, generally been deemed an "essential" public service due to our society's extensive reliance on it. This same rationale explains public control over most water systems, although recent moves to privatize water supply are based primarily on economic critiques of the natural monopoly argument. Implementation of such privatization has met stiff political resistance in many places, however, due to broad equity concerns as well as specific resistance by existing bureaucracies. Isabelle Fauconnier, *Privatized Water, Retreating State: Access and Affordability Issues for Public-Private Good in Developing Country Settings*, Presentation Before the Department of City and Regional Planning, University of California, Berkeley (Nov. 19, 2001) (dissertation draft, University of California, Berkeley) (on file with author).

24 KAHN, *supra* note 16, at 3-7.

25 Nebraska's entire electrical grid is public, but it also bases its rates on a cost-of-service formula.

26 BRUCE M. OWEN & RONALD BRAEUTIGAM, *THE REGULATION GAME: STRATEGIC USE OF THE ADMINISTRATIVE PROCESS* 2 (1978).

27 Popular histories tend to emphasize the inherently political nature of regulation of the industry. See, e.g., RICHARD MUNSON, *THE POWER MAKERS: THE INSIDE STORY OF AMERICA'S BIGGEST BUSINESS . . . AND ITS STRUGGLE TO CONTROL TOMORROW'S ELECTRICITY* (1985); RICHARD RUDOLPH & SCOTT RIDLEY, *POWER STRUGGLE: THE HUNDRED YEAR WAR OVER ELECTRICITY* (1986).

elites competing for the regulators' favor.<sup>28</sup> The debate among those elites, like so much of public policy for the past quarter-century, is typically characterized as being primarily about the economic efficiency of regulation. However, as Michael Reagan emphasizes, this is not necessarily the sole, or even primary, historic rationale for regulation. Recent historical accounts, therefore, sometimes have an ahistorical quality to them.<sup>29</sup> Municipalization efforts, and the movement for public power more generally, clearly also reflected concerns about access to power and the potential for discriminatory behavior by monopolists. Practical equity concerns were therefore as important politically as theoretical economic rationales.<sup>30</sup> Most other nations (and some communities or regions of the United States) generally chose public ownership and control of the electric utility industry rather than a regulated, privately-owned system.<sup>31</sup> Much of the recent debate over the purposes of deregulation and restructuring in the electricity industry has taken for granted that the economic logic of "natural monopolies" is the primary rationale for regulation. As a result, the discourse has generally failed to explore the broader social and political reasons for these institutional choices.

This distinction between economic and social/political explanations for regulation of the electric utility industry was academic for decades, for the utility consensus seemed to work to most parties' benefit from the

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28 See, e.g., DOUGLAS D. ANDERSON, *REGULATORY POLITICS AND ELECTRIC UTILITIES: A CASE STUDY IN POLITICAL ECONOMY* (1981); OWEN & BRAEUTIGAM, *supra* note 26; Sam Peltzman, *Towards a More General Theory of Regulation*, 19 J.L. & ECON. 211 (1976). For a wide range of examples going beyond electricity regulation, see generally *THE POLITICS OF REGULATION* (James Q. Wilson ed., 1980).

29 As Michael Reagan explained:

Economists and economic principles so thoroughly dominate contemporary writings on regulation that today's students may find it strange that prominent earlier (1940s-1960s) books on regulation most often reflected a political approach, the primary theme being that the rise of regulatory programs could best be explained as a response to political demands from victimized groups for protection. In turn, these group demands were seen as the concrete manifestations of a very broad and basic societal adjustment to the realities of economic power, which developed as a function of the unfettered industrial capitalism of the late nineteenth and early twentieth centuries.

REAGAN, *supra* note 12, at 28. In contrast, he notes that "[e]conomists, rather than political scientists and legal scholars, supply the analytic framework for the current conventional wisdom." *Id.* at v.

30 One need only read Frank Norris' 1901 polemic *The Octopus* (1901) against the Central Pacific railroad to understand the political motivation for the establishment of the California Public Utilities Commission ("CPUC") in 1911. See GEORGE E. MOWRY, *THE CALIFORNIA PROGRESSIVES* 11-12 (1951) for the political details of the birth of the CPUC, which makes no mention of natural monopoly theory and does not feature any economists.

31 Approximately three-fourths of U.S. power was supplied by investor-owned utilities in 1984, while only about one-fourth of the world's power was privately controlled. HIRSH, *supra* note 11, at app. 274 tbl.A.1.

1920s until the 1970s.<sup>32</sup> Utility managers dominated what was essentially a “closed system” during this period, but regulators didn’t seem to mind: Their job was simply to pass along the savings associated with ever-declining costs as economies of scale allowed ever-expanding demand to be met with little controversy through expanded supply. State utility regulatory commissions were therefore of little interest to either politicians or voters for most of this period of expansion. Concern about regulatory “capture” by the regulated industry seemed to be only of academic interest.

Californians established the California Public Utilities Commission (“CPUC”) in 1911, at the peak of the Progressive movement to watch over the state’s three large investor-owned utilities.<sup>33</sup> Pacific Gas and Electric Company (“PG&E”), Southern California Edison Company (“Edison”), and San Diego Gas and Electric Company (“SDGandE”) each had an obligation under the regulatory regime to serve all of the customers within their service territories at “just and reasonable rates” authorized by the CPUC. Other Californians received power from public utilities like the Los Angeles Department of Water and Power or the Sacramento Municipal Utility District, which were not subject to CPUC jurisdiction.<sup>34</sup> Instead, those ratepayers could exercise oversight of utility rates at the ballot box. Ratepayers throughout California certainly expressed their ire whenever rate increases were proposed, but the rates themselves were set based upon the cost of providing service. This was true for both public and private utilities.<sup>35</sup>

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32 There were prominent exceptions, of course, including those who held worthless utility stocks following the stock market crash of 1929. A variety of abuses led the Senate in 1928 to authorize the FTC to hold hearings on the industry. The FTC hearings were later instrumental in adoption of both the Federal Power Act of 1935, ch. 285, 41 Stat. 1063 (codified as amended at 16 U.S.C. §§ 791-793, 796-818, 820-825 (2000)) and the Public Utilities Holding Company Act of 1935 (PUHCA), ch. 687, 49 Stat. 803 (codified as amended at 15 U.S.C. § 79 (2000)). See CARL D. THOMPSON, *CONFESSIONS OF THE POWER TRUST* (1932) (stating in the subtitle that the book is “a summary of the testimony given in the hearings of the Federal Trade Commission on utility corporations pursuant to Resolution No. 83 of the United States Senate approved February 15, 1928”). Thompson was Secretary of the Public Ownership League of America at the time.

33 The California Public Utilities Commission was established by the Public Utilities Act of 1911 as the successor to the California Railroad Commission, which was established in 1879 at the state constitutional convention but was generally believed to be “captured” by the railroad. MOWRY, *supra* note 30, at 18.

34 Los Angeles regained control of its municipal water supply in 1902, and power generation was an ancillary benefit of the city’s Owens Valley water supply project. Voters approved bonds for the generating facilities in 1910 and voted to municipalize the distribution system in 1911. The aqueduct project was completed in 1913. All of the private electrical utilities within the city of Los Angeles were municipalized by 1936. NORRIS HUNDLEY, JR., *THE GREAT THIRST: CALIFORNIANS AND WATER, 1770s-1990s*, at 139-40, 152-53 (1992). The Sacramento Municipal Utility District was carved out of PG&E’s franchise territory in 1946. JAMES C. WILLIAMS, *ENERGY AND THE MAKING OF MODERN CALIFORNIA* 266 (1997).

35 Public utilities in California have historically had lower rates than private utilities for three reasons: (1) They often had access, like Los Angeles, to low-cost hydropower sites that were developed early in the twentieth century, (2) they have preferential access to power produced at large

Why did we abandon this system? Richard F. Hirsh's account is the most recent and the most comprehensive. Yet, Hirsch fails to provide an adequately critical assessment of the recent deregulation and restructuring turn. Perhaps this is because his perspective was colored by the time period in which he wrote; he did not have the benefit of the events that happened in 2000-2001. He therefore asks, "What led the elites to change the system?" rather than, "How on earth did the citizens of the state let the elites change the system in a way that allowed rolling blackouts, skyrocketing rates, utility bankruptcies, stonewalled investigations, document destruction, and the effective insolvency of California itself?" Not surprisingly, the two questions lead to two very different frameworks for analysis and potentially very different answers. Hirsh's analysis, like most recent scholarship on the political economy of electricity regulation, largely stays within the boundaries of the discourse among the elites.

Nevertheless, Hirsh offers the most useful source for understanding the context of the California crisis. Like others, he traces the collapse of the utility consensus to three unanticipated crises in the industry in the 1970s:

Coming first, the arrest of technological progress along traditional lines constituted a catastrophe to executives who depended on improved hardware to drive their industry's expansion. Next, the energy crisis of 1973 affected the market for electricity by dramatically increasing the price of power, while also motivating political leaders to intervene in the system for the first time in decades. Finally, the modern environmental movement expressed a set of values about nature and humankind's place in it that questioned the widely accepted ideology of growth.<sup>36</sup>

These stresses created the conditions for the passage of PURPA, the Public Utility Regulatory Policies Act of 1978.<sup>37</sup> Although most lobbying attention focused on the rate reform aspects of the bill (which institutionalized economists' desire to have marginal-cost pricing replace average-cost pricing in electric utility regulation), Section 210 allowed "qualifying facilities" ("QFs") that were either run on renewable energy sources or burned fossil fuel more efficiently through co-generation (the simultaneous production of steam for industrial processes and electricity) to challenge "the monopoly control enjoyed by regulated utilities."<sup>38</sup>

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federal dams in the west, marketed by the Western Area Power Authority, and (3) they do not need to earn a return on capital to ensure shareholder investment value.

36 HIRSH, *supra* note 11, at 55.

37 Pub. L. No. 95-617, 92 Stat. 3117.

38 HIRSH, *supra* note 11, at 73.

State-by-state implementation of PURPA then allowed a fifty-laboratory test of how non-utility generation might be developed. PURPA had little impact in most states, as industry-captured regulatory commissions protected the existing utility monopolies by offering only token prices for QF power while making it difficult for individual QFs to arrange contracts to sell their power to utilities. California responded much more aggressively with PURPA, however, and the state soon developed the largest number of non-utility owned QFs in the country. This proved to be an important institutional condition preceding the California crisis.

By 1991, non-utility companies produced fully a third of California's electrical energy.<sup>39</sup> Nationally, non-utility generation accounted for just about three percent of total generating capacity in 1991—its lowest level since 1970, when it accounted for more than five percent of capacity.<sup>40</sup> National production from this non-utility capacity had grown steadily, however, since the passage of PURPA—from 6,034 million kilowatt-hours (kwh) in 1979 to 136,550 million kwh in 1991.<sup>41</sup> Many of these new non-utility generating units were cheaper to build and operate than new large-scale utility facilities. They were also typically small and decentralized, further challenging utility dominance. As Hirsh notes, “the new technologies weakened the justification for natural monopoly status of the power companies, spurring policy makers to reconsider the wisdom of granting special privileges to the regulated firms.”<sup>42</sup> PURPA, therefore, set the stage for broader deregulation of the industry.

#### B. *The California Model: 1970s-1990s*

Although the changes in national policy discourse brought about by PURPA were important, there were other key policy decisions California made during the 1970s and 1980s that are poorly understood and are worth reviewing here. In many respects, California's approach during this time constituted a complete challenge to the dominant regulatory paradigm of the time, as well as the deregulatory approaches adopted over the past decade. The state's specific policy choices in the 1970s and 1980s also play a critical role in any nuanced analysis of the California energy crisis of 2000-2001. Many observers appear to lack a nuanced understanding of this complex history, so it is not surprising that many of the prescriptions for resolving the crisis have been misguided.

California faced a difficult challenge when the 1973 oil crisis hit the country: Its population had jumped from fifteen million in 1960 to twenty

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39 *Id.* at 93.

40 *Id.* at 115 fig.6.7.

41 *Id.* at 116 fig.6.8.

42 *Id.* at 117.

million in 1970, and would add another ten million by 1990. Like the rest of the country, California's investor-owned utilities were forecasting continuing demand growth that would require many more power plants: According to a 1972 Rand Corporation study for the legislature, energy consumption would be four times greater in 1991 than 1970. The study projected that the state would need the equivalent of about 130 new power plants (for a total installed capacity of over 150,000 MW of supply) by the year 2000.<sup>43</sup> Building this many new plants would present significant siting challenges at a time when public values for environmental protection were being institutionalized. The utilities, therefore, pushed for a one-stop permitting agency while environmentalists sought a new regulatory body with independent analytic abilities to evaluate the utilities' proposals. Governor Ronald Reagan first vetoed a bill to establish the California Energy Resources Conservation and Development Commission (which met both the utilities' and the environmentalists' goals) just four days before Israel was attacked in October 1973, but he reluctantly signed a modified version of the bill in May 1974<sup>44</sup> after the 1973 Arab Oil Embargo had precipitated a crisis atmosphere on energy issues.<sup>45</sup>

The California Energy Commission ("CEC"), as the agency was commonly known, quickly instituted a new paradigm of electric utility resource planning when Democrat Jerry Brown replaced Reagan as governor in January 1975.<sup>46</sup> It began by challenging the very models used by utilities to forecast demand: Rather than assuming that economic growth was directly correlated with energy consumption, the CEC developed an end-use forecasting model that allowed policymakers and planners to examine opportunities to substitute improved end-use efficiency for new supply. Conservation and efficiency, in other words, could be considered sources of new "supply." Following the arguments laid out by Amory Lovins in 1976,<sup>47</sup> California policymakers accepted the concept that "negawatts" could be just as valuable as megawatts—and that society demanded "energy services" (the goods and services made possible

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43 R.D. DOCTOR ET AL., CALIFORNIA'S ELECTRICITY QUANDARY: III. SLOWING THE GROWTH RATE x-xi (Rand Energy Program, Study No. R-116-NSF/CSA, 1972); see also HIRSH, *supra* note 11, at 94.

44 Warren-Alquist Act, CAL. PUB. RES. CODE §§ 25000-25008 (West 1996).

45 Oil was used to produce just 7% of American electricity supplied in 1962, but oil accounted for 14% of output in 1970 and nearly 20% by 1973. HIRSH, *supra* note 11, at 60. Oil prices increased six-fold between Reagan's initial veto and his signature just seven months later as Arab members of OPEC exercised oligopolistic market power.

46 Brown was elected governor in November 1974 and took office in January 1975. He remained in office through 1982, and his influence dominated the first decade of the CEC through the staggered terms of his appointees to the Commission. During that time, the CEC aggressively promoted renewable technology development and the adoption of energy efficiency standards for appliances and buildings. The CEC was then substantially weakened under Republican Governors George Deukmajian and Pete Wilson from 1983-1998.

47 Amory B. Lovins, *Energy Strategy: The Road Not Taken?*, 55 FOREIGN AFF. 65 (1976).

by energy) rather than energy per se. Demand-side management (“DSM”) could therefore obviate the need for new power plants “faster, cheaper, and cleaner” than the traditional supply-side approach.<sup>48</sup> The structure of the CEC system was relatively simple: (1) A comprehensive assessment process would project end-use demand every two years and identify available sources of supply or demand reduction (through either direct programs with utility consumers or regulatory standards for new appliances or buildings); (2) the CEC would determine the forecast “need” for such new resources (forecast demand minus existing supply); and (3) the CEC would adopt regulatory standards or request support for conservation programs through the CPUC (which had control over utility rates) where such standards or programs were cost-effective. Utilities then needed to meet the CEC’s “demand conformance test” in order to get a permit to build a new power plant—unless there was already an identified need for new supply, no siting permit could be issued by the CEC. This process shifted the question of “need” from project-by-project permitting decisions to a broader, more comprehensive planning process.<sup>49</sup>

Higher utility rates, regulatory standards for improved end-use efficiency in new appliances and building designs, and structural changes in the California economy then proceeded to cut California’s annual rate of demand growth by 75% to 80% over the subsequent two decades. The apparent “need” for 100,000 MW of new utility power plants largely evaporated as California substituted efficiency for smokestacks and waste.<sup>50</sup> This is a remarkable record: California literally avoided the

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48 This argument has recently been repeated in response to the Bush Administration’s heavily supply-oriented National Energy Plan (where Vice President Dick Cheney has dismissed conservation as a “lifestyle choice” rather than a viable element of energy policy) and was also advanced by environmentalists during the 2000-2001 California crisis. However, it has already been tested as a key element in public policy and utility system planning in California from 1975 to 1995. Therefore, there is an empirical basis for determining whether or not its proponents’ claims have been realized. See Joseph Kahn, *Cheney Promotes Increasing Supply As Energy Policy*, N.Y. TIMES, May 1, 2001, at A1; David E. Sanger & Joseph Kahn, *Bush, Pushing Energy Plan, Offers Scores of Proposals to Find New Power Sources*, N.Y. TIMES, May 18, 2001, at A1. For a contrary view that challenges the Vice-President’s assertion, see Timothy Egan, *Many Utilities Call Conserving Good Business*, N.Y. TIMES, May 11, 2001, at A1.

49 The utility also still had to get separate approval from the CPUC to recover through rates the costs of building and operating new facilities, which created a regulatory inefficiency and additional risk for new utility-owned facilities. The lack of clearly articulated connections between the CEC and CPUC processes caused a series of problems in the 1980s as California shifted away from the traditional utility-centered, project-by-project approach. See Tim Duane, *Electricity Regulation Reform*, in 6 CAL. POL’Y CHOICES 205 (John J. Kirlan & Donald R. Winkler eds., 1990).

50 California’s annual electricity consumption grew by only 1.7% per year from 1977 to 1999. This contrasts with historic rates of 7% to 8% before 1973 and an average annual growth rate of 3.1% from 1977 to 1999 for all of the states in the Western System Coordinating Council (“WSCC”) area (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Washington, and Wyoming). California’s peak demand grew from about 36,000 MW in 1982 to approximately 56,000 MW in 2000. Installed generating capacity grew during the same period from 35,000 MW in 1977 to approximately 53,000 MW in 2000. JOLANKA V. FISHER & TIMOTHY P. DUANE, TRENDS IN ELECTRICITY CONSUMPTION, PEAK DEMAND, AND GENERATING CAPACITY IN CALIFORNIA AND THE

construction of hundreds of new power plants that were projected to be built from 1970 to 2000. More than just a "lifestyle choice," the state firmly established that conservation, demand-side management, and improved end-use efficiency could cost-effectively meet the rapidly growing state's energy services needs. Contrary to Vice President Cheney's assertion, California clearly demonstrated that conservation can be a solid policy plank.

The new regulatory approach still encountered some difficulties in its initial decade. For example, the utilities had already begun construction on several major generating projects that were not subject to the CEC's regulatory oversight when the CEC first implemented its biennial resource planning process and demand conformance permit system. Cost overruns, construction errors, and regulatory delays meant that those plants were not coming on-line as quickly as expected.<sup>51</sup> The state, therefore, faced very slim reserve margins in the early-1980s that threatened the reliability of the grid.<sup>52</sup> It was in this context that the CPUC decided to jump-start the alternative energy market by aggressively implementing PURPA. As Hirsh put it, "the law found a true home in California,"<sup>53</sup> "largely because the state's utilities had fallen behind schedule in constructing new power

WESTERN GRID 1977-2000 (Program on Workable Energy Regulation, Working Paper No. PWP-085, September 2001), available at <http://www.ucei.berkeley.edu/ucei/PDF/pwp085.pdf>. An addendum with demand and capacity figures from 1999 to 2000 in California only (but not the rest of the WSCC) was completed by Fisher and Duane in December 2001. Jolanka V. Fisher & Timothy P. Duane, Presentation at the University of California P.O.W.E.R. Conference, Berkeley, Cal. (Mar. 22, 2002) (addendum on file with Yale Journal on Regulation).

51 In particular, delays in completion of the PG&E's Diablo Canyon nuclear power plant and Edison's San Onofre nuclear generating station reduced baseload generating capacity. The California utilities were not unique in facing such delays and cost overruns, of course. See James Cook, *Nuclear Follies*, FORBES, Feb. 11, 1985, at 82. The entire industry faced new safety requirements and permitting delays after the Three Mile Island accident in March 1979, but orders were already being cancelled due to cost overruns, and no plants ordered between 1974 and 1985 have ever been completed in the United States. *Id.* PG&E's Diablo Canyon facility had additional problems associated with seismic retrofits to deal with a nearby earthquake fault that had not been considered during the design phase. The initial seismic retrofit was then installed backwards, necessitating additional delays and cost overruns. Ultimately, the CPUC's Division of Ratepayer Advocates ("DRA") argued that ratepayers should pay just \$1.4 billion of the \$5.6 billion price tag for the plant. The original cost estimate was less than \$400 million. The CPUC ultimately approved a complicated performance-based ratemaking scheme that allowed PG&E to recover most of the costs. (There is considerable debate today whether PG&E has been made whole under the system.)

52 The reserve margin is the amount of generating capacity on "reserve" when the system is meeting the peak demand. A peak demand of 90 MW with 100 MW of generating capacity therefore yields a reserve margin of 10%. PG&E's reserve margin dropped to as low as 6% in 1981, while the industry then "viewed 20% as a comfortable margin." HIRSH, *supra* note 11, at 95. Industry practice under the regulated cost-of-service system estimated that a 20% margin would yield a loss of load probability of one day of outages for the entire system every ten years. KAHN, *supra* note 16, at 83. The California Independent System Operator now declares a "Stage 1" emergency whenever reserve margins reach 7%, a "Stage 2" emergency at 3%, and a "Stage 3" emergency (when rolling blackouts begin in order to maintain the integrity of the grid) at 1.5%.

53 HIRSH, *supra* note 11, at 93.

plants.”<sup>54</sup> Most states only required utilities to purchase from QFs at only the short-run utility operating costs that were “avoided” by the purchases from the QFs, but the CPUC instituted a payment structure in 1983 that was based on the projected “long run avoided cost” the utilities would otherwise incur to build and operate new power plants.<sup>55</sup> Moreover, the CPUC adopted “standard offer” contracts that included some fixed prices based on forecast energy prices. For renewable energy projects, the payments were even front-loaded, because initial rates were higher than short-run avoided costs.<sup>56</sup> The result was dramatic: Utilities signed contracts for over 15,000 MW of new power supply from QFs from 1983 to 1985.<sup>57</sup>

Unfortunately, many of these contracts soon seemed uneconomic from the perspectives of both the utilities and their ratepayers. The utilities completed several large nuclear power plants and one large pumped-storage hydroelectric project shortly after the “gold rush” of new QF contracts, making the need for power both much less critical from a reliability standpoint and much less economic (although similar in average cost to the new utility-owned generating facilities).<sup>58</sup> Now, those expensive new utility investments also had to be incorporated into the rate base—which meant that rates would have to increase significantly. Finally, oil and gas prices dropped despite the forecast that they would continue to increase.<sup>59</sup> The result was a short-term “oversupply” of high-priced power which led the legislature to call for joint CPUC-CEC hearings in 1987 and 1988.<sup>60</sup> Those hearings led the CPUC to promise to rely more upon the

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<sup>54</sup> *Id.* at 95.

<sup>55</sup> The terms of these contracts were the result of intensive negotiations in a complex settlement conference among utilities, QFs, ratepayer groups, and CPUC staff. The underlying assumptions regarding future energy prices therefore did not go through the usual level of scrutiny that would occur in the CPUC’s quasi-judicial process.

<sup>56</sup> These contracts were known as “Interim Standard Offer Four” (“ISO4”) contracts, and they were available from September 1983 until April 1985. I worked in the Commercialization of Alternative Technologies section of the PG&E Generation Planning Department from September 1983 to September 1984 and served as a consultant to the PG&E Generation Planning Department in 1985 and 1986. I also served as a consultant to some QFs who had such contracts from 1985 to 1990, representing them in regulatory proceedings before the CPUC and CEC. I have not worked directly for any utilities, generators, or other market participants in California regulatory proceedings since December 1990.

<sup>57</sup> HIRSH, *supra* note 11, at 97.

<sup>58</sup> This problem reflected a fundamental failure by the CPUC to coordinate its QF contract terms and prices with the CEC-identified need through the biennial resource planning process. Most of the QFs were outside the siting jurisdiction of the CEC (because they either relied on renewable resources or were less than 50 MW in size), so they could be built even if there was no longer any identified “need.” See Duane, *supra* note 49, at 217-19.

<sup>59</sup> The primary driver of these lower prices was improved efficiency, as the U.S. economy increased energy productivity by thirty percent from 1973 to 1986. This slackened global demand for oil, which reduced pressure on prices. Substitution of other fuels for oil (especially in the electric generation sector) also played an important role.

<sup>60</sup> Duane, *supra* note 49, at 216-17.

CEC's biennial resource planning process when making decisions about future QF contracts or other sources of new utility-owned supply.<sup>61</sup> The CPUC also decided to rely upon a market-based bidding system to procure those new supplies. The market would therefore establish the means, but not the ends, of California electric supply.

The Biennial Resource Plan Update ("BRPU") process developed by the CPUC in the late-1980s and early-1990s basically had three steps: (1) identify the "need" for new supply based on the CEC's biennial resource plan process; (2) determine the identifiable deferrable resource that the utilities would need to build and operate to meet that need in the absence of QFs; and (3) solicit offers to meet that need instead through non-utility sources. The cost of the "avoided" utility-owned plant would be the maximum price paid for non-utility power; if it was less expensive than the bids received, the utility would be authorized to go forward and build it. This "contestable markets" model of regulation was expected to improve efficiency without sacrificing system reliability or rate stability. Selection of winning bidders was based on criteria that included consideration of the environmental impacts of generating technologies, however, in an attempt to address the total social costs of technology choices.<sup>62</sup>

This distinction between ends (to be determined by regulators) and means (to be delegated to markets) proved critical: California policymakers still recognized the need to maintain centralized control over system planning in order to ensure system reliability, but they also recognized that markets are generally more efficient than regulators and planners in determining the most cost-effective way to meet an identified need. This distinction was subsequently lost when California restructured the electricity market in the mid-1990s—leaving it to Adam Smith's invisible hand to ensure system reliability. As we will see, it soon became clear to generators and traders that reduced system reliability was in their best economic interest.

### C. *Integrated Resource Planning: 1980s-1990s*

Development of the California model was not unique to the state, but was part of a national trend toward "least-cost planning" or "integrated resource planning" that considered both supply- and demand-side management alternatives as equally legitimate means of meeting projected

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61 See Duane, *supra* note 49, at 218-19, for a brief history of these proposals. WILLIAMS, *supra* note 34, offers a more comprehensive background on the relationship between energy policy and the development of the state's complex economy but does not discuss the specific question of electricity industry regulation or reform in any depth.

62 I represented a coalition of renewable energy companies, energy efficiency companies, and environmental groups in the proceedings before the CPUC in 1989 and 1990.

future demand. Hirsh characterizes this trend as being driven by “the growth of regulatory activism.”<sup>63</sup> Regulators in Wisconsin, Nevada, and several other states aggressively pursued direct comparisons of demand-side and supply-side alternatives in utility resource plans. They also explored explicit incorporation of the non-market social and environmental costs of different generating technologies together with California, New York, Massachusetts, and others.<sup>64</sup> This approach attempted to work within the existing institutional framework of the regulated investor-owned utility while meeting projected needs through both regulatory approaches (e.g., new appliance efficiency standards) and market means (e.g., non-utility-owned QF generation).

Expanding use of the approach reflected the growing power of both regulators and third parties (such as environmental groups and QFs), which had not historically dominated utility planning or regulation.<sup>65</sup> The dominance of utility managers was clearly at an ebb, and many of them saw their traditional sources of profit growth being squeezed from both sides: Demand-side reduction programs weakened sales growth, while non-utility generation lessened opportunities to expand the investment rate base on the generation side.<sup>66</sup> Some investor-owned utilities were therefore threatened by the new paradigm.<sup>67</sup>

Regulators and environmentalists responded to this resistance by trying to make the utilities whole in the face of conservation: By aligning the utility’s incentives with the new paradigm, it was hoped that utilities would be enticed to invest in more conservation. California, therefore, attempted to eliminate disincentives by creating new opportunities for utilities to increase their profits through investments in conservation, demand-side management, and efficiency.<sup>68</sup> The increased emphases on end-use efficiency and new technologies continued to erode profits for suppliers and builders of traditional power plant equipment, however.

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63 HIRSH, *supra* note 11, at 169-203 (title of chapter).

64 See THE ENVIRONMENTAL COSTS OF ELECTRICITY (Pace Univ. Ctr. for Envtl. Legal Studies ed., 1990) for an overview of the analytic methods and estimates of economic costs.

65 Environmental groups successfully challenged declines in utility spending on conservation and efficiency, for example, through several “collaborative” negotiations in New England and California in the late-1980s. HIRSH, *supra* note 11, at 207-33.

66 In contrast, unregulated subsidiaries or affiliates of regulated utilities were expanding rapidly to fill new markets. This led both PG&E and Edison to establish subsidiaries that threatened further supply expansion by other utilities. Several of Edison’s affiliates were also heavily invested in California QFs, creating tensions at the CPUC regarding the risk of potential conflicts-of-interest. These concerns proved well founded for all of the IOUs from 1996 to 2001.

67 The classic critique of utility regulation had been that it created incentives for overinvestment by utilities, since all of their investments would earn a rate of return that probably exceeded the true cost of capital. Harvey Averch & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AM. ECON. REV. 1052 (1962).

68 HIRSH, *supra* note 11, at 207-33.

Therefore, improved efficiency continued to threaten powerful vested economic interests.<sup>69</sup>

Some industrial customers were also threatened by the new approach: Just as rates had escalated to pay for both utility-owned investments in nuclear power plants and long-run QF contracts, they were now being asked to support investments to reduce other customers' energy bills through expanded conservation programs. 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.<sup>70</sup> The result would be political fallout for state regulators and their political patrons if residential (i.e., voting) ratepayers were left holding the bag. Both the utilities and these industrial customers therefore sought to constrain the implementation of expanded demand-side management programs and expanded regulator power. In the face of an economic downturn in the early-1990s, both state and federal leaders wanted to address their concerns.

This is the critical moment in the evolution of electric utility regulation. Just as an alternative paradigm—which involved both greater power for regulators and greater attention to the social and environmental consequences of the electric utility system—was ascending to replace the "utility consensus," it was eclipsed by another paradigm that abandoned both the role of the regulators and their attention to social and environmental concerns. Hirsh gives a blow-by-blow account of the debate among the power elite about this question, but he does not adequately answer the central question in light of the California disaster: Why and how did the advocates of deregulation defeat the advocates of integrated resource planning? Equally important, how could such a fundamental change in such an essential role for the state have occurred with so little public involvement or attention to the drastic consequences that would ultimately fall on the broader public?

There are no easy answers to these questions. The apparent success of deregulation in other industries (such as airlines, telecommunications,

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69 Because many of these same interests saw rapid expansion in markets for non-utility power, these interests had an interest in promoting further deregulation. In particular, Wall Street saw new opportunities, through deregulation, to finance new non-utility projects, restructure existing utilities into separate corporate entities, and to handle mergers and acquisitions as the industry restructured. Wall Street therefore generally supported the deregulation project.

70 This concern replicates one of the original rationales for regulation of the industry: To ensure universal access to service, regulators had historically adopted rate schedules with cross-class subsidies from larger industrial users to smaller residential users. Remote rural users were also often subsidized, and the federal government's commitment to rural electrification reflected equity concerns rather than only economic efficiency concerns. Such subsidies were out of political favor by the late-1980s, however, as efficiency became the dominant value in regulatory debates.

natural gas, trucking) clearly served as a model for deregulation advocates in the electricity sector.<sup>71</sup> This success certainly played a central rhetorical role in much of the debate among policymakers (who were heavily influenced by the increasing dominance of the economic analysis of regulation).<sup>72</sup> The analogies should have had their limitations, however, due to some of the technological characteristics of electricity. In particular, the need to match supply and demand instantaneously and simultaneously throughout the entire grid (within very narrow frequency and voltage tolerances) meant that all demand must be met fully at all times. David Marcus has said that it would be comparable to having a deregulated airline system where, any time a flight was delayed for a single minute, every other airplane flying at the time of the delay would simultaneously drop out of the sky.<sup>73</sup> Clearly, electricity had different technological, economic, and historical characteristics than air transportation and needed to be handled differently.<sup>74</sup>

Among the policy elites, however, these distinctions were not dominant. The rhetoric and discourse of regulatory reform, therefore, continued to focus on economic challenges to the natural monopoly argument and the virtues of presumptive improvements in economic efficiency under a deregulated market. Other rationales for regulation were largely ignored, although the distributive consequences of deregulation had important political ramifications. William Golove, who has studied the rhetoric of the California deregulation and restructuring debate, lost track when he counted the word “efficiency” being used more than 100 times in

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71 The broader push to deregulate American industries gained strength with the arrival of the Reagan Administration in 1981. Serious political interest in reform led to a series of studies in the early 1980s, including a book by current U.S. Supreme Court Justice Stephen G. Breyer. STEPHEN G. BREYER, *REGULATION AND ITS REFORM* (1982). Breyer previously published a study through the Brookings Institution. STEPHEN G. BREYER & PAUL W. MACAVOY, *ENERGY REGULATION BY THE FEDERAL POWER COMMISSION* (1974). FERC conducted an investigation into deregulation of wholesale power markets in the Reagan Administration, and the definitive book on the topic (for the time) was published in 1983 by Paul L. Joskow and Richard Schmalensee. PAUL L. JOSKOW & RICHARD SCHMALENSEE, *MARKETS FOR POWER: AN ANALYSIS OF ELECTRIC UTILITY DEREGULATION* (1983).

72 Perhaps most notable among the influences in this area was ALFRED E. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS* (2 vols., 1970-1971). For a profile of Kahn's influence during “the Economist's Hour,” see THOMAS K. MCCRAW, *PROPHETS OF REGULATION: CHARLES FRANCIS ADAMS, LOUIS D. BRANDEIS, JAMES M. LANDIS, ALFRED E. KAHN* 222-29 (1984).

73 David Marcus, Remarks before the California Public Utilities Commission, Proceeding OII 00-08-02, San Diego, Cal. (Aug. 23, 2000). These characteristics present unique opportunities to exercise market power.

74 Analysts like Joskow and Schmalensee recognized these differences, but the subtleties of their analysis were not part of the broader political rhetoric among elected policymakers. See JOSKOW & SCHMALENSEE, *supra* note 71, at ix (“We found that key technical, economic, and institutional features of the electric power industry had not been adequately considered in much of the writing on deregulation.”). To many politicians, electricity was just another market that suffered from too much regulation and would be improved by greater competition. See *infra* Part II.

a ninety minute meeting of “stakeholders” discussing California’s deregulation scheme. He also saw the initial technical discussions of “wheeling” give way to “direct access” and finally “customer choice.” Like “wheeling,” the term “deregulation” also generated a cool response to proposals for policy change. Further discussion of “deregulation” was therefore abandoned in favor of “restructuring”—a more neutral and euphemistic term that did not imply the kind of fundamental change in the relationship between markets and regulators that was, in fact, being considered. Although some participants (e.g., environmentalists) claimed that they did not care about rhetoric, it appears that others (e.g., utilities) convened focus groups and carefully tested the salience of particular terms. “Efficiency” and “restructuring,” therefore, became the buzz words that dominated the discourse for all participants.<sup>75</sup>

Finally, the broader cultural milieu in which the electric utility “restructuring” debate occurred also played a critical role. The early-1990s were “the age of market triumphalism,” as the Berlin Wall collapsed and the Soviet Union soon followed.<sup>76</sup> Put simply, markets were the answer, government was the problem, and anybody who thought otherwise was either Rip Van Winkle or a card-carrying liberal clinging to the past. Shouldn’t we “free” the “captive customers” of the utilities by “unleashing” the “creative energy of the marketplace?”

It is not coincidental, however, that this rhetoric of “efficient markets” and “inefficient regulation” supports institutional arrangements that tend to increase political power and economic wealth for some interests while decreasing both for others. The benefits of such a shift in discourse and policy are likely to be high for a narrow set of players, while

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75 William Golove, Presentation to the Energy and Resources Group Colloquium, University of California, Berkeley (Feb. 20, 2002) (on file with author); Interview with William Golove (Mar. 8, 2002) (on file with author) (Golove is a researcher at the Lawrence Berkeley National Laboratory and his research will be published in his Ph.D. dissertation in late 2002).

76 The phrase “the age of market triumphalism” was coined by Michael Watts. Michael Watts, *Liberation Ecology: Development, Sustainability, and Environment in an Age of Market Triumphalism*, in *LIBERATION ECOLOGIES: ENVIRONMENT, DEVELOPMENT, AND SOCIAL MOVEMENTS* (Richard Peet & Michael Watts eds., 1996). The groundwork for this assault on the usefulness of government regulation was initially laid when Jimmy Carter was elected President in 1976 with an anti-Washington “outsider” campaign. Carter, who first ran for elected office in Georgia with promises to improve government efficiency and to shake up the state bureaucracy, was also the last President to oversee a regulatory apparatus with any significant political support for tough regulation. Ronald Reagan gutted regulatory agencies’ budgets and morale, while George Bush and Bill Clinton pursued market-oriented policies while still acknowledging a role for regulators. Four of the past five Presidents (Carter, Reagan, Clinton, and George W. Bush) ran as “outside-the-Beltway” governors who had administrative experience to run government more efficiently. The result is a regulatory system that must increasingly rely upon *private litigation* to achieve *public policy* goals. For an example in auto safety regulation, see Michael Winerip, *Can One Obsessed Lawyer Use These Tires to Pin the Rollover Crisis on Ford?: The Explorer on Trial*, N.Y. TIMES, Dec. 17, 2000, § 6 (Magazine), at 46. A similar scenario is now driving shareholder interests in the Enron and PG&E bankruptcies, both of which involved transactions that should have been more closely scrutinized by federal regulators at both the Securities and Exchange Commission (“SEC”) and the FERC.

the costs or risks of such a shift are likely to be both broadly borne and smaller for each party harmed (although potentially much larger, as demonstrated in the California case, in the aggregate). This arrangement fits a classic “client” model for legislative action: With concentrated benefits and distributed costs (although they were characterized as distributed benefits), legislation for change “[t]ends to have strong interest group support and weak, if any, organized opposition.”<sup>77</sup> Moreover, “[b]ecause the costs can be allocated to an uninformed public, [the] legislature will follow a policy of *distribution* of subsidies and power to the organized beneficiaries. Often, *self-regulation* is the chosen policy.”<sup>78</sup> Not surprisingly, then, the public was ill-informed, and elites dominated the process.

Due to this concentration of benefits to “clients” under deregulation, the pervasive and potentially corrupting influence of money in the political process likely played an important role in the story of how deregulation and restructuring became a dominant mantra for a chorus of policy analysts and decision-makers from both political parties. The specific relationship between campaign finance and policy-making in this arena therefore needs further research. In general, though, a few things are clear: Those interests who would benefit from deregulation and restructuring clearly found it worthwhile to invest in the political campaigns of (and “educational” programs for) key decision-makers. In contrast, the tens of millions of people who would be harmed from such a massive structural change had to rely on underfunded proxies through consumer and environmental organizations. The latter were hopelessly outfunded in this debate, and they largely viewed the move to deregulation as a *fait accompli*. Although their participation in the so-called “collaborative” processes that generated particular deregulatory schemes gave those processes some greater political legitimacy, the asymmetrical power relationships among the stakeholders cannot be ignored. Opponents often felt they either had to negotiate the terms of deregulation in order to mitigate its impacts or else see adoption of a full-blown version of deregulation even more harmful to their interests.<sup>79</sup>

But nobody was paying much attention to the question of who gave what to whom when the deregulation turn took hold in American electricity regulatory policy-making. Instead, both the elites and the broader public were willing to accept the basic premise that less

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77 WILLIAM N. ESKRIDGE, JR. ET AL., *CASES AND MATERIALS ON LEGISLATION: STATUTES AND THE CREATION OF PUBLIC POLICY* 57 (3d ed. 2001).

78 *Id.* at 59 (emphasis in original).

79 See Timothy P. Duane, *Community Participation in Ecosystem Management*, 4 *ECOLOGY L.Q.* 771 (1997), for a discussion of the risks of relying on “collaborative” or “consensus-based” processes in policy making when the stakeholders have asymmetrical power or when key stakeholders are excluded.

government oversight was generally a good thing for both producers and consumers. In the words of Patrick Wood III, Chairman of FERC, "Deregulation always benefits people. If it doesn't, you've got to rework it until it does."<sup>80</sup>

## II. Revolutionary Deregulation: Self-Interest and Visions of the Invisible Hand

### A. *Deregulation and Restructuring: 1990s-?*

And so it was with such faith that the policy elites (or at least those steering the ship of policy debate) abandoned both the historic utility consensus and the emerging alternative paradigm of integrated resource planning. Simplistic popular assumptions ("deregulation always benefits people") displaced complex technical analysis ("under certain circumstances, the technical characteristics of electricity markets allow firms to exercise market power to increase prices and decrease reliability") as both regulators and legislators entered the deregulation and restructuring fray. California adopted a particular form of restructuring in the 1990s that involved both some fundamental design flaws and some terrible timing, but the cultural conditions for its adoption were not fundamentally different than those that continue to permeate national political discourse today. If anything, from 1975 to 1995 California had accomplished more to move towards a viable model of integrated resource planning than anyplace else in the world. The problem, therefore, lies as much in the national political culture as in the specifics of California's ill-fated experiment.<sup>81</sup> Other states may have smirked when the crisis hit the Golden State, but they will not be laughing when it hits them.

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<sup>80</sup> Zachary Coile & Bernadette Tansey, *Bush Appointee Warns State PUC on "Direct Access"*, S.F. CHRON., Jun. 28, 2001, at A1. Wood became chairman of FERC on September 1, 2001. He nevertheless appears to be much more willing than his two predecessors (Republican Curt Herbert, Jr., and Democrat James J. Hoecker) to consider a legitimate role for regulation of energy markets. Ricardo Alonso-Zaldivar, *FERC Chief Aims to Bolster Free Market Faith*, L.A. TIMES, Sept. 22, 2001, at A29. His appointment appears to be directly tied to influence by Enron. Therefore, his fate at FERC may hinge on the outcome of investigations into Enron's ties to the Bush Administration. Deposed FERC Chair Herbert claims that Enron chair Kenneth Lay suggested to him that Hebert's future tenure as FERC Chair would depend upon his support for Enron's proposals to deregulate the electricity industry. Lay has denied Hebert's claim, but Hebert was replaced by Wood shortly after Hebert made his claim about Enron's pressure public. See *Frontline: Blackout* (PBS television broadcast, June 12, 2001).

<sup>81</sup> In this sense, both Democrats and Republicans created the conditions for the California crisis. AB 1890 was unanimously supported by legislators from both parties in both houses in 1996, and it was implemented by a Democratic majority at FERC and a Republican majority at the CPUC through 2000. Assemb. B. 1890, 1995-1996 Leg., Reg. Sess. (Cal. 1996). Coincidentally, Republicans gained control of FERC shortly after Democrats became the CPUC's majority in January 2001. The underlying causes of the California crisis are therefore neither political party's exclusive responsibility.

In fact, there is some evidence that other states are already finding themselves in similar market conditions. The Pennsylvania-New Jersey-Maryland (“PJM”) Interconnection saw daily Capacity Credit prices jump from less than \$1 per megawatt-day in late-2000 to approximately \$177 per megawatt-day on January 1, 2001. This jump led PJM to request changes to a methodology contained in its FERC tariffs as the Pennsylvania Office of Consumer Advocate raised alarms about a significant coincident decrease in the amount of physical capacity being bid into that market.<sup>82</sup> Pennsylvania has been widely cited as a “success” story in deregulation and restructuring, but some retail providers pulled out of the Pennsylvania market in 2001 due to these dramatic changes.<sup>83</sup> Even Texas, which is exempt from FERC oversight of its isolated grid, saw standby power prices jump from about \$45 per MWh to approximately \$1000 per MWh on the first day of its new power market.<sup>84</sup> New York and New England also experienced dramatic spikes in wholesale market prices and rolling blackouts during critical periods in 2000 and 2001.<sup>85</sup> It is unclear in all of these states how well their systems will weather the boom-and-bust cycles of robust demand growth followed by recessionary periods. One thing is clear: Every functional electricity market in the world has abundant excess capacity (creating the conditions for competitive behavior by generators and traders), strict regulatory oversight (through either centralized dispatch authority or windfall profits taxes) that discourages the exercise of market power, or (preferably) both.<sup>86</sup>

For all of its apparent ascendancy in a few states in the late-1980s and early-1990s, therefore, the integrated resource planning paradigm was defeated primarily at the federal level by the deregulation and restructuring paradigm. FERC took a direct swipe at California’s efforts when it rejected the CPUC’s requirement that California’s investor-owned utilities meet projected long-term demand through contracts with non-utility generators

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82 John Hanger et al., *Storm Warning*, 3 PENN FUTURE No. 4 (Citizens for Pa.’s Future, Harrisburg, Pa.), Feb. 20, 2001.

83 The PJM market maintains strict dispatch authority over generators and it evolved from a tightly-linked interconnection where the vast majority of generating capacity is still owned by utilities. Moreover, Pennsylvania focused on establishing a competitive retail market by subsidizing consumers to switch electricity providers. The resulting system appears more successful from the standpoint of “customer choice,” but it is unclear if the market is functioning competitively or if customers are actually benefiting under the new system compared to the old system.

84 Dale Kasler, *Texas Power Deregulation Gets Off to California Start*, SACRAMENTO BEE, Aug. 3, 2001, at A25.

85 Neela Banerjee & Richard Perez-Pena, *A Failed Energy Plan Catches Up to New York*, N.Y. TIMES, Jun. 1, 2001, at A1; Peter Howe, *After Reprimand, Another Power Failure After Talks*, POWER FAILURE, BOST. GLOBE, Aug. 24, 2001, at P1.

86 The England-Wales market, which has been operating longer than any of the American markets, saw widespread market power abuses in the early years which were only reined in after imposition of a windfall profits tax. Similar abuses have recently been seen in Australia. In contrast, most European countries have adopted a more moderate form of electricity market restructuring that still retains centralized dispatch authority and greater regulation.

who had won the first BRPU bidding competition. Edison and SDGandE argued both that the power would not be needed in the late-1990s and that the contracted price was excessive due to the CPUC's willingness to require utilities to pay slightly more for less environmentally-damaging sources of generation.<sup>87</sup> Although pundits later blamed California regulators for not ensuring enough new generating capacity a decade later, it was FERC and the utilities themselves who had stopped the CPUC in the early-1990s from ensuring adequate reserves. Their action delayed additions to the California grid that had been correctly identified by the BRPU process as necessary to be operational by 2000-2001.<sup>88</sup>

Congress also poured cold water on the integrated resource planning party with passage of the Energy Policy Act of 1992.<sup>89</sup> The Act created a new class of exempt wholesale generators that would now be exempt (like QFs under PURPA) from some provisions of the Public Utilities Holding Company Act of 1935. It also encouraged FERC to promote "wholesale wheeling" through interstate transmission systems under its oversight. Many utilities and their executives objected to both provisions. Because of their objections, expressed in a newspaper advertisement arguing that the Act would lead to "a savings-and-loan disaster in the electric utility industry," deregulation proponents referred to them as the "Just Say No" crowd.<sup>90</sup> "The only ones who will benefit are the independent power producers and their select customers," said Philadelphia Electric Company's CEO, Joseph Paquette. "Outside of this small group, everyone else stands to lose through higher costs and less reliable service."<sup>91</sup> These pleas were ignored as Congress passed the Act with strong support from

87 The utilities based much of their argument on the apparent availability of abundant "excess" power on the spot market throughout the western grid, which meant that power could be purchased in the *short term* at roughly the operating cost of existing facilities. Not surprisingly, that was well below the *long-term* cost of providing new supply—which required both utilities and QFs to recover capital costs as well as operating costs. Eric Nalder & Mark Gladstone, *U.S. Agency's Actions Invited California Power Disaster*, SAN JOSE MERCURY NEWS, June 3, 2001, at 1A.

88 See Nalder & Gladstone, *supra* note 87; Judy Pasternak & Alan C. Miller, *Watchdogs Take a Hit in State's Power Ills*, L.A. TIMES, June 3, 2001, at A1.

89 Pub. L. No. 102-486, 106 Stat. 2776; see also 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 (1993).

90 Electric Reliability Coalition, *Advertisement*, HART. COURANT, Sept. 12, 1991, at C13, reprinted in HIRSH, *supra* note 11, at 246. Although public choice theorists would emphasize the self-interest of such opposition (arguing that resistant utilities wanted to maintain their cushy relationships with regulators rather than face more efficient competitors), the electric utility industry has historically attracted employees who value the notion of public service as part of their company's and industry's heritage. Opponents did not say "we'll lose while others will win," but that only a small group would benefit from the change. This is the same position that consumer groups took when faced with specific deregulation proposals in California.

91 Joseph Paquette, Commentary, *PUHCA Proposal Could Harm Millions*, ENERGY DAILY, Feb. 14, 1992, at 4; HIRSH, *supra* note 11, at 245.

the first Bush Administration.<sup>92</sup> Paquette proved quite prescient, yet his arguments were given little weight in 1992.

B. *“Restructuring” in California: 1992-1996*

The Energy Policy Act of 1992 set the national stage for deregulation and restructuring, but how did it go so terribly wrong in California? Why did the state become a badly injured victim of its encounter rather than the poster child for entrepreneurial innovation that otherwise characterizes the state? Perhaps most importantly, how well have policymakers responded to the crisis, and what are the lessons we can learn from the California case?

The specific form of the California experiment had two parents: the CPUC, which initiated deregulation and restructuring efforts from 1992 to 1995, and the state legislature, which intervened to modify the CPUC’s approach by adopting a negotiated package of legislation in 1996. The CPUC proposals were first initiated by CPUC President Daniel Fessler in 1992, distributed for discussion in a staff report (the “Yellow Book”) in 1993, and then released in more detail in 1994 in a policy statement (the “Blue Book”).<sup>93</sup> The CPUC’s initiative generated considerable debate at both the CPUC and the Legislature for the following year, but even the CPUC could not agree on a single approach when it issued a preliminary proposal for restructuring in 1995.<sup>94</sup> Key legislators then stepped into the debate in 1996 to develop a compromise plan through marathon closed-door negotiating sessions among the major stakeholders.

Participants called the sessions “The Steve Peace Death March,” after San Diego area Assembly member Steve Peace, who had produced the film *Attack of the Killer Tomatoes* before being elected to the Legislature.<sup>95</sup> Peace, who moved up to the California State Senate in 1998, was widely trusted by fellow legislators due to his sharp intellect and his

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92 The chairman of the Republican National Convention during George Bush (senior)’s re-election campaign in 1992 was Kenneth Lay, the chairman of Enron Corporation. Enron played a prominent role in the deregulation and restructuring debate both in its early development generally and in the California crisis specifically. Lay argued that the fundamental flaw in California’s system is that it did not go far enough to deregulate. Although Lay’s approach was not ultimately adopted in the Bush Administration’s National Energy Plan in 2001, Lay may have had considerable influence over how FERC handled the California crisis. Lay certainly played an influential role in how the President formed his views on electricity markets and deregulation of the industry when Bush was governor of Texas.

93 HIRSH, *supra* note 11, at 248-59.

94 *Id.* at 257.

95 *Forum* (KQED-FM 88.5 radio broadcast, Aug. 24, 2001). Peace was widely credited with being the father of AB 1890 until summer 2000, when he and fellow Democrats pointed the finger of blame at former Republican Governor Pete Wilson and Republican Minority Leader Jim Brulte. Peace’s strong association with AB 1890 nevertheless forced him to cancel his run for Mayor of San Diego in 2000.

willingness to tackle thorny, complex problems like electricity deregulation and restructuring. Fellow legislators, therefore, generally trusted that AB 1890 was good legislation when most of the key stakeholders agreed to it. Consumer groups and environmental groups were reluctant participants, however, who realized early on in the debate that deregulation and restructuring were going to occur whether they participated or not. Their participation, therefore, reflected an attempt to mitigate the harms of deregulation rather than an enthusiastic embrace of it. The AB 1890 negotiations highlight how important asymmetrical power relationships are in so-called “consensus”-based processes.<sup>96</sup> By trying to offer something for everybody, AB 1890 was really a political compromise rather than an analytically-driven piece of legislation that reflected the technical complexities of the industry and the industry’s regulatory history. “We’re not equipped to do that,” reflected Assembly Utilities Committee Chair Roderick Wright in 2001. “We should have been making overall policy and getting out” to let the CPUC manage the details of restructuring. A longtime lobbyist went much further, saying that “legislators are institutionally, congenitally, totally incapable of handling details of something as complicated as electrical energy.”<sup>97</sup> This is not inherently true, but it may be effectively true today in an era of term limits, high turnover, and limited staff experience or expertise.

In the end, AB 1890 passed by a unanimous vote of both houses of the Legislature on the last day of the 1996 legislative session. It is doubtful that many legislators understood many of the details of the bill, but Governor Pete Wilson signed AB 1890 into law on September 23, 1996.<sup>98</sup> In keeping with the market zeitgeist of the time, he proudly pointed to the California legislation as another successful example of a market-oriented approach breathing new life into a stale, regulated industry that suffered from too much “command-and-control” oversight. “We’ve pulled the plug on another outdated monopoly,” proclaimed Wilson, “and replaced it with the promise of a new era of competition.”<sup>99</sup>

### C. *Flaws in the AB 1890 Market Structure: 1996-2000*

Several key features of the California system helped to spawn the 2000-2001 crisis. In particular, concerns about vertical market power (the ability of the investor-owned utilities to gain an advantage over either wholesale or retail competitors by entering into special deals that

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96 See Duane, *supra* note 79.

97 George Skelton, *Complexity of Energy Problem Was Too Much for Legislators*, L.A. TIMES, Oct. 8, 2001, at B6.

98 Assemb. B. 1890, 1995-1996 Leg., Reg. Sess. (Cal. 1996).

99 HIRSH, *supra* note 11, at 259.

otherwise would not be available to their competitors) were paramount.<sup>100</sup> These concerns led to a market design that required all purchases and sales to go through a single “transparent” market, called the California Power Exchange (“PX”). The logic of this requirement was simple: As long as the utilities had to buy power through a transparent market (where prices would be posted and other market participants would be paid the same price), the utilities would not be able to exercise market power as either a producer (monopoly power) or consumer (monopsony power). AB 1890, therefore, established two new, independent bodies to run the California system: (1) the PX, and (2) the Independent System Operator (“ISO”). The PX was intended to deal with market transactions, while the ISO was intended only to ensure transmission system integrity by running the transmission system for the utilities (which continued to own the transmission system itself). The theory was that power generation, which ostensibly no longer had natural monopoly characteristics, would be separated from transmission, which still had natural monopoly characteristics.<sup>101</sup> In this way, California could gain the benefits of competition in the generation sector while still protecting against monopoly abuses in the transmission sector.

Unfortunately, both the PX and ISO were designed in ways that failed to address the underlying technology and economics of electricity. The PX was structured primarily as a day-ahead market, where buyers and sellers would submit bid curves (indicating how much power they would be willing to buy or sell at a series of prices) just one day ahead of the delivery of the power. In theory, this allowed bids to reflect reliable demand forecasts, which are driven in California primarily by weather conditions. In practice, however, relying on a day-ahead structure increased uncertainty for both buyers and sellers. The PX attempted to remedy this by offering some “forward” contracts, but these were generally constrained by requiring buyers and sellers to follow standard “block” structures in terms of when the power would be delivered. Forward contracts might be available for all peak hours during weekdays, for example, but some buyers and sellers might only want to enter into forward contracts for a subset of those hours. Standardization of the PX forward contracts prevented such buyers and sellers from entering into what would presumably be mutually advantageous contracts. The investor-owned utilities were required to buy all of their power through the PX, so

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100 This concern derived directly from Edison’s historic relation to its unregulated affiliates, who already had a strong presence in the California QF market. PG&E’s parent corporation was also aggressively expanding its unregulated operations in other states, and SDGandE had a relationship with Southern California Gas Company (through their parent corporation, Sempra Energy) that presented potential conflicts for independent generators in southern California.

101 See JOSKOW & SCHMALENSEE, *supra* note 71.

they could not negotiate non-standard bilateral contracts with prospective sellers.

Sellers soon learned how to use this constraint to their advantage. In particular, sellers realized that the ISO would pay higher prices than the utilities would pay in the PX if there was a desperate need to buy more power to keep the transmission grid operating. Therefore, on days when forecast weather was likely to require all of the power available from sellers, there was little risk for sellers either not to participate in the PX day-ahead market or to demand extremely high prices for their power. They knew that the ISO would call them up the next day and offer a higher price: The integrity and stability of the entire grid would then depend on getting that power into the system. Sellers, therefore, migrated from the PX day-ahead market to the ISO real-time market whenever it appeared that the ISO would need to buy power at the last minute the next day. This migration, in turn, decreased the amount of power being offered through the PX and increased the likelihood that the ISO would have to buy a lot of power under extremely urgent conditions. The ISO then found itself functioning as a market rather than only a transmission system manager. Unlike the PX, however, the ISO had to buy power for delivery for the same day or even the next hour. This gave sellers almost infinite market power.

This market structure resulted in two major problems: It seriously limited long-term contracts, and it was especially subject to gaming and market manipulation. The AB 1890 structure resulted in 80% to 85% of all transactions going through either the PX or the ISO daily "spot" market, while other electricity markets in the world operate with 80% to 85% of all transactions through long-term forward contracts.<sup>102</sup> Long-term forward contracts allow generators to finance their projects on more favorable terms due to the increased certainty over their revenue stream. Such contracts also offer greater price stability for buyers.<sup>103</sup>

Under the PX system, sellers were also paid a market-clearing price ("MCP") equal to the price paid to the highest successful bid for a given

102 Frank Wolak, *Identification and Estimation of Cost Functions Using Observed Bid Data: An Application to Electricity Markets*, Presentation at the University of California Energy Institute P.O.W.E.R. Conference, Berkeley, Cal. (Mar. 16, 2001), (a recent draft is available at [ftp://zia.stanford.edu/pub/papers/seattle.feb.pdf](http://zia.stanford.edu/pub/papers/seattle.feb.pdf)).

103 Ironically, this same rationale led the CPUC to develop the long-run QF contracts in 1983 and the BRPU process in the late 1980s. Long-term investments require long-term commitments, or else the operators of the projects will try to recover all of their costs quickly whenever they have an opportunity to do so in times of shortages. Long-run average costs should generally be lower with reduced uncertainty because a steady stream of income for long-lived assets allows project developers to acquire lower-cost financing. This is why the QF contracts of the 1980s offered cogeneration projects a bifurcated payment: A fixed "capacity" payment covered capital costs, and a variable "energy" payment was tied to the variable cost of natural gas. In contrast, high fixed-cost renewable energy projects (e.g., wind, solar, geothermal, small hydro) received a single fixed payment for the first ten years.

period rather than their actual bid price. The economic theory underlying this design was that sellers would competitively bid their marginal operating costs to ensure some sales, and then recover their fixed costs through payments in excess of their own operating costs. Demand for 100 MW of power, for example, could be met through bids by four sellers offering 25 MW each at 4, 6, 8, and 10 cents per kwh, respectively. All 100 MW would be paid 10 cents per kwh under the PX system, allowing the first three bidders to earn revenue that would go towards repayment of their fixed costs. The fourth bidder would still find it advantageous to operate, because its payment covered its operating costs, and it would earn some revenue toward its fixed costs if higher demand (say, for 125 MW of power) resulted in another bidder (say, at 12 cents per kwh) being selected (thereby establishing an MCP of 12 cents per kwh). Due to the lack of forward contracting opportunities, however, sellers had to get whatever they could from short-term transactions without any guaranteed payment on subsequent days toward their fixed costs. Not surprisingly, such enormous uncertainty led sellers generally to bid prices into the PX that were higher than their true marginal operating costs. Moreover, they quickly learned that all successful sellers benefited any time a more expensive resource was the last bidder selected (thereby establishing a higher MCP). This was especially likely to occur if the ISO was making real-time purchases. The PX-only requirement for market transactions, combined with the availability of the ISO real-time market and a system that paid all bidders an MCP equal to the highest successful bid, therefore, meant that it was only a daily or hourly risk for sellers in the California system to exercise market power in either one of two ways: (1) by withholding power from the market physically until scarcity developed, or (2) by demanding extremely high prices when scarcity was likely. This risk diminished even more if their competitors did not respond by undercutting bids in excess of marginal production costs. Buyers could gain from last-minute competition whenever there was surplus power in the market, but sellers were in the driver's seat under conditions of scarcity.

Texas Senator Dave Sibley came to California after the market opened in 1998 to see how the California market worked, and he later said:

[W]hat we learned is what we didn't want to do. . . . It took us about 15 minutes drawing on a napkin sitting in the back of an airplane to figure out how to game it. If I can do that, then you can figure a whole lot smarter people than I can figure it out.<sup>104</sup>

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<sup>104</sup> Robert Salladay, *California Shivers—Texas Smirks: Lone Star State Enjoying Our Predicament*, S.F. CHRON., Feb. 20, 2001, at A1.

Not surprisingly, many apparently did just that.

D. *Paying Off Existing Utility Power Plants: 1996-2000*

The California system also carried the burden of trying to recover the so-called "stranded costs" of past investments by the investor-owned utilities. These were costs associated with long-term commitments the utilities had made during the cost-of-service regulatory regime that were not expected to be cost-effective in a competitive market. The IOUs simply would not sign off on any legislative package that did not allow them accelerated recovery for these "sunk" costs.<sup>105</sup> The political solution adopted by the Legislature appeared fairly simple on its face: During a four-year transition period from 1998 to 2002, the utilities would be allowed to collect more revenue from ratepayers than was necessary to provide the power demanded by their customers. However, consumer advocates demanded some immediate benefit from AB 1890. Therefore, the negotiated settlement included provisions to freeze residential and small commercial customers' rates at a level 10% below that which existed when AB 1890 was implemented. This frozen level (which was actually only 2% lower, since customers had to pay a surcharge to repay the bonds used to establish the cut) was still believed to be well in excess of whatever the utilities would have to pay for power, allowing them enough headroom to pay off between \$20 and \$30 billion of so-called stranded costs. Rates were then expected to drop once the transition period ended in April 2002.<sup>106</sup>

The widely-cited rate cap in the California system was therefore actually intended to be a rate floor rather than a cap—it was designed to ensure that rates would never drop below a level adequate to allow the utilities to collect more than they needed to pay for both current power needs during the transition period in order to pay off past investments or commitments that were expected to be uneconomic in a competitive market. Critics of the California system have often cited their Economics 101 texts to remind everybody how government-imposed rate caps always lead to shortages, but California never imposed a rate cap on the California utilities. Instead, the state went along with utility demands for a rate freeze, which acted as a rate floor, and allowed the utilities to transfer

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105 Making the utilities whole for such investments has been challenged as unnecessary, however, in the transition to a deregulated or restructured market. See generally Lois R. Lupica, *Transition Losses in the Electric Power Market: A Challenge to the Premises Underlying the Arguments for Compensation*, 52 RUTGERS L. REV. 649 (2000).

106 Full-scale retail competition would also be introduced for all customers and the rate freeze would end earlier if a utility's "stranded costs" were paid off before April 2002.

billions of dollars to their parent corporations and affiliates from April 1998 to April 2000.<sup>107</sup> It was never the primary cause of any apparent shortages in the California system, and it was a system that former Governor Wilson said the utilities themselves had “eagerly requested at the time of enactment” of AB 1890.<sup>108</sup> This is why the CPUC and state legislators resisted utilities’ calls to end the rate freeze in 2000 and 2001: The utilities had gained the benefit of the arrangement for two years but now wanted to impose the burden of the deal only on ratepayers.<sup>109</sup> Neither the utilities nor the legislators had adequately considered the possibility that wholesale prices might actually go *up* instead of down. Consequently, the structure imposed by AB 1890 had no safety valve provision to allow utilities to recover costs higher than the frozen level.<sup>110</sup>

Non-utility retail providers were also obligated to pay a “Competitive Transition Charge” (“CTC”) toward the utilities’ “stranded costs.” This surcharge overhang made it difficult for new retail competitors to siphon utility customers away based on cost advantages. Customers were allowed to shop around and change providers, but there was very little incentive to do so or for competitors to enter the California retail market during the transition period. Moreover, the California utilities still faced the prospect of being undercut by competitors as soon as the transition period ended, which created another disincentive for them to enter into long-term forward contracts for customers that they might not be able to retain. In fact, none of the California utilities took full advantage of even the limited

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107 The utilities transferred so much to their parents and affiliates during this period above their cost of providing power to retail customers that they remained net winners under AB 1890 through December 2000. Neither PG&E nor Edison has been buying power on behalf of their customers since the state DWR took over purchases in January 2001, so they have both probably collected more through the frozen rates than they lost due to the rate freeze. The state Attorney General has sued PG&E to recover \$4.6 billion of this money, claiming that the utility and its parent corporation engaged in unfair business practices during this period. Claire Cooper & Carrie Peyton, *State Files Fraud Suit Against PG&E Parent*, SACRAMENTO BEE, Jan. 11, 2002, <http://www.sacbee.com/content/politics/story/1446149p-1522628c.html> (last visited Apr. 17, 2002).

108 Pete Wilson, Commentary, *Deregulation Not to Blame But Davis Is: His Inaction Allowed a Problem to Become a Power, and Fiscal, Crisis*, SACRAMENTO BEE, June 3, 2001, available at <http://www.sacbee.com/static/archive/news/special/power/060301wilson.html>.

109 Unlike PG&E and Edison, SDGandE managed to pay off all of its “stranded costs” by May 2000. SDGandE customers were therefore fully exposed to wholesale market prices when they shot through the roof in summer 2000. PG&E and Edison customers were insulated by the rate freeze, which meant that customers paid less each month than the utilities spent buying power on their behalf. This arrangement was reinstated for SDGandE customers through the establishment of a new “balancing account” with passage of AB 265 in August 2000, *see* Assemb. B. 265, 1999-2000 Leg., Reg. Sess. (Cal. 2000), but the state legislature adjourned without addressing the underlying structural problems in the California market.

110 This oversight highlights how the widely-accepted belief that “deregulation always benefits people” substituted for critical analysis in the move toward deregulation and restructuring in California. The CPUC’s own Division of Ratepayer Advocates had warned that prices would go up soon as continuing demand growth eliminated the “excess” capacity of the early-1990s, but these claims were dismissed by the ideologically-driven Commissioners.

authority the CPUC gave them to enter into such contracts.<sup>111</sup> The utilities thought they faced less risk by buying power primarily through the spot market.

That belief proved to be well-founded during the first two years of the California experiment. Both California and the rest of the West were seriously overbuilt in the late-1980s, and that so-called excess capacity meant extremely low-cost power on the wholesale spot market.<sup>112</sup> Large capital-intensive coal and nuclear plants had low operating costs, while new gas-fired projects were very efficient. The national recession of the early-1990s stretched the surplus of the late-1980s into the mid-1990s. Unusually favorable hydroelectric conditions in the Pacific Northwest also flooded the market with cheap hydropower from 1996 to 1999. Spot market prices averaged anywhere from \$20 to \$40 per MWh from April 1998 to April 2000, allowing plenty of headroom for recovery of stranded costs.

Existing utility-owned power plants were also viewed as nearly obsolete due to their age and high operating costs in this low-cost operating environment. AB 1890 required the utilities to sell off half of their oil- and gas-fired facilities, but the utilities went further (with CPUC encouragement) and sold off nearly their entire fossil-fired generation systems. All told, the utilities sold 18,348 MW of generation with a book value of \$1.76 billion for \$3.33 billion.<sup>113</sup> This represented one-third of the

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111 From August 1999 to September 2000, the investor-owned utilities used the following percentages of the PX block forward market energy procurement authorized by the CPUC: Edison (59%), PG&E (33%), and SDGandE (2%). Prepared Direct Testimony of Paul Clanon and Accompanying Exhibits, Exhibit PUC-12 at 39-41, Exhibit PUC at 31-38, San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,294 (2000) (order directing remedies). However, the Legislature also restricted bilateral long-term contracting by the utilities in 2000 until FERC effectively imposed such a requirement on the state in its November 1, 2000 draft order. See San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,121 (2000) (order proposing remedies). It is clear that long-term forward contracts would have diminished excessive dependence on the volatile spot market, but it is not clear that the failure to acquire those contracts was primarily due to the CPUC's "refusal" to allow the utilities to enter into them. The basic position of the CPUC was that the utilities could do so, but the contracts would then face "reasonableness review" before the contract costs could be passed through to their customers. The utilities then decided they were unwilling to risk such CPUC review given the uncertainty in the wholesale power market.

112 Both the nation as a whole, and California in particular, may soon find themselves in this condition again. Neela Banerjee, *As Prices Fall, Utilities Weigh the Economics of New Plants*, N.Y. TIMES, Aug. 22, 2001, at C1. There are also strong disincentives to build new projects if builders believe they will be able to exercise market power with facilities they already own and operate in a given market. Either effective regulation or contract provisions that ensure reliable performance are therefore essential to ensure adequate fulfillment of commitments to build new generation to meet projected demand.

113 PG&E sold 6,825 MW of facilities with a book value of \$1.035 billion for \$1.653 billion, Edison sold 9,612 MW of facilities with a book value of \$529 million for \$1.187 billion, and SDGandE sold 1,911 MW of generation with a book value of \$195 million for \$486 million. PG&E also proposed transfer of its 3,970 MW hydroelectric system (the largest privately-owned system in the world) to an unregulated affiliate, but the Legislature objected to the proposal and passed AB 6X in January 2001 to prohibit the transfer of the hydro generating assets for at least five years. The CPUC

total installed generating capacity in the state (and 41% of total utility-owned capacity).<sup>114</sup> These in-state power plants were subsequently owned by what Governor Davis repeatedly referred to as out-of-state generators (although he was referring to in-state plants formerly owned by the utilities). The ratepayers of the state, therefore, allowed the sale of generation facilities with relatively predictable costs—the capital recovery on \$1.76 billion plus fuel and other variable operating costs—in exchange for the possibility of cheaper power to be provided by companies that had just spent nearly twice the book value of the generating assets the ratepayers had just given up. The \$3.33 billion earned on the asset sales, meanwhile, went directly to the utilities rather than to ratepayers. The utilities then fed that money to their parent corporations, who fed it either directly to shareholders through dividends and stock repurchases (which decreased dilution and increased the value of remaining shares) or indirectly through investments in unregulated affiliates (whose assets were not subject to regulation or reachable by the utilities' creditors or ratepayers). Ratepayers remained oblivious as these changes restructured their relationship to both their utility and the market, for their rates were still frozen (they thought) in time. "Customer choice" remained an illusory benefit for most, meanwhile, that could not possibly be realized until the transition period ended.

#### E. *Prelude to the Crisis: 1996-2000*

California's new system seemed to be on cruise control during its first two years of implementation. There were a few glitches here and there, but they certainly did not rise to the level of broad public awareness. Wholesale spot market prices remained low, the utilities were quickly divesting themselves of generating assets to bring new generators into the market, the headroom was sufficient to allow recovery of stranded costs, and reliability seemed to be well-coordinated by the new ISO. Moreover, a flurry of new power plant proposals beginning in 1998 promised to bring even more competition once the transition period ended. The new owners of the old utility plants were also proposing to make them more cost-competitive through repowering and other improvements.

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must also first review and approve any such divestiture under state Public Utilities Code § 851. PG&E has challenged these restrictions in Bankruptcy Court, but Bankruptcy Judge Dennis Montali has so far rejected what Assemblyman Fred Keeley has called PG&E's attempted "regulatory jailbreak" through bankruptcy. Bob Egelko, *PG&E's Bankruptcy Proposal Tossed Out; Judge Blocks Utility's Attempt to Sidestep State Regulation*, S.F. CHRON., Feb. 9, 2002, at A1; Carrie Peyton, *Judge Rejects PG&E Tactic*, SACRAMENTO BEE, Feb. 9, 2002, <http://www.sacbee.com/content/news/energy/story/1605990p-1682119c.html> (last visited Apr. 17, 2002); Skelton, *supra* note 97.

<sup>114</sup> California had 55,043 MW of total capacity (44,699 MW of utility-owned capacity) in 1997. Fisher & Duane, *supra* note 50, at tbl.E-3.

But there were warning clouds on the horizon. For one thing, retail competition was going nowhere. Industrial customers had the sophistication and incentive to sign on with new providers, but residential customers had little reason to switch. New competitors had to charge their own customers to pay the CTC toward the utilities' stranded costs, which made it extremely difficult to compete with the utilities on the basis of price. New providers also faced sign-up costs of up to \$600 per customer, as well as the inertia of customers' familiarity with their existing utilities. Most potential entrants to the retail market, therefore, made a decision to wait until the transition period ended in 2002 before competing aggressively. This meant that the utilities continued to have most of their old customers but also faced enormous uncertainty about whether or not they would still have those customers beyond the transition period. This uncertainty further discouraged the utilities from making long-term commitments to secure power through forward contracts. Low spot market prices also discouraged new generation, for the lack of real retail competition (together with the requirement to buy and sell through the PX) meant that the generators could not get long-term commitments from anybody to buy their power. New power plant investments were therefore financially risky in California.<sup>115</sup>

Existing participants in the wholesale market were also behaving inconsistently with the economic theory upon which the move to deregulation and restructuring had been based. The ISO's Market Surveillance Committee ("MSC"), composed of three independent economists, issued several reports noting evidence of market power in 1998 and 1999.<sup>116</sup> The standard they used was the persistence of prices above what a competitive market would achieve. The competitive market price, in turn, was presumed to be equal to the price that would derive from all bidders bidding at their marginal cost of production. Both the MSC and other researchers estimated what the MCP should have been by estimating the marginal costs of production for all operating plants.<sup>117</sup> This

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115 A statewide referendum on AB 1890 was also held in November 1998, creating further uncertainty for potential entrants to either the wholesale or retail markets. The measure, Proposition 9, which would have mandated a 20% rate decrease and halted many aspects of AB 1890, was defeated by the voters after pro-deregulation forces spent over \$40 million to defeat it. Proposition 9 was supported by consumer groups but opposed by some of the environmental groups at the AB 1890 table.

116 These analyses and reports are summarized in Frank A. Wolak et al., *An Analysis of the June 2000 Price Spikes in the California ISO's Energy and Ancillary Services Markets*, Address before the Market Surveillance Committee (MSC) of the California Independent System Operator (ISO) (Sept. 6, 2000) (draft on file with Yale Journal on Regulation).

117 Academics published a number of relevant papers before the summer 2000 crisis, where both the potential to exercise market power, e.g., JAMES BUSHNELL, *WATER AND POWER: HYDROELECTRIC RESOURCES IN THE ERA OF COMPETITION IN THE WESTERN U.S.* (Program on Workable Energy Regulation, Working Paper No. PWP-056r, July 1998), available at <http://www.ucei.berkeley.edu/ucei/PDF/pwp056r.pdf>, and evidence that it was already being exercised in California, e.g., SEVERIN BORENSTEIN ET AL., *DIAGNOSING MARKET POWER IN CALIFORNIA'S*

was relatively easy to do with reliable estimates, since most of the marginal generating units had been owned by the utilities until recently. Three factors determined the marginal cost of production for natural gas-fired power plants, which were generally at the margin: (1) the efficiency with which fuel is burned, (2) the price of fuel, and (3) the cost of air pollution credits (if applicable).<sup>118</sup>

These higher bids caused higher wholesale prices than those that would have occurred under a truly competitive market, but the public remained insulated from the difference because wholesale prices still remained well below what retail rates had been historically (which had included capital recovery). The quiet alarm raised by the MSC and other academic studies should nevertheless not have been a surprise to policymakers. Deregulation and restructuring in England and Wales led to a similar experience, with strategic bidding that included physical withholding and dramatic price increases. The British policy response included a windfall profits tax to discourage such behavior.<sup>119</sup> The CPUC's own consultants had also flagged concern about such behavior in their analyses of utility plant divestitures,<sup>120</sup> but the divestitures went forward anyway without any restrictions on such behavior or buy-back arrangements that obligated the new owners to sell the plant's output at a specific price during the transition period.<sup>121</sup> Finally, the ISO had no

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DEREGULATED WHOLESALE ELECTRICITY MARKET (Program on Workable Energy Regulation, Working Paper No. PWP-064, Mar. 2000), *available at* <http://www.ucei.berkeley.edu/ucei/PDF/pwp064.pdf>, were analyzed for 1998-1999. The American Public Power Association also published an insightful analysis of some of the key structural and institutional implications of market power in California in December 2000. *See* LISA G. DOWDEN ET AL., AMERICAN PUBLIC POWER ASSOCIATION, MARKET POWER: WILL WE KNOW IT WHEN WE SEE IT? THE CALIFORNIA EXPERIENCE (2000).

118 The analyses generally relied on market clearing prices for natural gas and Nitrogen Oxide ("NOx") emission offset credits, although many generators probably had forward positions in these production inputs at much lower prices. The heat rate is expressed in Therms (millions of British Thermal Units ("MMBTU")) per unit of electricity produced (kwh), while the standard natural gas price is per therm, or MMBTU. NOx emissions are in pounds per kwh.

119 CATHERINE D. WOLFRAM, ELECTRICITY MARKETS: SHOULD THE REST OF THE WORLD ADOPT THE UK REFORM? (Program on Workable Energy Regulation, Working Paper No. PWP-69, Sept. 1998), *available at* <http://www.ucei.berkeley.edu/ucei/PDF/pwp069.pdf>. For a more recent analysis, see Joe Crespo et al., Bidding Asymmetries in Multi-Unit Auctions: Implications of Bid Function Equilibria in the British Spot Market for Electricity, Presentation to the University of California Energy Institute P.O.W.E.R. Conference, Berkeley, Cal. (Mar. 16, 2001) (draft on file with Yale Journal on Regulation).

120 CAL. PUB. UTIL. COMM'N, INITIAL STUDY: San Diego Gas and Electric Company's Divestiture of Electric Generating Assets, attachment C (1998), *available at* [http://www.sdgedivest.com/chapters/00\\_toc.htm](http://www.sdgedivest.com/chapters/00_toc.htm) (last visited Apr. 28, 2002), includes a detailed discussion of how new owners could either bid marginal costs or behave as strategic bidders. It also suggests that there were good reasons to expect strategic bidding behavior in excess of marginal costs.

121 It is notable that the CPUC issued only a Mitigated Negative Declaration under CEQA rather than a full-blown Environmental Impact Report ("EIR"), which would have required greater scrutiny of the consequences of divestiture of the utilities' thermal generating units. The CPUC did complete a Draft EIR in the case of PG&E's proposed divestiture of its hydroelectric system, which had generated considerable controversy in the Legislature in 1999. This more comprehensive

authority to compel production from the former utility plants or to reject bids that clearly exceeded production costs.<sup>122</sup>

California regulators had already ceded most of their authority for regulating generator or trader behavior to FERC through A.B. 1890 and its implementation by the CPUC. Divestiture of the former utility-owned power plants also made those divested generating units exempt wholesale generators under the Energy Policy Act of 1992, to whom FERC had granted "market-based" rate authority. The Federal Power Act nevertheless still required FERC to ensure "just and reasonable" rates.<sup>123</sup> As a consequence, most people assumed that FERC would control market power through its ability to rescind market-based rate authority for any market participant who was manipulating prices. Like many of the assumptions underlying the California experiment, that simple assumption about FERC proved to be grievously wrong.

### III. Chaos and Collapse: Economic Theory Meets Social and Political Reality

#### A. *Supply, Demand, and Weather: 1996-2000*

California's experiment was conceived when the West was awash with surplus power, making it difficult for any market participant to exercise market power consistently or for a significant period of time. Standby power prices jumped to a cost of \$9,999 per MWh for four hours on July 13, 1998 before dropping to just a penny, but observers dismissed the incident as some kind of computer error.<sup>124</sup> In retrospect, sellers were

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document includes an analysis (which I directed) of how market power could be enhanced or exacerbated through manipulation of production from the hydroelectric system. ASPEN ENVTL. GROUP, PAC. GAS & ELEC. CO., SCH #2000042110, DRAFT ENVIRONMENTAL IMPACT STATEMENT, app. C at ¶ 6.3 (2000), available at <http://cpuc-pgehydro.support.net/DraftEIR/index.html>.

122 Note how this contrasts with the PJM market, where such authority does exist to constrain market power. The California ISO does have some limited authority over so-called "Run Must-Run" units through contracts with facilities that are deemed essential to maintain local transmission system reliability.

123 Sections 205 and 206 of the FPA require FERC to ensure "just and reasonable" rates and allow FERC to order refunds if that standard is not met. Federal Power Act § 205, 16 U.S.C. § 824d(a) (2000); Federal Power Act § 206, 16 U.S.C. § 824e (2000). Ironically, FERC itself found the wholesale spot market rates to be unjust and unreasonable in its draft order of November 1, 2000. San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,121 (2000) (order proposing remedies). The "Analysis of the Commission's Retroactive Refund Authority Under the Federal Power Act" contained in Appendix E of the draft order is remarkably timid, however, as it fails to consider the new context of "market-based rates" in its evaluation of FERC's authority to remedy the persistence of "unjust and unreasonable" wholesale rates in California. FERC is now engaged in a proceeding to review the criteria by which it establishes "market-based rate authority." *Id.* at app. E.

124 Kasler, *supra* note 84.

probably testing the California market periodically during the first two years to see how it responded under particular conditions of scarcity.<sup>125</sup>

A seller could temporarily have orchestrated an outage for a few hours during the first two years to see how the unavailability of that plant's output affected market clearing prices, for example, or it could bid a small amount of its capacity into the market at very high prices to see how competitors responded. Dozens of individual "tests" like this could go unnoticed in the context of otherwise relatively low prices, but they would yield important information about market structure and competitor behavior that may then have been the basis for more aggressive strategic behavior beginning in May 2000. It is important to note that sellers need not necessarily collude to engage in this behavior. They may have been independently testing the market to see if they would individually be able to exercise market power. Unfortunately for California consumers, there were very few incentives for competitors to undercut such strategic bidding or physical withholding in this particular market structure—because a higher MCP meant that all sellers would benefit with windfall profits if the ISO called them with an urgent need for their power. The only risk was that of lost sales at low profit margins when there was surplus capacity.

Those tests bore little fruit during that period, however, for hydroelectric generating conditions were especially favorable in the Pacific Northwest from 1996 to 1999.<sup>126</sup> These weather conditions allowed low-cost hydropower to be dumped onto the California market whenever a generator or trader attempted to exercise market power. The surplus hydropower, therefore, masked the growing threat of scarcity as economic growth and demand boomed in both California and the rest of the West during the same period. Conventional wisdom has focused on demand growth in California, but what happened in the rest of the WSCC is equally important. The WSCC combined summer peak grew by 10% from 1996 to 1999, and its combined winter demand rose by 5%, but California accounted for only 5% to 6% of the overall increase in peak summer demands in the WSCC. However, California accounted for 45% of the

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125 California Attorney General Bill Lockyer filed a \$150 million lawsuit against four of the generating companies (Dynergy, Reliant, Mirant, and Williams) on March 11, 2002 under the state's unfair business practices act for related behavior (selling power in the spot market that had already been promised for capacity reserves to maintain system reliability) in 1998 and 1999. Mark Martin, *State Sues 4 Energy Firms: State Alleges Scheme to Double Profits*, S.F. CHRON., Mar. 12, 2002, at A1. He filed similar charges against Mirant, Williams, Powerex (BC Hydro), and Coral Power on April 9, 2002 for similar practices in 2000 and 2001. Mark Martin, *State Sues 4 Energy Firms It Says Gouged Consumers*, S.F. CHRON., Apr. 10, 2002, at A26.

126 ASPEN ENVTL. GROUP, *supra* note 121, app. C at ¶ 6.3.1, fig.C.33 (2000); *see also id.* app. C at ¶ 6.3 (discussing market power issues). Poor hydroelectric generation conditions and high demand are the primary factors driving apparent scarcity (and opportunities to exercise market power), but there are a number of other factors that create opportunities when they might not otherwise be expected.

combined winter peak increase, which increased the opportunity to exercise market power during a traditionally low-load period of the year. Perhaps most importantly, peak summer demand grew voraciously in the Desert Southwest, jumping 5,000 MW (37%) in Arizona, New Mexico, and southern Nevada from 1995 to 1999. This increase in demand soaked up any excess capacity remaining in the region, which seriously limited another traditional source of low-cost imports for California.<sup>127</sup>

Continually growing demand, especially in the red-hot California economy, then ran head-on into decreased surplus supply when the Pacific Northwest had only an average hydroelectric power generation year in 2000.<sup>128</sup> From 1998 to 2000, California's population grew by 1.2 million and its economy surpassed France's to become the fifth-largest economy in the world.<sup>129</sup> Annual electricity consumption grew a surprising 3.7% from 1998 to 1999 and a stunning 5.0% from 1999 to 2000. This contrasted with average annual consumption growth of only 1.7% from 1977 to 1998. Peak demand actually declined in both California and throughout the West from 1998 to 2000, however, and California added 2,781 MW of new generating capacity in 1999.<sup>130</sup> The increased annual consumption nevertheless meant that existing power plants had to be run longer and harder in 2000—pushing marginal production costs up, while creating new opportunities for in-state generators and traders to exercise market power.

Beginning in May 2000, low-cost imports from hydro in the Northwest and coal or nuclear power in the Southwest were no longer available to discipline attempts to exercise market power in the dysfunctional California market. This change gave the new owners of the

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127 This analysis is based on data contained in Fisher and Duane. See Fisher & Duane, *supra* note 50. Data is not available for the entire WSCC for 2000 or 2001. Previous analyses have generally focused exclusively on California's supply and demand balance, but the entire WSCC is an interconnected system. Traditionally, all parties benefited from the regional differences in both supply sources and demand characteristics. The Pacific Northwest has an energy-limited, winter-peaking system while California has a capacity-limited, summer peaking system; the total installed capacity necessary to meet both regions' loads is therefore considerably less if each region relies upon imports and exchanges with the other. It would therefore have been both economically inefficient and more environmentally damaging if California had achieved self-sufficiency in generating capacity. This generally remains true today despite calls for self-sufficiency.

128 Many reports erroneously characterize 2000 as a drought year, but it only appeared that way in comparison with the excessively wet years from 1996 to 1999. ASPEN ENVTL. GROUP, *supra* note 121, app. C at ¶ 6.3.1, fig.C.33. The region experienced its second-worst hydroelectric generation year of record in 2001, however, leading utilities to increase rates sharply while paying 2,500 MW of demand by large industrial customers to shut down. Carolyn Said, *State's Outlook Favorable for Blackout-Free Summer*, S.F. CHRON., Aug. 2, 2001, at A1.

129 Todd S. Purdum, *California, Rising, Passes France on Its Climb*, N.Y. TIMES, June 15, 2001, at A16.

130 California demand and capacity data for 1998-2000 from California Energy Commission data on its web site. Cal. Energy Comm'n, *Electricity in California*, at <http://www.energy.ca.gov/electricity/index.html> (last visited Apr. 17, 2002). Similar data is not yet available for the entire WSCC, so we do not know how WSCC data affected availability.

old utility plants spectacular profits from May 2000 to May 2001.<sup>131</sup> Wholesale spot market prices skyrocketed throughout the summer, increasing an average of four-fold after two summers at \$20 to \$40 per MWh. This occurred despite the fact that peak demand was even lower in 2000 than in 1999. SDGandE customers, who had recently been exposed to the volatile spot market due to their utility's accelerated recovery of its stranded costs, reeled under utility bills that briefly doubled and threatened the regional economy.<sup>132</sup> PG&E and Edison, which were still operating under the rate freeze, saw the CTC numbers in their bills become negative as they began paying more for their customers' power than they were allowed to collect each month. Most analysts focused their attention in the summer of 2000 on SDGandE's failure to acquire forward contracts on behalf of its customers. The other utilities' plight was not yet well known at the time.<sup>133</sup> Only in September 2000—after the Legislature had adjourned, following passage of several bills related to the SDGandE situation—did PG&E and Edison publicly reveal their predicament.<sup>134</sup> By then, at least the PG&E Corporation, the parent of the utility PG&E, had already retained bankruptcy counsel and begun to “ring-fence” its investments in unregulated affiliates from possible future claims by PG&E's creditors, customers, or the state.<sup>135</sup> Due in part to such efforts, the Attorney General of California filed a lawsuit in January 2001, claiming that PG&E engaged in unfair business practices when PG&E

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131 These profits helped to push both generating and trading company stocks to stratospheric heights in the summer of 2000. Enron's stock price peaked in August 2000, creating pressure for company management to keep up the appearance of continuing growth opportunities in subsequent years. The managers were apparently rewarded with bonuses based upon the stock value at the end of 2000. Kurt Eichenwald, *Enron Paid Huge Bonuses as Its Profits Were Inflated*, N.Y. TIMES, Mar. 1, 2002, at C1.

132 James Bushnell & Erin Mansur, *The Impact of Retail Rate Deregulation on Electricity Consumption in San Diego*, Presentation at the University of California Energy Institute P.O.W.E.R. Conference, Berkeley, Cal. (Mar. 16, 2001) (draft on file with Yale Journal on Regulation).

133 The CPUC initiated an investigation into the causes of wholesale spot market price increases, see Order Instituting Investigation into the Functioning of the Wholesale Electric Market and Associated Impact on Retail Rates, Investigation No. 00-08-002 (Cal. Pub. Util. Comm'n, Aug. 3, 2000), available at <http://www.cpuc.ca.gov/PUBLISHED/RULINGS/1790.htm>, and SDGandE filed a formal complaint with FERC in August 2000. San Diego Gas & Elec. Co., 92 F.E.R.C. ¶ 61,172 (2000) (order initiating hearing proceedings). Similar problems with PG&E and Edison are not even mentioned in the FERC Order discussing the need for an investigation, but SDGandE's apparent failure to hedge its position through adequate forward contracts receives extensive attention. *Id.*

134 Legislation dealing with the immediate retail rate impacts of the crisis, AB 1156 and AB 265, was sponsored by San Diego-area legislator Denise Ducheny; the Legislature never addressed the prospect of similar problems with PG&E or Edison. It is unclear if PG&E or Edison discussed their situation with the Governor or the Legislature.

135 Letter from Mark Huffman, PG&E, to CPUC Administrative Law Judge Walwyn, (undated) (describing “any changes made in the holding company and affiliate relationships since 2000”) (on file with author); *S&P Affirms PG&E Gas Trans-NW 'A'- Rtg: Off Waich*, BUSINESS WIRE, Jan. 4, 2001.

transferred \$4.6 billion of revenue to its parent corporation in violation of state laws requiring the parent corporation to keep the utility whole.<sup>136</sup>

### B. *Convergence and Crisis: 2000-2001*

How and why did wholesale spot market prices go through the roof? As noted above, the California system had several design flaws that discouraged long-term forward contracts and increased the likelihood (while decreasing the risk for sellers) of market manipulation under conditions of scarcity. Continuing movement toward such conditions through growing demand and decreasing surpluses was then masked from 1996 to 1999 by above-average hydroelectric generation conditions in the Pacific Northwest, moving the state's system close to the precipice of disaster without adequate warning. Warning signs were also largely ignored or dismissed.<sup>137</sup> Four specific factors then converged to create the catastrophic market response in California in 2000 and 2001. None of them would have occurred under the old rate-of-return regulated utility system, but all of them could occur again under the current system.

First, apparent manipulation in natural gas markets led to a dramatic rise in natural gas prices. The CPUC filed allegations with FERC in April 2000 that El Paso Corporation had rigged the bidding for its pipeline capacity in favor of an affiliate and then manipulated physical quantities of gas to California to drive the price up.<sup>138</sup> Natural gas prices at the California border, which are normally only slightly higher than prices elsewhere in the country, jumped from \$2.50 per MMBTU in 1999 to \$40 to \$50 per MMBTU in late-2000 (while they only increased to \$6 to \$7 per MMBTU) elsewhere.<sup>139</sup> This drove up the price of electricity dramatically because MCPs were set based upon the last winning bid—which was usually the most inefficient natural gas-fired power plant running. California consumers, therefore, paid for the higher gas prices through higher prices for all of the electricity purchased in the market. This was even true for utility-owned generation, which received a “payment” credit under the AB 1890 scheme that was based on the PX price rather than actual costs of production. (Roughly half of the “debt” incurred by the utilities in 2000 was actually for utility-owned generation that did not rely

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136 Cooper & Peyton, *supra* note 107.

137 The CEC issued warnings in 1998 that the state could face shortages by 2000. See Wilson, *supra* note 108.

138 Davan Maharaj & Christine Hanley, *Suit Claims Firms Limited Gas Supply to Raise Prices*, L.A. TIMES, Feb. 4, 2001, at A1; Bernadette Tansey, *Price Gouging Case Strong, Judge Says*, S.F. CHRON., Aug. 7, 2001, at A1.

139 Paul Joskow & Edward Kahn, *A Quantitative Analysis of Pricing Behavior in California's Wholesale Electricity Market During Summer 2000*, Presentation at the University of California Energy Institute P.O.W.E.R. Conference, Berkeley, Cal. (Mar. 16, 2001).

overwhelmingly on natural gas as a fuel, so the actual money owed other parties was significantly less than the accounting “debt.”<sup>140</sup>

The precise drivers of natural gas price increases in California in 2000 and 2001 remain in dispute. FERC’s Administrative Law Judge initially indicated in the case that there was *prima facie* evidence of market power. He then, however, softened the blow two months later when issuing his decision, by saying that “El Paso Pipeline and El Paso Merchant had the ability to exercise market power,” but that “the record in this case is not at all clear that they in fact exercised market power.” He nevertheless found El Paso to be in “clear violation” of FERC rules regarding affiliate relationships.<sup>141</sup> The parent corporation of SDGandE, Sempra Energy, has also been charged in a lawsuit by Los Angeles County with manipulating natural gas prices through a massive conspiracy with its subsidiaries, including the Southern California Gas Company.<sup>142</sup> Finally, there is a possibility that electricity market manipulation directly affected natural gas prices due to pass-through and net indexing provisions in contracts between gas suppliers and electricity generators. This relationship has not yet been thoroughly investigated, but, if true, it would tend to camouflage much of the evidence of electricity market manipulation due to the assumption by most analysts that natural gas prices are independent of electricity markets and that those prices represent production cost inputs. Any of these possibilities is more plausible than the simple “market demand” explanation because the differentials between prices in California and the rest of the nation’s natural gas markets cannot be explained by increased market demand alone.

Second, selective physical withholding of generation increased conditions of scarcity to allow strategic bidding on a more reliable basis. This issue is still being investigated by the CPUC, FERC, the California Attorney General, and the California Legislature, but several published studies have found evidence of significant physical withholding, which

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140 Note that the new pricing system effectively made *all* generation costs (including low variable-cost nuclear, coal, hydro, wind, geothermal and solar-powered generation) subject to volatile variation in natural gas prices, thereby eliminating all of the financial benefits otherwise associated with the remarkable physical diversity of the California generation system. The California system’s physical diversity had previously served to protect California ratepayers from excessive dependence upon single fuels, and the regulated rate structure moderated cost variation even further. *See generally* Timothy P. Duane, *The Risk-Adjusted Cost Evaluation of Electric Resource Alternatives* (1989) (unpublished Ph.D. dissertation, Stanford University) (on file with author). Increased volatility serves the interests of traders like Enron, who increase their role in volatile markets as well as their potential for profits. Any FERC investigation into Enron’s role in the California crisis should therefore examine its influence on the *volatility* of market prices as well as the *level* of those prices. Enron is likely to have benefited more from increased volatility than from increased average prices.

141 Richard A. Oppel, Jr., *Judge Issues Mixed Findings on Big Utility in Gas Price Case*, N.Y. TIMES, Oct. 10, 2001, at C4; Tansey, *supra* note 138, at A1.

142 Troy Anderson, *Foul Windfall?; L.A. County Claims Sempra Part of Price Conspiracy*, L.A. DAILY NEWS, Jan. 12, 2002, at N5.

reduced system reliability and increased apparent scarcity in the California market.<sup>143</sup> Even FERC has found some evidence of physical withholding.<sup>144</sup> Physical withholding is probably not as important as strategic bidding in explaining the increase in wholesale prices,<sup>145</sup> but it played a prominent role in the rolling outages of 2001. There was not a single day in the winter and spring of 2001 when total system demand was greater than California-installed generating capacity. Instead, rolling blackouts occurred because generating units were “unavailable” at a rate four to five times the historic or industry averages, even after accounting for the age of the facilities.<sup>146</sup> System managers at the ISO started each day not knowing how they were going to meet demand that particular day, and that condition persisted throughout the day nearly every day from January 2001 to May 2001. They knew where the power plants were that could meet that demand, but they no longer had the authority to compel the owners of those power plants to turn them on or to sell their output into the California grid at a reasonable price. The “shortages” that caused the rolling blackouts were therefore an institutional artifact of California’s market structure rather than a physical phenomenon.<sup>147</sup> Installed

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143 I am unable to comment directly on these investigations, because I was under contract as a senior policy consultant to the CPUC on a variety of issues in 2000 and 2001. All of my discussion here is based on published information. See Robert McCullough, *Price Spike Tsunami: How Market Power Soaked California*, PUB. UTIL. FORTNIGHTLY, Jan. 1, 2001, at 22-32 (completing work on behalf of a group of utilities); Joskow & Kahn, *supra* note 139 (completing work on behalf of Southern California Edison).

144 Russell Ray, *Williams Blasts CBS Report; Smoking Gun Evidence of Power Price Gouging Is Being Denied*, TULSA WORLD, July 28, 2001, LEXIS, Nexis Library, News File.

145 The ISO estimates that physical withholding accounted for about 10% of excess prices in 2000, while economic withholding (strategic bidding) accounted for about 70%, and a combination of the two explains the remaining 20%. See ANJALI SHEFFRIN, EMPIRICAL EVIDENCE OF STRATEGIC BIDDING IN CALIFORNIA ISO REAL-TIME MARKET (Cal. Indep. Sys. Operator Report, Mar. 21, 2001); 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).

146 High levels of plant outages began in January 2001 and persisted until May 2001, totaling 14,400 MW (25%) of California’s 57,660 MW of installed generating capacity during the rolling blackouts from May 7 to May 8. Some of those outages reflected planned maintenance (e.g., for refueling PG&E’s Diablo Canyon nuclear power plant) and low hydroelectric availability (especially during the winter months) due to a drought in the Pacific Northwest. Planned outages nevertheless could have, and would have, been coordinated to avoid rolling blackouts under a regulated utility system. FERC completed a cursory analysis of the causes of outages that relied upon inadequate data collection and weak analysis, but it was later criticized by the General Accounting Office. OFFICE OF THE GENERAL COUNSEL & OFFICE OF MARKETS, TARIFFS, AND RATES, FED. ENERGY REG. COMM’N, REPORT ON PLANT OUTAGES IN THE STATE OF CALIFORNIA (2001), available at <http://www.ferc.gov/electric/bulkpower/Public-Feb1.pdf> (last visited Apr. 18, 2002). The GAO study identified serious methodological problems in the FERC study, which primarily relied upon phone interviews with power plant operators to determine if they were physically withholding generating capacity from the market. The FERC study is also filled with simple arithmetic errors that masked shifts in outage rates for units. For example, a smaller-capacity unit increased its capacity factor while a larger-capacity unit decreased its capacity factor, thereby reducing the overall capacity factor of the plant while increasing average capacity factors for the two units. FERC then failed to catch this effect when summarizing average outage rates.

generating capacity actually exceeded peak demand by a wide margin during this period.

The generators' ability to exercise market power was seriously underestimated by the FERC, the CPUC, and the state legislature when AB 1890 was passed. This, again, reflected a fundamental failure to appreciate the original rationale for regulating the electric utility industry: Due to specific technological characteristics of the electricity grid, generators can extract monopoly rents whenever their production is necessary to meet demand and to maintain system reliability. When presented with opportunities to extract monopoly rents, monopolists generally will act to maximize net profits as long as it is legal or they believe they will get away with it. This remains as true today as it did a century ago, when monopolistic behavior led to the passage of antitrust legislation by Congress. Unfortunately, it is a lesson that seems to have been forgotten by FERC when it authorized market-based rates for California wholesale generators. Instead of carefully analyzing the market, FERC simply assumed that market power was unlikely to be exercised as long as no single generator controlled more than 20% of the generation in the entire state.

FERC made this glaring error for two reasons: (1) It relied upon inappropriate generic industry concentration measures used by the Department of Justice and the Federal Trade Commission in merger cases to evaluate whether or not utility divestiture would result in a competitive market, and then (2) it misapplied those inappropriate measures to the California electricity market by construing the California market too broadly.<sup>148</sup> Generation that was not competitively bidding into the market—but was either serving a utility's own demand or was already committed to do so through long-term contracts—should not have been considered in the denominator of the market concentration calculation. Roughly 60% of in-state generation fell into this category. The remaining 40% of in-state generation was, and remains, concentrated among just a

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147 This unwillingness to sell power into the California market was exacerbated by the utilities' credit crunch, of course, but that concern was effectively dealt with when the state took over purchases on behalf of the utilities.

148 U.S. DEPT. OF JUSTICE, HORIZONTAL MERGER GUIDELINES (1992) (revised Apr. 8, 1997), available at <http://www.ftc.gov/bc/docs/horizmer.htm> (last visited Apr. 18, 2002). This standard does not work well for electricity markets, however, for there may be distinct sub-markets under particular weather conditions (e.g., summer vs. winter; wet hydro vs. dry hydro). In California, there are two major geographic sub-markets separated by a transmission bottleneck known as Path 15. Market prices have therefore always been differentiated in the PX and ISO as NP 15 (North of Path 15) or SP 15 (South of Path 15). A third category (Zone 26) was also created after the market was initially established to prevent gaming by a particular generator who was suspected of artificially manipulating transmission loading in a particular transmission-constrained area. Series of interviews with former ISO staff who requested anonymity, 2000-2001.

handful of firms.<sup>149</sup> Each of these firms individually controlled roughly as much or more of the competitively bid market for electricity in California as the Arab members of OPEC controlled of the American oil market in 1973.<sup>150</sup> FERC's simplistic application of the DOJ merger guidelines to the American oil market in 1973 therefore would have found *no* risk of these suppliers exercising market power, but the embargo raised prices from less than \$2 per barrel before October 1973 to almost \$12 per barrel in less than five months.<sup>151</sup> Once again, an ahistorical and apolitical view of market economics meant that policymakers failed to recognize the manipulative potential of these market shares.

In essence, FERC *assumed* that a firm with less than 20% market share could not exercise market power. This assumption is only valid if there is at least a 20% reserve margin at all times, however, because power generated by firms with smaller market shares are essential to meet system demand any time the reserve margin is lower. (This is even more true within specific geographic sub-markets, where transmission constraints may limit the ability of suppliers in one part of the state to meet system demand in another part of the state.) The specific technological characteristics of electricity directly translate into enhanced market power for generators and traders holding much smaller market shares than 20%. Any of the major generators could therefore exercise market power on any day in which system demand came close to overall system capacity. A firm with only 1% of total capacity could even exercise market power on days when all generating capacity is necessary to meet peak demand. Firms with 2% to 8% of total generating capacity and 4% to 19% of competitively bid generating capacity (as each of the seven major firms held in 2000) could therefore exercise market power often once reserve margins tightened in May 2000.

Third, decreased availability of air quality emission offsets in southern California put further pressure on both bids and availability. Air quality standards have gradually tightened over the past three decades in California, but the investor-owned utilities would have had incentives to install new equipment to meet those standards under cost-of-service rate

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149 AES/Williams had 4,071 MW (8% of total capacity, but 19% of competitive bidding capacity), Reliant had 3,065 MW (7% and 17%), Mirant (formerly the Southern Company) had 3,065 MW (6% and 14%), Duke had 2,950 MW (6% and 14%), Dynegy had 1,550 MW (3% and 7%), Destec had 1,169 MW (2% and 6%), and Calpine had 871 MW (2% and 4%). Memorandum from Michael Kahn, Chairman of the Electricity Oversight Board, & Loretta Lynch, President of the CPUC, to Governor Gray Davis 16 (Aug. 2, 2000). These figures do not include import capacity, which give other out-of-state firms market power and reduce these relative market shares. Also note that some market brokers, such as Enron, sometimes controlled total generation comparable to each of these actual generating companies.

150 Only 5% of American oil demand was met by these sources (12% from OPEC suppliers) in 1973. HIRSH, *supra* note 11, at 312-13 n.30.

151 *Id.* at 61, 312-13 n.30.

regulation. Those incentives dissipated with the passage of AB 1890 and subsequent divestiture of the generating units by the utilities, leading the new owners generally to acquire tradable emission offset credits rather than to make new investments in emission controls. The PX pricing system assured them that they would be able to recover the cost of such credits, since bidders would directly incorporate their variable costs for such credits into their bids. Investments in emission controls required a capital commitment, however, which might not be recovered in the uncertain California market. Tighter availability of such credits, together with increased periods of generation by some key plants in southern California, then put pressure on market prices in 2000.<sup>152</sup> The price for credits shot up from \$1 to \$2 per pound of nitrogen oxide (“NOx”) emissions in 1999 to \$35 per pound in late summer 2000.<sup>153</sup> Once again, those higher marginal costs for gas-fired generation translated directly into higher market clearing prices for all generation—even if the source was a clean renewable energy project.

Finally—and most importantly—FERC failed miserably in its duty to enforce the law and discipline the anti-competitive behavior driving the increases. It appears to have done so for two reasons: (1) It misunderstood and misdiagnosed California’s problem as primarily being one of a supply-and-demand imbalance, and (2) its entire program of promoting competitive wholesale power markets would have been, and remains, threatened by any other interpretation of the causes of the California crisis. FERC, therefore, laid the blame for the problem primarily on the design flaws in California’s system. This deflected attention from widespread deficiencies in the regulatory relationship between FERC and the market, giving a green light for further market manipulation. FERC essentially claimed it had no responsibility for the crisis by blaming California for its flawed implementation of deregulation, which, notably, had earlier been approved by FERC.

FERC’s greatest failure occurred when it effectively announced on November 1, 2000 that it would not enforce the Federal Power Act. The agency opened the door for rampant abuse that day by declaring that it had no authority, or at least was unwilling, to issue an order to refund the

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<sup>152</sup> There have been no published studies of potential manipulation of the NOx emission offset market, but Ed Kahn has suggested that it is a ripe area for investigation. Ed Kahn, Presentation at the University of California Energy Institute P.O.W.E.R. Conference, Berkeley, Cal. 2 (Mar. 16, 2001). Note that the increased annual consumption in 1999 and 2000 resulted in generators using up their annual emission credits and running up against annual hourly emission limits in the South Coast Air Quality Management District.

<sup>153</sup> Joskow & Kahn, *supra* note 139, at 13-14. Note that many generators held ample credits, so their real production costs did not increase directly. The higher opportunity cost of using the credits was nevertheless reflected in higher bid prices throughout the Southern California generation market. This, in turn, affected the opportunity cost for importers and Northern California sellers to the extent that they could otherwise sell power in Southern California.

excessive charges from May to October 2000 to sanction those who had caused "unjust and unreasonable" wholesale rates.<sup>154</sup> FERC noted, in the same draft order, that wholesale rates already were unjust and unreasonable, but the agency refused to take the necessary action to deter further market manipulation. Spot market price forecasts issued before FERC's action showed prices going down during the low-demand winter and spring months, but actual prices shot up as soon as it became apparent that FERC was just a paper tiger. FERC's timidity opened the floodgates for the wholesale generators and sellers. As Severin Borenstein put it, "[Y]ou cannot just open the cage and walk away" when deregulating electricity markets.<sup>155</sup> Yet, that is effectively what FERC did at the critical moment of the California crisis: It walked away from its role as a regulator, leaving the market wide-open for extraction of monopoly rents at California's expense.<sup>156</sup> The result was just what one would expect if the police were to walk away from an angry and drunken crowd that was already in a frenzy: The equivalent of outright looting occurred in plain sight.

C. *Band-Aids on the Wound: 2001-?*

The California system was in free-fall during the winter of 2001, as the situation appeared to worsen by the day. PG&E and Edison stopped paying some of their bills in January, exacerbating the problem of physical withholding that placed the state in Stage 3 alerts on a daily basis. Rolling blackouts threatened both economic activities and people's lives. The state finally stepped in, through its Department of Water Resources ("DWR"), to buy power on behalf of the cash-strapped utilities as sellers insisted on a "credit-worthy" buyer. Wholesale power prices nevertheless jumped to as high as \$3,800 per MWh (roughly 100 to 200 times the average price one year earlier) as the desperate DWR struggled to learn a new role and keep the lights on. The Governor declared a state of emergency and promised to

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154 San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,121, ¶ 61,349 (2000) (order proposing remedies); OFFICE OF THE GENERAL COUNSEL & OFFICE OF MARKETS, TARIFFS, AND RATES, *supra* note 146.

155 Severin Borenstein, Director of the University of California Energy Institute, Presentation to the Institute of Governmental Studies, University of California, Berkeley (Feb. 14, 2001) (transcript on file with author).

156 The uncertainty surrounding the Presidential election of 2000 then exacerbated the situation, for FERC's future direction and leadership lay in doubt for five weeks after the November 1, 2000 draft order was issued. Democratic Governor Gray Davis held out hope throughout the suspended election count that Democratic Presidential candidate Al Gore would push FERC in a favorable direction after Davis helped Gore win California's electoral votes by a wide popular vote margin. The "final" order in the proceeding was issued December 15, 2000. San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,294 (2000) (order directing remedies).

get as many new power plants built as possible,<sup>157</sup> the CPUC adopted a \$5.7 billion annual rate increase, and the pundits had a field day criticizing California's political leaders from afar. The conventional wisdom was simple: California needed to build more supply to meet its current and projected demand. The conventional wisdom was also focused just on a symptom, rather than the root cause of the crisis. Therefore, most of the purported "solutions" to the crisis that were adopted in 2000 and 2001 generally fail to address the underlying structural causes of the crisis.

California risked a genuine shortage of generating capacity a few days each summer in 2000 and 2001,<sup>158</sup> but the price spikes and rolling blackouts of winter and spring simply would not have occurred if the utilities had still owned and operated their old power plants.<sup>159</sup> This is also true for the price spikes of summer 2000 that first precipitated the crisis.<sup>160</sup> Moreover, the price spikes themselves had little influence upon whether new generation would be forthcoming to fill the deficit. The CEC issued permits for nine new power plants, with a potential generating capacity totaling 6,278 MW, from 1998 to 2000 and was considering applications for fourteen more (totaling 7,736 MW) by the end of 2000, but few of those plants were expected to be on-line before 2002 or 2003.<sup>161</sup> New power plants were therefore only going to be useful in alleviating a small part of the crisis.<sup>162</sup> Governor Davis nevertheless saw the supply-demand

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157 Governor Davis issued a proclamation declaring a state of emergency on January 17, 2001. Proclamation by the Governor of the State of California, State of Emergency (Jan. 17, 2001), available at <http://www.governor.ca.gov/>.

158 Even this risk was relatively low if the summer was unusually cool or average in temperature; the real risk was from a "heat storm" that could drive up electricity demand for air conditioning and agricultural water pumping.

159 The utilities would have coordinated and modified power plant maintenance schedules to respond to any anticipated shortages, and they would have had incentives to invest in pollution-control equipment during the preceding few years in anticipation of the increased scarcity of emission offset credits beginning in 2000. The only factors that would have been beyond utility control would be hydroelectric conditions and nuclear fueling cycles (which had a brief impact on generating capacity at PG&E's Diablo Canyon nuclear power plant in late spring).

160 Generating costs would have been higher for the utilities due to the need to use more inefficient plants, but those higher costs would have only applied to the small fraction of total power produced by those plants. In contrast, those high prices applied to *all* power produced and sold through the PX or ISO under the AB 1890 structure. The old utility-operated system would still face risks of rolling blackouts during the peak summer demand period.

161 ROBERT THERKELSEN, CAL. ENERGY COMM'N, CALIFORNIA'S ELECTRICITY SITUATION: AN OVERVIEW (2001) (handout for presentation to California State Assembly members, Sacramento, Cal., Jan. 31, 2001) (on file with Yale Journal on Regulation). The CEC had already approved 3,648 MW of new capacity by May 2000, then approved 2,630 MW from October to December 2000. Another fifteen projects totaling 7,960 MW of new capacity had been publicly announced by January 2001 but were not yet formally under review for CEC permits. *Id.*

162 The parallels to the Bush Administration's 2001 National Energy Plan are striking. By focusing exclusively on long lead-time supply expansion projects, the National Energy Plan fails to address the structural relationships in energy markets as well as the opportunities to manage demand or existing supply more efficiently in order to meet the economy's needs. More efficient management of supply and/or demand can respond to shortages more immediately than building or developing new sources of supply.

imbalance as a simple way to explain the problem and what he was doing about it. New power plant openings also offered important photo opportunities for the Governor, who had already raised \$26 million (about \$35,000 per day) towards his 2002 reelection campaign during the first two years of his term in 1999 and 2000.<sup>163</sup> “Generation comes up in our polls as being the No. 1 thing people want us to do—build more power plants,” said Davis political advisor and pollster Garry South in the summer of 2001. “People want the sense that progress is being made—that this is not spiraling out of control.”<sup>164</sup>

This political concern about appearing to be in control became even more paramount when PG&E filed for bankruptcy on April 6, the morning

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163 Davis's fundraising includes significant contributions from power companies and utilities. According to Common Cause, Davis received \$178,510 from generators and \$348,022 from utilities from 1999 to 2000 for a total of \$526,532. Key legislators have also received extensive contributions from these groups. CALIFORNIA COMMON CAUSE, CAMPAIGN CONTRIBUTIONS MADE BY UTILITIES AND POWER PRODUCERS, 1999-2000 (2001). Davis has continued to accept such contributions despite promising in early 2001 not to do so. Dan Morain, *Generators Add to Davis Coffers*, L.A. TIMES, Nov. 16, 2001, at 7. The state's investor owned utilities and private power producers or traders spent a stunning \$17 million in 1999 and 2000 in political contributions and lobbying expenses at the state and local levels. Enron led all non-utility producers and traders, spending more than \$300,000 on campaigns and more than \$345,000 on lobbying. *Energy Crisis Linked to Campaign Contributions*, CALIFORNIA COMMON CAUSE, Fall/Winter 2002, at 1.

164 Carrie Peyton, *Third Power Plant Opens*, SACRAMENTO BEE, July 10, 2001, at A5. Power plant siting was expedited and some environmental standards were relaxed through both gubernatorial Executive Orders and legislation in 2000-2001. Expedited six month and four month permitting processes were first established by AB 970. See Assemb. B. 970, 2001-2000 Leg., Reg. Sess. (Cal. 2000); Cal. Exec. Order No. D-28-01 (Mar. 7, 2001) available at <http://www.governor.ca.gov/> (last visited Apr. 28, 2002); S.B. 28x, 2001-2002 Leg., Reg. Sess. (Cal. 2001). The four-month process permitted simple-cycle gas-fired plants (which pollute more than combined-cycle plants) as long as they were on-line by August 31, 2001, extended to August 31, 2002 by Executive Order on March 7, 2001. Cal. Exec. Order No. D-28-01 (Mar. 7, 2001), available at <http://www.governor.ca.gov/> (last visited Apr. 28, 2002). This accelerated review period contrasts with the normal twelve-month CEC siting process, under which fourteen projects were approved from 1999 to 2001 for a total of 10,439 MW of new capacity. Note that the accelerated plants would not necessarily be available at all during the period of forecast potential shortages during summer 2001 or summer 2002.

The Governor also issued Executive Orders D-22-01, D-24-01, and D-26-01 on February 8, 2001 to streamline the power plant siting process and to weaken air quality regulations for power plant operation. Cal. Exec. Order No. D-22-01 (Feb. 8, 2001), available at <http://www.governor.ca.gov/> (last visited Apr. 25, 2002), Cal. Exec. Order No. D-24-01 (Feb. 8, 2001), available at <http://www.governor.ca.gov/> (last visited Apr. 25, 2002), Cal. Exec. Order No. D-26-01 (Feb. 8, 2001), available at <http://www.governor.ca.gov/> (last visited Apr. 25, 2002). Cal. Exec. Order D-28-01 also exempted agencies from the Administrative Procedures Act when changing siting regulations. Cal. Exec. Order No. D-28-01 (Mar. 7, 2001), available at <http://www.governor.ca.gov/> (last visited Apr. 25, 2002). Together, these orders created an expedited siting process for “peaking” power plants that allowed only seven days for CEQA review and required permits to be issued within twenty-one days as long as the plant was on-line by September 30, 2001. Although five projects proposed under this process (totaling 550 MW) were later withdrawn due to strong public opposition, eleven projects were approved for a total of 864 MW. Anne E. Simon, *Environmental Justice in Power Plant Siting: Is It a Contradiction in Terms?*, Address to California State Bar Association Environmental Law Conference, Fish Camp, Cal. (Oct. 28, 2001). Executive Order D-40-01 further weekend air quality regulations on all power plants. Cal. Exec. Order No. D-40-01 (Jun. 11, 2001), available at <http://www.governor.ca.gov/> (last visited Apr. 25, 2002).

after an unprecedented prime-time television address by the Governor on the crisis.<sup>165</sup> Governor Davis then quickly negotiated a bailout deal over the weekend with Edison in an attempt to forestall another Chapter 11 filing during his watch. The Governor gave away the store in his panic, though, which made the deal dead on arrival by the time it reached the state Legislature.<sup>166</sup> Meanwhile, the bills continued to mount as the state DWR picked up the tab to keep the lights on. First intended as a temporary measure that would cost no more than \$500 million, between \$6 billion and \$9 billion had been drained from the state's General Fund, out of a budget of \$80 billion, and another \$4 billion borrowed in short-term loans to keep the lights on through the end of November 2001.<sup>167</sup>

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165 PG&E subsequently proposed a Plan of Reorganization (POR) which would have split the company into a variety of subsidiaries, all of which would be exempt from CPUC oversight except for the distribution company. Moreover, the utility argued that the federal bankruptcy laws preempted dozens of state laws requiring both extensive environmental review of the consequences and CPUC approval of such a plan. Although the major creditors supported the POR, it was challenged by the state and consumer groups. Bankruptcy Judge Dennis Montali roundly rejected the PG&E proposal on February 8, 2002, calling it an "across-the-board, take-no-prisoners" strategy. He then authorized the CPUC to offer an alternative POR and called the parties into mediated settlement discussions. See Bob Egelko, *PG&E's Bankruptcy Proposal Tossed Out; Judge Blocks Utility's Attempt to Sidestep State Regulation*, S.F. CHRON., Feb. 9, 2002, at A1; Carrie Peyton, *Judge Rejects PG&E Tactic*, SACRAMENTO BEE, Feb. 9, 2002, <http://www.sacbee.com/content/news/energy/story/1605990p-1682119c.html> (last visited Apr. 18, 2002).

166 The California State Senate passed legislation supporting a modified "work out" of Edison's debt before the summer recess, but Edison indicated it was not enough. The California State Assembly then passed a bill that met the Governor and Edison's terms, but senate leader John Burton refused to bring it to a floor vote on the last day of the session. Governor Davis lambasted Burton and the Senate, threatening to call them back for a special session to vote on the measure. Burton responded that he was trying to avoid embarrassment for the Governor by not bringing the bill to the floor. The CPUC then saved face for the Governor by negotiating a settlement to a lawsuit by Edison that gave both Edison and the Governor what they wanted—without the risk of any legislative solution being subject to a voter referendum. The deal allowed Edison to pay off its creditors during the spring of 2002. *SCE Gets Financing, Pays Creditors \$4.8 Bln*, REUTERS; Carrie Peyton et al., *Session's End Leaves Edison in Limbo*, SACRAMENTO BEE, Sept. 16, 2001, at A3; George Skelton, *While Davis and Burton Bicker, Edison Awaits a Rescue Measure*, L.A. TIMES, Sept. 17, 2001, at B3; George Skelton, *2 Scary B-Words: Bailout, Bankruptcy*, L.A. TIMES, Sept. 24, 2001, at B5. L.A. Governor Davis recently acknowledged that he panicked during the heat of the crisis in a defensive exchange with the editorial board of the *San Diego Tribune*. "If I didn't panic," he said, "you wouldn't be able to put out your paper. I saved this friggin' paper. I kept the lights on. Do you understand that? I kept the lights on." Phillip Matier & Andrew Ross, *However You Color Them, State Security Costs Are Staggering*, S.F. CHRON., Mar. 13, 2002, at A21. The Governor has also likened his struggle through the energy crisis as "tougher than being in Vietnam. I fought my way through it." Richard L. Berke, *California Governor Looks to a Predecessor's Playbook for Fall Campaign*, N.Y. TIMES, Mar. 10, 2002, at A24.

167 The exact amount is difficult to determine, but California State Treasurer Phil Angelides says that the state will face a current-year deficit of \$9.3 billion if he is unable to sell \$12 to \$14 billion in long-term revenue bonds by June 28, 2002 to finance the short-term debts incurred by the General Fund. The *Contra Costa Times* estimates the state spent \$7.9 billion through bilateral contracts and the ISO spent another \$4 billion during the first six months of 2001. Mike Taugher, *Public Utilities Hiked Sell-Back Prices*, CONTRA COSTA TIMES, Dec. 18, 2001, at A1 [hereinafter Taugher, *Public*]. This appears to involve a combination of at least \$6 billion from the state general fund, a \$4.6 billion short-term loan (part of that amount due by June 28, 2002), and the remainder paid for through higher retail rates. Mike Taugher, *Scramble for Energy Leaves State Vulnerable*, CONTRA COSTA TIMES, Dec. 21, 2001, at A1 [hereinafter Taugher, *Scramble*]. The 2001 expenditures for short-term energy supplies were clearly at least twice and possibly as much as four times the \$3.3 billion that generators spent

California also entered into dozens of long-term forward contracts during the spring of 2001 at relatively high prices that were designed to push the real costs of the crisis until after the November 2002 statewide election. Energy analysts in 2001 generally expected conditions of relative scarcity to persist in the California market only until 2003 or 2004, when new generation already permitted and under construction would exert strong downward price pressure on the wholesale spot market.<sup>168</sup> The longer-term contracts would secure much higher prices well after that period when generators and traders would otherwise have expected to receive higher prices in the market. This allowed generators and traders to offer power at a lower rate in the near-term. These contracts, therefore, would achieve Governor Davis's political goal of keeping prices relatively low until after the election.<sup>169</sup> The contracts commit ratepayers to much higher-priced power than they could have achieved under either the old cost-of-service regime or by building publicly-owned power plants. They therefore impose significant costs on the state even if they helped to reduce short-term wholesale spot market prices (by reducing the amount of demand that needs to be met on the spot market). The state has already lost money on the contracts in the face of declining demand by having to resell some of the high-priced power on the spot market for pennies on the dollar.<sup>170</sup>

Recently, both the CPUC and the Governor have realized after a critical audit from the independent California Bureau of State Audits that the DWR contracts are a bad deal for California ratepayers. They have therefore attempted to re-negotiate the contract terms in order to soften the impact of the high-priced contracts on the California economy. "We can do it easy or we can do it hard," said CPUC President Loretta Lynch, "but it will be done."<sup>171</sup> Negotiations were initially unsuccessful, so the CPUC filed a \$21 billion claim with FERC in February 2002 to get FERC to

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from 1996 to 1999 to acquire 18,348 MW of former utility generating plants. *State's Average Daily Power Costs Drop, Even During Hottest Part of Year*, MARIN INDEP. J., Nov. 29, 2001, at C5. The CPUC finally approved a plan in February 2002 to allocate future power revenues to allow the state to sell \$11.1 billion in bonds, so the state should be able to avoid defaulting. Mike Taugher, *State Seeks \$11 Billion for Electricity*, CONTRA COSTA TIMES, Feb. 22, 2002, at D1.

168 As for the knowledge of "experts" who now say (or said then) that Governor Davis should not have signed long-term contracts, Governor Davis has said, "They don't know squat." Matier & Ross, *supra* note 166.

169 Davis refused to release details of the contracts after they were negotiated, arguing that releasing the information before January 2003 could jeopardize further negotiations. Negotiations, however, were already completed, so the only relevance of the January 2003 date appears to be that Davis expects to begin his second term as Governor that month. News organizations and Republican legislators successfully sued in 2001 to have the basic terms of the contracts made public. As a consequence, some limited information has now been released about the terms of the contracts.

170 Carrie Peyton, *State Moves to Pull Plug on Worst Power Contracts*, SACRAMENTO BEE, Jan. 10, 2002, at A1; Mike Taugher, *Scramble*, *supra* note 167; Nancy Vogel & Virginia Ellis, *State Expects Huge Losses on Surplus Power*, L.A. TIMES, Nov. 23, 2001, at A1.

171 Peyton, *supra* note 170.

declare the contracts, which had been declared the previous year by the Governor to be a good deal for the state, null and void.<sup>172</sup> Based on an estimated original cost of \$43 billion over the life of the contracts, California had committed to pay roughly twice the actual unmanipulated market value of the electricity. The excess long-term costs represent about six times the revenue earned when the utilities sold many of the generating plants from which the state is now buying power. Newer power plants are considerably more efficient than these older utility plants, so the real cost of providing such power over the long term should be much less than the contracted price.

Viewing California as an accident victim, it is as if the public and policymakers saw only her superficial wounds whenever they first realized there was a crisis. Not surprisingly, a lot of attention has been paid to repairing those wounds. An apparent scarcity of generating capacity was only superficial, though; the real problem has always been internal hemorrhaging. The only thing that has kept the patient alive so far has been a massive transfusion from the state's General Fund. This has kept the lights on, but it has not addressed the underlying cause of the patient's condition. Because rolling blackouts have ended (for now), people are acting as if she has survived the crisis.<sup>173</sup> Yet, the state is continuing to hemorrhage money and opportunity due to her massive internal injuries. That unstable condition will continue until the underlying structural issues that caused the accident are addressed.

The result of this misdirected focus on the supply-and-demand balance has been the transfer of billions of dollars of wealth from electricity consumers and taxpayers to utility shareholders, power brokers, and independent generators. Very little of that wealth transfer constitutes an improvement in economic efficiency. California spent \$7 billion for all of its electricity in 1999, but the bill jumped to about \$27 billion in 2000. Another \$27 billion was spent in 2001. The difference of \$40 billion over just two years would not have occurred without the convergence of the factors described above, so it represents a genuine cost, together with the

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172 Karen Gaudette, *California Plans to Ask Federal Energy Regulators to Reverse Power Contracts*, ASSOCIATED PRESS, Feb. 25, 2002, available at LEXIS, Wires Library, AP File. The CPUC filed the request with FERC on February 25, 2002. The state has since reached some agreements to alter the terms of the original deals. Nancy Vogel, *Power Sellers Told to Bargain on Pacts*, L.A. TIMES, Apr. 25, 2002, at B7.

173 John Hill, *The Lights Are On, So Why is Joe Dunn Still Digging?*, SACRAMENTO BEE, Dec. 16, 2001, at A1; Carolyn Said, *State's Outlook Favorable for Blackout-Free Summer*, S.F. CHRON., Aug. 7, 2001, at A1; Mark Sappenfield, *The Energy Crisis That Wasn't*, CHRISTIAN SCI. MONITOR, Aug. 6, 2001, at 1. The Field Poll found that only 44% of Californians still thought the electricity crisis was "very serious" in September 2001 (before the events of September 11), down from 75% in May 2001. The percentage who thought the problem was "under control today" jumped from 0% to 30% during that period. Mark DiCamillo & Mervin Field, *Public Considerably Less Concerned About Electricity Supply*, THE FIELD POLL No. 2010, Sept. 25, 2001, at 2-3, available at <http://field.communityfieldpollonline/subscribers/RIs2010.pdf> (last visited Apr. 22, 2002).

transfers of billions of dollars in headroom from 1998 to 2000, of deregulation and restructuring. The increased costs in 2000 and 2001 are comparable to the total annual state budget—\$42 billion—for all levels of education in 2001 to 2002. The long-term contracts commit ratepayers to at least another \$21 billion in excess costs. In comparison, the state's entire budget in Fiscal Year 2001-2002 was just under \$80 billion.

Finding a way to pay those bills will now cost California ratepayers and taxpayers tens of billions of dollars in missed opportunities over at least the next fifteen to twenty years.<sup>174</sup> The California crisis therefore threatens to make the state effectively insolvent in its ability to do the things that states are supposed to do. Even if the electricity debt gets repaid, California taxpayers and ratepayers will be paying for this mess in higher electric bills, higher taxes, a weaker economy, poorer schools, more crowded and more dangerous roads, more children without adequate healthcare, more crime, and closed parks.<sup>175</sup> The state itself also faces a continuing fiscal crisis if the underlying structural causes of the problem are not addressed.<sup>176</sup> The conditions that gave rise to the crisis still persist in important respects: Incentives to exercise market power, incentives for system integrity and reliability, incentives for new supply, incentives for

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174 Repayment of both the interest during the first year and the principal in the bonds would be delayed until after the November 2002 election under the terms of AB 1X. The author of AB 1X originally expected the state to purchase no more than \$10 billion in total power (including long-term contracts), and a short-term infusion of only \$500 million was expected to be sufficient to deal with spot market purchases by the state DWR. Assemblyman Fred Keeley, Comments to Assembly Committee on Energy Costs and Availability, State Capitol, Sacramento, Cal., (Jan. 31, 2001). A summary of AB 1X distributed at the committee hearing also includes a reference to only a \$500 million transfer from the General Fund in Fiscal Year 2000-2001. *Concurrence in Senate Amendments: Hearing Before the Assembly Committee on Energy Costs and Availability, 2001-2002 Leg., Reg. Sess. 1* (Cal. 2001).

175 While municipal utility customers are shielded from the direct rate impacts of the crisis, they will directly bear much of the cost for the state's resolution as taxpayers are responsible for reduced revenues for other state services. The Los Angeles Department of Water and Power also made significant profits by selling excess generation into the hyper-inflated market, although former LADWP manager David Freeman disputes charges of price-gouging.

176 The state CPUC had already stopped paying some of its contractors in spring and summer 2001 due to a shortage of funds, as reserves in the state General Fund were being siphoned off to pay for short-term power purchases by DWR. Series of interviews with Wes Franklin, Executive Director, California Public Utilities Commission, San Francisco, Cal. (June-Aug. 2001). State Treasurer Phil Angelides also stated in July 2001 that the state could face fiscal insolvency if it did not sell the revenue bonds by the end of October 2001, for such a delay would trigger a jump in the state's interest rates from 4.14% to 7% on an existing \$4.3 billion "bridge" loan. *Calif. Regulators Delay Vote on Power Plan*, REUTERS, S.F., Aug. 21, 2001. PG&E filed a lawsuit against the CPUC in late-August, 2001, however, appropriately calling for CPUC hearings on the DWR request. The CPUC did not reach a decision on the matter before the short-term debt was due, however, so the state must now pay \$800 million in additional finance costs due to the delay. *PUC Chief Backs Davis*, SACRAMENTO BEE, Dec. 24, 2002, at A1. California's General Fund also faces a \$9.3 billion shortfall if the bonds are not issued by June 28, 2002. This deficit would be *in addition* to the massive deficit facing the state during Fiscal Year 2002-2003. (Governor Davis' budget estimates the deficit at \$12.5 billion without significant budget cuts and delayed spending, while the state Legislative Analyst estimates the deficit could be as high as \$22 billion in Fiscal Year 2002-2003.)

conservation, incentives to diversify supply sources, and general system vulnerability to boom-and-bust cycles of demand growth and industry investment are still problematic for the restructured California electricity system. Given those conditions, there is little reason to believe the crisis of 2000 and 2001 will not repeat itself in the future.

#### IV. Regulation's Rationale: Reconsidering the Relevance of History to Policy

##### A. *The Road Not Taken: 2000-2001*

How could California have avoided this outcome? Pragmatic solutions were proposed by some of the participants who were most familiar with the problem, but a little knowledge was a dangerous thing in such a complex situation: Faced with what people thought were the "facts," many of which were unfounded, anybody could easily fit them into his or her preconceived notions of how the crisis had developed.<sup>177</sup> Reasonable ways out of the dilemma were constrained from serious consideration by the limited range of American political discourse and the tendency to equate positions with ideology. Moreover, there were extensive conflicts of interest among some of the key decision-makers that may have colored how they made critical choices.<sup>178</sup> Finally, a quarter-

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177 This includes the pronouncement of the so-called "Berkeley Manifesto," whose signatories did not include many of the policy analysts and academics who were most familiar with the California market structure or the behavior of market participants (e.g., members of the ISO's market surveillance committee or others who had published research on the market's actual operation since implementation). MANIFESTO ON THE CALIFORNIA ELECTRICITY CRISIS (Jan. 26, 2001) (listing a number of professors and others as "endorsees" of the manifesto), available at [http://www.haas.berkeley.edu/news/california\\_electricity\\_crisis.html](http://www.haas.berkeley.edu/news/california_electricity_crisis.html) (last visited Apr. 18, 2002). Instead, the "manifesto" appears to have been based primarily on the neoclassical economic principles at the core of the entire deregulation project. Many of these principles are useful, but their presumptive power constrained discourse on a full range of solutions to the California crisis. *Id.*

178 For example, Governor Davis's press spokesman purchased stock in June 2001 in one of the firms being consistently praised by the Governor, while two other key consultants were working simultaneously for Edison to promote the Edison bail-out deal. Some of the consultants to the state would even receive a higher fee if the amount paid for Edison's transmission system were higher, which is a perverse incentive to support unnecessary public expenditures. Several of DWR's traders and consultants also owned stock in the companies from whom they bought power. See John Howard, *Conflicts of Power Staff Come to Light*, ORANGE COUNTY REG., July 29, 2001, at 1; Richard Scheinin, *Ethics: State Officials' Energy Ethics in Question*, SAN JOSE MERCURY NEWS, Aug. 11, 2001, at 1F; John Woolfolk & Noam Levey, *Davis, Calpine Ties Face Questions*, SAN JOSE MERCURY NEWS, Aug. 1, 2001, at 1A. Finally, one of Davis' appointees to the Electricity Oversight Board held more than \$1 million in stock in Enron while serving on the EOB. That appointee was also the Dean of the UCLA Anderson School of Management, which produced a study with Cambridge Energy Research Associates (a private firm with extensive consulting work for generators) that contended that market-based solutions (i.e., letting a price shock dampen demand and induce new supply) would be preferable to a "state takes charge" scenario. However, "[t]he report's authors acknowledge that their conclusions are based on worst-case scenarios for the government takeover approach and best-case approach for

century of assuming incompetence among regulators and bureaucracies has assured their impotence when faced with a crisis of this sort. Nobody at FERC has been there long enough to have engaged in truly effective regulation, and the CPUC does not have the analytic horsepower on its staff to go head-to-head with either the utilities or the wholesale generators and sellers. Good, talented, competent people staff both agencies—but they have not been given the tools or resources to do their jobs. Instead, they have been told to get out of the way in order to watch the wonders of markets at work.

When the California system collapsed from May 2000 to May 2001, political discourse was limited primarily to physical solutions (increase supply and/or decrease demand) or further deregulation. Changing the structural relationships between the market and regulatory institutions was explored almost exclusively in terms of further deregulation. The question then became whether California had deregulated adequately rather than whether regulators had constrained opportunistic market behavior inadequately. The narrowness of this debate reflected both the ascendance of the market in American political culture and the conformity of elite interests with such ideology. Both Clinton Democrats and Bush Republicans accepted without question the presumed superiority of markets and the inherent inefficiency and incompetence of regulatory bureaucracies. The predestination of deregulation was therefore taken as immutable; the only question was as to the specific form of deregulation.

These limits of discourse clearly constrained policy debate in resolving the California crisis, but are the political values of the broader American citizenry really so narrow? Moreover, would the average citizen prefer abstract ideological commitments to markets over pragmatic solutions in the face of such a crisis? Let us explore that question by considering a hypothetical scenario, based on the restructured California electricity market:

Assume there are ten gasoline stations in your town, where the going rate for gasoline is \$2 per gallon. The nearest town with gasoline is 100 miles away, just as California's in-state demand is primarily dependent on in-state suppliers. The existing gas stations can readily meet demand on all days of the year except three-day weekends, when some stations operate with curtailed hours if people do not fill up earlier in the week, just as the California electricity system has adequate in-state supply during average hydroelectric generation conditions to meet demand on all but the hottest days of the year. One of the gas stations suddenly starts charging \$25 per

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the market approach." Sam Zuckerman & Carolyn Said, *Study Says Crisis is Dragging Down State's Economy*, S.F. CHRON., June 29, 2001, at A1. Such a study design should not meet the academic standards of the University of California, yet ostensibly objective "research" like this has been used to support policy prescriptions to support even further deregulation.

gallon (not even on a three-day weekend!), but it's a special kind of gasoline station: If you do not buy at least some of your gasoline from it, every other station in town will simultaneously stop pumping gasoline to customers. (This is a key technological characteristic of the electrical grid, giving any required producer remarkable market power due to the difficulty in storing electricity economically.) Moreover, every other station will simultaneously increase its price to \$25 per gallon as soon as you agree to buy even a single gallon from the price-gouging station. (This matches the PX system, where all sellers are paid the highest MCP.) What do you think your fellow citizens would want you to do about this if you were the Mayor? Moreover, do you think they would stand by passively if you did not act decisively?

Here are the policy options available to you and the citizens of your community: (1) accelerate permit approvals for construction of more gasoline stations, even though the basic economic and regulatory arrangement will remain the same (and those new gas stations will not be available until next year, and they will sit idle all but a few days each year); (2) promote improved vehicle efficiency by requiring all new automobiles to get higher gas mileage (although that will not help existing car owners); (3) talk about how free markets always allocate resources efficiently, then tell your neighbors and constituents that they should sell their cars and start walking more; (4) enforce existing laws against price-gouging, and pass new ones if the existing ones do not cover the situation adequately; or (5) take over the gas station via eminent domain in order to stabilize prices and supply until you can build more gas stations, change the underlying economic and regulatory arrangement that led to the situation, and pass some new laws to ensure that it will never happen again.

If you chose (1) above, you are eligible to become governor of California. Opting for (2) represents an excellent long-term strategy for avoiding future problems, so you would make an excellent appointment to the California Energy Commission.<sup>179</sup> Choosing (3) puts you in line for an

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179 It would also represent an excellent alternative to expanding domestic petroleum supply through drilling in the Arctic National Wildlife Refuge. Increasing Corporate Average Fuel Efficiency ("CAFE") standards to forty miles per gallon would save as much petroleum each year as the total amount imported from Middle Eastern nations to the United States. Unfortunately, the focus of energy policy remains on expanding supply—even if those sources are questionable and have significant environmental risks. See Neela Banerjee, *Oil Industry Hesitates Over Moving Into Arctic Refuge*, N.Y. TIMES, Mar. 10, 2002, at 31 (discussing probable oil reserves); *Job Creation Figures Vary for Oil Drilling in Arctic*, MARIN INDEP. J., Mar. 12, 2002. (discussing employment impacts estimates, which range from 50,000 to 735,000). This focus may simply reflect the fact that eighteen of the energy industry's top twenty-five donors to the Republican Party advised Vice President Cheney's energy task force in 2001. Don Van Natta, Jr. & Neela Banerjee, *Top G.O.P. Donors in Energy Industry Met Cheney Panel*, N.Y. TIMES, Mar. 1, 2002, at A1. It also reflects the power of vehicle manufacturers and unions, who managed to kill a CAFE compromise in the U.S. Senate on March 13, 2002. As the

appointment to the Federal Energy Regulatory Commission. It seems that (4) is the best choice on the list, but you are not allowed to choose it (especially if you are the governor of California or the President of the CPUC)<sup>180</sup> unless you are the Chairman of FERC.<sup>181</sup> As for (5), we all “know” that nationalizing industry is un-American and that governments can never run industries as cost-effectively as private enterprise. Governor Davis therefore refused to treat (5) as a viable option, although the failure of FERC to select (4) left no other option for the state that would address the underlying structural problems in the regulatory regime. Governor Davis probably feared that seizing the former utility power plants would kill his chances for a bid at the presidency in 2004. However, failing to seize them in 2001 (while providing their former owners with just compensation after the inevitable litigation) will now impose billions of dollars of unnecessary costs on Californians, while the Governor's hardhat ribbon-cutting ceremonies have only given the appearance that the problem has been addressed.

I believe an overwhelming majority of Americans would have insisted upon seizing the gasoline stations (or former utility power plants) if they were actually presented with this scenario in their communities.<sup>182</sup> Moreover, what I've described grossly understates the case: When the state paid \$3,800 per MWh for power during the spring 2001, it was actually paying the equivalent of \$250 per gallon of gasoline (ten times the figure used in the example above).<sup>183</sup> Is there any doubt, then, that the state should have seized the power plants in January 2001 via eminent domain when rolling blackouts began to hit the state? FERC had already walked off the job, thus eliminating the moderate middle ground—a regulated wholesale market where price-gouging is restrained by enforcement of existing laws if it violates the “just and reasonable” standard of the Federal

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*New York Times* editorialized, Congress “must do better in standing up for the public interest” rather than special interests. Editorial, *A Failure of Energy*, N.Y. TIMES, Mar. 15, 2002, at A22.

180 Both the Governor and the CPUC President formally called on FERC to enforce the law to prevent price-gouging and to order refunds to California utilities and consumers for prior abuses. Their pleas fell on deaf ears at FERC.

181 FERC went through three chairmen during the California crisis: James Hoecker, Curt Herbert, Jr., and Patrick Wood III. William Massey is the only FERC commissioner who consistently called for stronger regulation.

182 State Treasurer Phil Angelides and Senate Leader John Burton both publicly called for a state takeover during early 2001, but Republican legislative leaders objected even to state purchase of the utilities' transmission systems or hydroelectric power plants. The State Senate Rules Committee approved a nonbinding resolution in July 2001 that the Senate would support seizure of the former utility power plants if the Governor were to do so under his emergency powers. Carl Ingram, *Senate Panel's Resolution Backs Power Plant Seizures*, L.A. TIMES, July 3, 2001, at B10.

183 Wholesale spot market prices were \$20 to \$40 per MWh in 1998 and 1999, so \$3800 divided by \$30 equals an increase by a factor of about 127 times. Gasoline that costs \$2 per gallon would therefore increase to about \$250 per gallon. The \$25 per gallon figure used in the example is roughly proportional (compared to \$2 per gallon gasoline) to the *average* price increase in California's wholesale spot market from 1999 to 2000.

Power Act.<sup>184</sup> Even the moderate Republicans of San Diego did a 180-degree turn on deregulation after they experienced the full brunt of International Monetary Fund-style structural adjustment: While ideologically committed to market solutions until summer 2000, they were generally in favor of public ownership of the electric utility industry by fall 2000. The same would have been true throughout the state if PG&E and Edison customers had faced the volatility of the wholesale spot market in 2000 and 2001.<sup>185</sup>

Republican CPUC Commissioner Richard Bilas, who was appointed by Governor Pete Wilson and calls himself “a free market economist” (with a Ph.D. in economics),<sup>186</sup> concluded in January 2001 that condemnation was necessary when the CPUC was finally forced to raise retail rates. In a little-noticed concurrence to the CPUC decision that ultimately increased rates by \$5.7 billion per year, Bilas stated:

[T]he surest way out of this dilemma is for the Legislature to immediately establish a California Power Authority to set the rules of the game and to have the power of condemnation at fair market value over in state generation. Calls for behavior modification have not worked. Action must be taken.<sup>187</sup>

The Fifth Amendment of the U.S. Constitution, of course, prohibits the “taking” of private property for public use without just compensation, but

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184 Note that the Federal Power Act limits such behavior even when it might not otherwise be in violation of anti-trust laws. The latter precludes collusive behavior or practices that establish monopoly control over a market, but may not preclude some of the strategic behavior (if unilateral) that led to price spikes in California in 2000 and 2001.

185 Exposure of nearly the entire state to the volatility of the wholesale spot market would have been an economic disaster, but it also would have led to swifter and more comprehensive action by political leaders. SDGandE customers account for only about ten percent of the state’s citizens, so the potential political ramifications of the high wholesale spot market prices were “contained” through immediate rate relief for San Diego customers (without adopting a comprehensive program to deal with the underlying structural issues). The political response to statewide price spikes of that magnitude would have stopped deregulation and restructuring everywhere in its tracks in the United States.

186 Bilas resigned from the CPUC in the winter of 2002 with ten months left in his term, complaining about excessive control by the Governor’s office over the ostensibly independent agency. Governor Davis quickly appointed Michael Peevey, a former Edison executive and the spouse of a Davis ally in the State Assembly, to fill Bilas’ unexpired term on the CPUC. Consumer advocates are dismayed, fearing that Peevey will now guide the CPUC toward an Edison-style bailout of PG&E that will leave captive “core” utility customers facing even greater rate increases over a longer period of time. Stuart Leavenworth, *Davis Names Ex-Edison Chief to PUC*, SACRAMENTO BEE, Mar. 6, 2002, at A3.

187 Interim Opinion Regarding Emergency Requests for Rate Increases, Cal. Pub. Utils. Comm’n, Applications 00-11-038, 00-11-056, 00-10-028, (Jan. 4, 2001) (Bilas, concurring for Item 2) (on file with author). Ironically, Bilas quoted Adam Smith in supporting his conclusion that market power was the problem—because Smith, like Bilas, recognized that the invisible hand could only work if there was true competition. In particular, Bilas noted Smith’s concern about allowing industry representatives to associate to allow collusion.

a “just” price to be paid for those power plants would presumably not include the value of profits that could only be realized if FERC did not enforce existing law.<sup>188</sup> This above-market return is what existing owners have now been able to extract from the state through both spot market sales in 2000 and 2001 and long-term contracts for the next ten to twenty years.

But different choices were made, because the public was kept in the dark and never really understood the financial ramifications of the crisis or the magnitude of the price gouging. “Dollars per MWh” are too abstract; if it really had been a question of \$25 or \$250 per gallon of gasoline, there would have been rioting in the streets. The question of public versus private power is therefore now moot in California: The state has what is effectively a disabled public power system now because the state has stepped in and negotiated away its future to make the short-term political problem go away quietly. The only difference between California’s system and the public power systems developed the old-fashioned way is that no portion of the California system is now actually owned or controlled by the public.<sup>189</sup> The new system is also not likely to be responsive to public concerns, for control over it is buried within a bureaucracy that is subject

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188 See U.S. CONST. amend. V (stating “nor shall private property be taken for public use, without just compensation”). There is no suggestion here that these constitutional protections should be violated. The Takings Clause has been read to mean that private property can only be taken for “public use,” but the definition of public use has been treated as “coterminous with the scope of a sovereign’s police powers.” *Haw. Hous. Auth. v. Midkiff*, 467 U.S. 229 (1984) (allowing the State of Hawaii to take title in real property from lessors and to transfer it to lessees in order to reduce the concentration of ownership of fees simple in the State). Given the state of emergency in California in 2001, condemnation in order to maintain an operating electrical system would surely meet this standard. The standard for reviewing “just compensation” relies upon an analysis of market value. Market value, in turn, would be based on expected profits from the assets, which would necessarily be considered within the constraints of legal market behavior. The new owners of the former utility-owned facilities attempted to *reduce* the assessed valuation of their power plants shortly before the crisis, and widespread industry forecasts projected only a short period of capacity shortages. Owners also had the ability to contract for lower natural gas prices than those on the spot market through longer-term contracts. The “distinct investment-backed expectations” of the power plant owners would therefore reflect much lower expected revenues or profits than those they actually realized in 2000 and 2001 (and will realize under long-term contracts with the DWR for the next ten to twenty years). *Cf.* *Penn Cent. Transp. Co. v. New York*, 438 U.S. 104 (1978) (establishing a balancing test analysis for takings claims that considers the distinct investment-backed expectations of the property owner in determining just compensation). For a detailed discussion of recent takings jurisprudence (focusing on regulatory “takings”), see ROBERT MELTZ ET AL., *THE TAKINGS ISSUE: CONSTITUTIONAL LIMITS ON LAND USE CONTROL AND ENVIRONMENTAL REGULATION* (1999).

189 This could conceivably change with the establishment of the California Consumer Power and Conservation Financing Authority (“CPA”) in late-August 2001, which has the authority to build power plants or to condemn existing facilities in the state via eminent domain. It is unlikely to do so, however, for Governor Davis appoints all of its directors and there is strong Republican opposition to a strong state role. Daryl Kelley, *State Power Authority To Take Reins Today*, L.A. TIMES, Aug. 24, 2001, at B1; Carrie Peyton, *New Panel Pledges: ‘No More Blackouts’*, SACRAMENTO BEE, Aug. 25, 2001, at A3. Moreover, the DWR’s longer term contracts seriously constrain any significant future role for the CPA for the near term.

to the usual concerns about patronage and insularity.<sup>190</sup> This approach gives new meaning to the phrase “public-private partnership.” In this case, the public simply provides the money while the private sector provides the monopoly power to keep the lights on. It is the result of, and perpetuates, an incredibly asymmetrical relationship, and it institutionalizes a set of economic and political incentives that will come back to haunt the citizens of the state.<sup>191</sup>

### B. *California's Legacy: 2000-?*

French researcher Jean-Michel Glachant has studied electric industry deregulation and restructuring throughout the world, and he chose to examine the California experiment in 1998 due to the state's reputation for innovation. “But it is like Africa!” he cried in disbelief in San Diego in August 2000.<sup>192</sup> Three months later, he said, “[I]t is much worse now—more like Bosnia” or some other war-torn country. He was referring to the apparent lawlessness and total lack of regulatory control over generators and sellers in those days between FERC's draft order<sup>193</sup> and its “final” order<sup>194</sup> in the California case.<sup>195</sup> The leading explanation at the time was a

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190 Large public power authorities have not generally been very responsible environmental stewards, for example, as demonstrated by the Tennessee Valley Authority, Bonneville Power Administration, or Los Angeles Department of Water and Power. Public power agencies have also made some major economic blunders, such as the default on bonds by the Washington Public Power Supply System for nuclear power plants in the early 1980s.

191 The DWR sought “carte blanche” rate recovery authority from the CPUC in 2001, for example, while only providing future revenue need estimates through 2002. Granting such authority would exaggerate existing political incentives to push costs and future rate increases beyond the November 2002 election, only to then incorporate other bureaucratic costs into rates due to DWR's ability to “tax” electric ratepayers. *DWR Numbers Put Through the Wringer by PG&E; CPUC Will Want Details Clarified Before Approval*, CAL. ENERGY MARKETS No. 628, July 30, 2001; Kate Berry, *Utilities Might Stall Bond Sale*, ORANGE COUNTY REG., Aug. 3, 2001, at M; Dale Kasler, *Dispute Threatens State's Bond Sale*, SACRAMENTO BEE, Aug. 7, 2001, at A3; Press Release, PG&E Co., *PG&E Comments on DWR Revenue Demand*, Aug. 14, 2001, available at [http://www.pge.com/006\\_news/006a\\_news\\_rel/010814.shtml](http://www.pge.com/006_news/006a_news_rel/010814.shtml) (last visited Apr. 14, 2002). As noted above, both the CPUC and the Governor are now trying to renegotiate terms of those long-term contracts after extensive criticism and in the face of lower demand. See Peyton, *supra* note 164, at A5. The CPUC agreed in February 2002 to give DWR enough rate recovery authority to allow the sale of state revenue bonds to go forward in order to avoid an additional \$9.3 billion deficit in late June 2002. See *supra* note 176 and accompanying text; Taugher, *supra* note 164.

192 Interview with Jean Michel Glachant, Université Paris I Pantheon Sorbonne, in San Diego, Cal. (Aug. 23, 2000). Dr. Glachant and I served on an expert witness panel before the CPUC in Proceeding No. OII 00-08-002. By May 2001, the *New York Times* was referring to Brazil's “rapidly worsening energy crisis that threatens to cripple Latin America's largest economy” as offering “California-style blackouts.” Larry Rohter, *Brazil, Fearful of Blackouts, Orders 20% Cut in Electricity*, N.Y. TIMES, May 19, 2001, at A4; Larry Rohter, *Energy Crisis in Brazil Brings Dim Lights and Altered Lives*, N.Y. TIMES, June 6, 2001, at A1 (describing “a California-style energy crisis”). The Golden State by then had a less reliable and cost-effective electricity system than many developing countries. See *id.*

193 San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,121 (2000) (order proposing remedies).

194 San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,294 (2001) (final order).

shortage of supply relative to demand, but the facts do not support this conclusion. The central feature of the 2000-2001 California Energy Crisis is, instead, the failure of both state and federal regulatory institutions to regulate opportunistic market behavior by generators and traders. There were certainly flaws in the design of the market, but the crisis, in essence, was caused more fundamentally by a failure to understand, or fully appreciate, regulation's rationale.

To be sure, increased supply and, more importantly, decreased demand in 2001 lessened the risk of rolling blackouts and decreased the ability of generators and traders to exercise market power. Californians reduced overall consumption by nearly 7% and peak demand by roughly 10% in the summer of 2001 compared to the summer of 2000, creating a margin between supply and demand that significantly lessened any seller's ability to exercise market power.<sup>196</sup>

Other factors also helped to discipline the unruly market behavior seen between May 2000 and May 2001. Generous long-term contracts for power created new incentives for generators and traders to provide power in order to avoid further scrutiny. California also restructured the board of the ISO to make it more effective and less likely to be captured by generator or sellers' interests, but the new structure put it under direct political control by the Governor.<sup>197</sup> (Davis appointees achieved such dominance on the PUC starting in January 2001.)<sup>198</sup> Although it was not

195 Interview with Jean-Michel Glachant, Université Paris I Pantheon Sorbonne, in Berkeley, Cal. (Nov. 13, 2000).

196 Berkeley researcher Severin Borenstein and CEC member Art Rosenfeld advocated a shift to limited real-time pricing during winter 2001 for commercial and industrial customers, but the CPUC resisted their proposal and the state instead spent more than \$1 billion for a series of other programs to reduce demand. SEVERIN BORENSTEIN, FREQUENTLY ASKED QUESTIONS ABOUT IMPLEMENTING REAL-TIME ELECTRICITY PRICING IN CALIFORNIA FOR SUMMER 2001, <http://www.ucei.berkeley.edu/ucei/PDF/faq.pdf> (last visited May 2, 2002); Borenstein, *supra* note 155; Art Rosenfeld, Comments to Assembly Committee on Energy Costs and Availability, State Capitol, Sacramento, Cal., (Jan. 31, 2001); Andrew LaMar, *Residents Cut Energy Use by 6.7 Percent Last Year*, *CONTRA COSTA TIMES*, Feb. 27, 2002, at A5. Peak demand in June 2001 was down nearly fourteen percent, and the gains occurred despite having temperatures similar to 2000. LaMar, *supra* note 196.

197 FERC remains opposed to this new governance structure, however, taking a position that the ISO should truly be a technical organization that is independent of direct political influence. The old structure of both the ISO and PX reflected a "stakeholder" governance structure, where key stakeholder groups (e.g., generators, utilities, consumers, environmentalists) had representatives on a large, unwieldy board of directors.

198 Governor Davis appointed former governor Jerry Brown's cousin Geoffrey F. Brown to the CPUC in January 2001. Brown had no experience in utility regulatory matters during his career as San Francisco's Public Defender, but his appointment allowed Senate Leader John Burton's daughter to move into Brown's former position as Public Defender. She was subsequently defeated for election to the office in March 2002. Davis's other appointees were President Loretta Lynch (former head of his Office of Planning and Research) and Carl Wood (who had extensive electric utility experience and led the utility workers' union). As noted *supra* note 186, Davis appointed former Edison executive Michael Peevey to the Commission in March 2002. Davis has therefore now appointed four of the five members of the CPUC, and he controls who is President.

operational until August 2001, state legislation adopted in May 2001 creating the California Power Authority also helped to establish an important public power presence for the state in the marketplace—with the power of eminent domain over generator behavior.<sup>199</sup>

The most important changes, however, came in the halls of Washington, D.C. Bipartisan legislation by Senators Dianne Feinstein and Gordon Smith would have required FERC “to impose just and reasonable load-differentiated demand rates or cost-of-service based rates on sales by public utilities” throughout the WSCC within sixty days.<sup>200</sup> The effect of this legislation would have been to impose temporary wholesale price caps based on the old cost-of-service model of utility regulation. The bill, co-authored by Senators Jeff Bingaman, Patricia Murray, and Maria Cantwell, took on new life when Senator Jim Jeffords dropped his GOP affiliation, giving Democrats control of the Senate and its committee chairmanships. The bill was suddenly likely to pass in both the Senate Committee on Energy and Natural Resources, now chaired by Bingaman, and on the Senate floor. Senator Joe Lieberman also promptly called FERC on the carpet in his government oversight committee, and House GOP members worried that they might soon have to vote on the Feinstein-Smith bill on the floor. Ideology aside, there was simply no way that California’s Republican members of Congress would be able to face their constituents with a vote against regulatory price caps. California’s connection to the rest of the West had already led to high wholesale market prices and retail rate increases throughout the region, leading to business bankruptcies and shutdowns to save power. The California crisis clearly had regional and national ramifications, and the Bush Administration could not continue to call it a California problem without suffering the consequences. Governor Davis made that point plainly when he held a brief twenty-minute “summit” with President Bush in the late spring. Bush walked away with a black eye as the *New York Times* cited the administration’s “indifference to California.”<sup>201</sup>

And, so, the Federal Energy Regulatory Commission decided to reinvestigate the relevance of the “R” in FERC. The agency ordered

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199 SB 6X, signed by Governor Davis in May 2001, established the California Consumer Power and Conservation Financing Authority (also known as the California Power Authority) in late-August 2001. Kelley, *supra* note 189; Carrie Peyton, *supra* note 189; Rick Jurgens, *PUC Sends Plan to State*, CONTRA COSTA TIMES, Feb. 15, 2002, at D1; Carrie Peyton, *Post-Blackout Role Elusive for California Power Authority*, SACRAMENTO BEE, Feb. 19, 2002, at A3. The Power Authority was not operational during the heat of the crisis from May 2000 to May 2001, so it had little impact on generator behavior during that time.

Davis appointed long-time public utility executive S. David Freeman to head the agency, whose career includes leadership of the Tennessee Valley Authority, Sacramento Municipal Utility District, Lower Colorado River Authority, and the Los Angeles Department of Water and Power.

200 S. 764, 107th Cong. (2001).

201 Editorial, *Indifference to California*, N.Y. TIMES, May 16, 2001, at A26.

limited refunds on March 9, 2001,<sup>202</sup> adopted limited price caps for limited periods (less than 3% of the hours in which the ISO had found evidence of market power) on April 26,<sup>203</sup> and then expanded them on June 19 to cover all hours and all market participants throughout the West until September 30, 2002.<sup>204</sup> The agency also finally began hearings into the CPUC's allegations about gas price manipulation (fully a year after the CPUC filing), which quickly revealed that there was ample evidence to support the allegations.<sup>205</sup> Finally, FERC held a two-week settlement conference among generators, sellers, utilities, and the state on electricity issues in early July (California was seeking \$8.9 billion in refunds at the time). The parties remain billions of dollars apart, but the FERC ALJ tentatively proposed adoption of an analytic methodology that could lead to billions of dollars of refunds. Only a small portion of that is likely to be ordered by FERC itself, but the conceptual method initially adopted is precisely the same as that used by ISO analysts and academic studies. California may therefore be able to recover in court what it cannot get through FERC.<sup>206</sup>

So the sheriff is back in town. Former FERC Chair Curt Herbert, Jr. has now been replaced by Patrick Wood III.<sup>207</sup> It remains to be seen if

202 San Diego Gas & Elec. Co., 94 F.E.R.C. ¶ 61,245 (2001) (order directing sellers to provide refunds).

203 San Diego Gas & Elec. Co., 95 F.E.R.C. ¶ 61,115 (2001) (order establishing prospective mitigation and monitoring plan and establishing investigation).

204 San Diego Gas & Elec. Co., 95 F.E.R.C. ¶ 61,418 (2001) (order on rehearing of monitoring and mitigation plan); San Diego Gas & Elec. Co., 96 F.E.R.C. ¶ 61,120 (2001) (order establishing evidentiary hearing procedures); *Hearings Established on Refunds in California, Pacific Northwest*, DM&H ENERGY INSIGHTS, Jul. 27, 2001, at 1, available at <http://www.duanemorris.com/publications/ei072701.pdf>. The ISO has nevertheless found that generators continue to exceed the FERC-imposed wholesale market rate caps. Nancy Vogel, *Federal Caps Didn't Deter Higher Prices*, L.A. TIMES, Jul. 27, 2001, at B1.

205 David Maharaj & Christine Hanley, *Suit Claims Firms Limited Gas Supply To Raise Prices*, L.A. TIMES, Feb. 4, 2001, at A1; Tansey, *supra* note 138, at A1. The ALJ's ultimate recommendation to FERC called for throwing out most of the complaint, however, despite such prima facie evidence. See Oppel, *supra* note 141, at C4.

206 FERC has determined that it does not have jurisdiction under the Federal Power Act to order refunds for any transactions before October 6, 2000. Public power sources also dispute FERC's claim of jurisdiction over their transactions in wholesale power markets. The FERC methodology may nevertheless be the basis for litigation that could recover some refunds or damages for transactions not covered by any FERC refund order. The FERC Administrative Law Judge was originally scheduled to issue a draft decision in October 2001, and then March 2002, but he has now delayed any decision in the matter until at least August 2002. David Whitney, *Hearings on State Energy Refunds Are Halted*, SACRAMENTO BEE, Dec. 8, 2001, at A4; *FERC ALJ Points to August for His Calif. Refunds Decision*, MEGAWATT DAILY, Jan. 9, 2002, at 1. FERC appears to have limited its methodology further to establish price caps rather than proxy prices, however, which has driven down the California refund claim to something just over \$1 billion. *Cal-ISO Refund Estimate Drops More Than \$7 Billion*, CAL. ENERGY MARKETS No. 658, Mar. 1, 2002. The total amount of overpayments compared to what the regulated system would have cost is nevertheless probably closer to the original estimate, because the ISO's methodology estimates the actual costs of producing power supplied in the market. Litigation on this issue is likely to take years.

207 Zachary Coile, *Energy Chair To Leave Post After 7 Months*, S.F. CHRON., Aug. 7, 2001, at A8. Wood has stated that FERC needs to become a "market cop with a great big old stick," because "the free market ain't a free and full market yet." Judy Pasternak & Alan C. Miller, *Watchdogs Take a*

FERC will have any real effect through actual refund orders,<sup>208</sup> but the psychological effect of potential regulatory oversight has already been felt. Existing power plants are on-line again, bids for the power from those plants are less outrageous, and the most egregious behavior of May 2000 to May 2001 seems to have abated.<sup>209</sup>

But the California story is far from over. Investigations into market manipulation continue, hampered by recalcitrant companies' refusal to provide even subpoenaed information to the CPUC, California Attorney General, or the California State Legislature. The California State Senate committee investigating price manipulation was so frustrated in its efforts that it voted to issue the first contempt citations in the Legislature since 1929. Not surprisingly, one of the two firms cited was Enron—where a culture of unaccountability was pervasive, and where the corporation denied any jurisdictional authority over it by any state agency in California.<sup>210</sup> This attitude led Attorney General Bill Lockyer to say that he personally wanted to arrest Enron Chairman Kenneth Lay and escort him to a jail cell if Lay were to step foot in California again.<sup>211</sup>

It is difficult to find a “smoking gun,” let alone any “smoke signals” that may have been used to collude tacitly in the California market, without access to evidence. It is, therefore, quite premature to determine whether either existing laws were broken or whether new laws need to be passed to protect consumers against the behaviors that caused the California crisis. What is clear is that there are asymmetrical incentives for scarcity for owners of generation facilities in a market like California's: Apparent shortages increase market power and profits as long as regulation is lax. Equally true, however, is that there are few incentives to create such

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*Hit in State's Power Ills*, L.A. TIMES, Jun. 3, 2001, at A1 (quoting Patrick H. Wood III). He also says that he wants FERC to be “a vigilant market cop walking the beat.” Eric Nalder & Mark Gladstone, *New Market Overwhelms U.S. Agency Probe of Rising Power Prices Falls Short As Federal Agency Regulatory Commission Needed More Data, Analysis of Costs, Economists Say*, SAN JOSE MERCURY NEWS, June 4, 2001, at 1A (quoting Patrick H. Wood III).

208 Until 2001, FERC had ordered a total of \$598 in refunds in its history for “unjust and unreasonable” rates. *Frontline: Blackout*, *supra* note 80. FERC ordered Williams to pay \$10 million in March 2001 for physical manipulation in April 2000 in plants operated with AES, and Williams agreed to pay \$8 million in refunds in May 2001. Ray, *supra* note 144.

209 *But see* Nancy Vogel, *Federal Caps Didn't Deter Higher Prices*, L.A. TIMES, Jul. 27, 2001, at B1 (reporting that the ISO continues to see evidence of strategic bidding in the first week following imposition of caps).

210 Lynda Gledhill, *Two Power Firms Held in Contempt by State Senate Panel*, S.F. CHRON., June 29, 2001, at A6 (reporting that the Senate panel also named Mirant, an affiliate of the Southern Company, in its action). Legislators also heard testimony from former Duke Energy employees that they were manipulating output to increase market prices. *Employees: Power Supply Held Down*, SACRAMENTO BEE, June 22, 2001, at A3. Duke has denied the allegations, claiming that the ISO ordered it to vary power output to maintain system conditions.

211 *State Reacts to Enron's Struggle*, MARIN INDEP. J., Nov. 29, 2001, at B4.

shortages and many incentives to eliminate possible shortages under traditional utility regulation.<sup>212</sup>

## Conclusion

“The real lesson of the California catastrophe,” said Paul Krugman, “was that the concerns that led to regulation in the first place—monopoly power and the threat of market manipulation—are still real issues today.”<sup>213</sup> This fundamental historical lesson should be the legacy of the California crisis: that there *is* still a rationale for regulation, and there are times when regulators must actually regulate.

The FERC order regulating wholesale electricity prices in California and throughout the West is scheduled to expire on September 30, 2002—but, if it does expire then, we as a society may soon find ourselves with a repeat of the California crisis of 2000 to 2001. We may not face it immediately due to dampened demand and increased capacity, but demand will continue to press supply capacity in future years until generators and traders can again take advantage of relative scarcity to exercise market power. There is very little downside risk for the perpetrators of such behavior unless and until FERC properly enforces the Federal Power Act. Relying on anti-trust statutes is much more difficult, for they require that collusion be demonstrated. The electricity market is one where collusion is not even necessary to result in behavior that transfers wealth from consumers to generators and traders without improving either economic efficiency or social well-being.<sup>214</sup> Such behavior also weakens the reliability of the electric grid, threatening both lives and livelihoods. This is why the industry was originally regulated: Both history and a

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212 Due to that asymmetry, it is likely that many of the proposed (and even some of the recently-permitted) power plants in California will not actually come on-line to produce power unless they already have long-term contracts. Not building a permitted power plant is a rational strategy for anyone already owning generation in an easily manipulated market. Proposing new generation that one never intends to build is also rational: It will discourage market entrants, thereby extending the potential period of scarcity. The unregulated system therefore has inherent incentives for undercapacity and scarcity unless there is adequate forward contracting. The new California Power Authority was established in part to avoid such scarcity, with a mandate to ensure a fifteen percent reserve margin. See Kelley, *supra* note 189; Peyton, *supra* note 189. It is unclear how the CPA will meet this task in light of the enormous uncertainty it faces about whether and when unregulated power plants will be on-line. The long-term DWR contracts will also constrain the CPA in any effort to diversify the state's generating portfolio, because there is little need now for the next few years.

213 Paul Krugman, *Enron Goes Overboard*, N.Y. TIMES, Aug. 17, 2001, at A19.

214 Although he only analyzed data for the first two years of the California market, Steven Puller found evidence of static (independently-exercised) market power but no statistically significant evidence of dynamic (collusive) market power. See STEVEN L. PULLER, PRICING AND FIRM CONDUCT IN CALIFORNIA'S DEREGULATED ELECTRICITY MARKET (Program on Workable Energy Regulation, Working Paper No. PWP-080, Jan. 2001), available at <http://www.ucei.berkeley.edu/ucei/PDF/pwp080.pdf> (last visited Apr. 28, 2002). Whether that is true for May 2000 to May 2001 is a critical legal question.

sophisticated technical understanding of electricity markets demonstrate that this is an industry that is too susceptible to abuse to be left free of regulatory oversight. That was regulation's original rationale, and it remains valid today despite the many benefits that some deregulation in other sectors has brought.

As Steve Weissman has noted, the choice over whether to deregulate California's electricity system promised a relatively small potential up-side benefit in the form of moderately reduced rates and improved efficiency at the risk of huge downside costs and decreased reliability.<sup>215</sup> Most people are risk-averse and buy insurance in that situation—by making long-term commitments of a small amount of resources (e.g., through insurance premiums) to avoid exposure to the low-probability, high-cost event (e.g., a house fire). This is precisely what the cost-of-service model of regulation provided for society from the 1920s until the 1990s: insurance against market manipulation, volatile prices and outages in exchange for a relatively small penalty in inefficiency.<sup>216</sup>

In response to the Enron scandal, Treasury Undersecretary for Domestic Finance Peter Fisher said, "If rules were broken, rule breakers should be punished. If rules were bent, we should improve the means of enforcing those rules. And if loopholes were used, new rules should be written."<sup>217</sup> The inquiry in California so far focused on only the first of these three responses, yet both the enforcement impotence of regulators in the face of a politically powerful industry and the extensive legal loopholes for opportunistic price gouging in the current regulatory environment need serious attention. This is the challenge if anything useful is to be learned from the California crisis: How should we now structure the relationship between regulatory institutions and markets in the electricity sector? The policy debate about that question should be based on the empirical evidence from the California crisis rather than merely the theoretical ideals of economists' models. There has been plenty of simplistic rhetoric about the California debacle, but many of the commonly-held assumptions that have permeated the debate and colored the policy choices made in the heat of the crisis are simply wrong. A combination of misunderstanding, mischaracterization, and misdiagnosis of the California crisis has resulted in policy responses that generally fail to address the underlying structural causes of the crisis.

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215 Steve Weissman, California Public Utilities Commission, Comments at the Envisioning California Conference, *The Year of Our Disconnect—the Politics of Power in California*, Sacramento, Cal. (Oct. 5, 2001).

216 See *supra* Part I.

217 Kathleen Day & Peter Behr, *Andersen Considered Severing Enron Ties; February E-Mail Shows Concerns About Accounting*, WASH. POST, Jan. 17, 2002, at A1.

It is difficult to blame either politicians or journalists for some of the misunderstandings; erroneous claims perpetuate themselves through repetition. I found four to five factual errors per story in some of the major California newspapers when rolling blackouts first hit in January 2001, although that number dropped to just one to two errors per story over the next few months.<sup>218</sup> Some of those errors—especially the notion that California's restructuring effort caused California not to build any new generating capacity in the 1990s—continue to persist today. In fact, utility-owned generating capacity did decline slightly from 45,876 MW in 1990 to 44,493 MW in 1998. Non-utility generating capacity more than made up the difference, however, increasing from 8,109 MW to 10,386 MW during the same period. Non-utility generators therefore added 2,277 MW of capacity to the in-state grid from 1990 to 1998. The state then added another 2,781 MW of capacity in 1999. These total additions of 5,058 MW are equivalent to adding ten large 500 MW plants.<sup>219</sup> One of the fundamental premises of the public policy debate—that California had not added any new generating capacity in the 1990s—was therefore simply wrong. Yet, public misperception of the relationship between supply and demand drove both the policy discourse and the selected course of action.

What should we have done instead? As illustrated above, there was some point in early 2001 when the Governor should have seized the former utility power plants (all "in-state" facilities owned by "out-of-state" companies) under his emergency powers to stop the price gouging and rolling blackouts. If ever the use of "police power" was warranted, this was it. This option never received serious political consideration, however, because the public was kept in the dark about the structural causes of the crisis. Power plant seizures would have dramatically altered the terms of negotiation between the state, ratepayers, the utilities, the generators, and traders. State ownership would have temporarily stabilized the electrical system itself while offering breathing room to decide what type of long-term institutional reform was appropriate. Moreover, such stability probably could have averted PG&E's bankruptcy filing, with California's greater capacity to predict and control future utility rates, including allocation of some portion of those rates to address the utilities' financial condition. Seizing the power plants in early 2001, therefore, would have maximized flexibility for resolving the structural causes of the crisis.

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218 In sharp contrast, the small San Diego County *North County Times* had sophisticated coverage as early as fall 2000—because area residents (and reporters) had already been living with the crisis for several months by then.

219 FISHER & DUANE, *supra* note 50, tbl.E-3; Fisher & Duane, *supra* note 50.

Longer-term policy options could have then been considered without the daily threat of further rolling blackouts.<sup>220</sup>

At one end of the spectrum, California could have then continued to own and operate (and even build new) power plants through the new California Power Authority to avoid a repeat of the 2000 to 2001 crisis. None of the public utilities in California faced shortages during 2000 and 2001; so it is difficult to argue that public utilities are inherently unable to ensure system reliability or that the conditions in 2000 and 2001 were beyond the control of utility planners. A return to cost-of-service regulation would also be possible because the former utility power plants could be sold by California back to the utilities or to new owners with firmer restrictions on operations and incentives to operate in the public interest. Finally, a more competitive market could still be pursued after state seizure of the power plants (although, understandably, the climate for further investment in the electricity sector in California would be clouded). The institutional structure for such a market would need to be based on a firm grasp of the analysis presented here, or the conditions of 2000 and 2001 would likely be replicated in the future.

Perhaps the best solution would be a return to the “California model” of the late-1980s and early-1990s, which balanced concerns about system reliability and price stability against the inherent inefficiencies of relying only on central planners to determine the means of meeting demand. Regulation’s rationale would still be recognized, in other words, but so would the power of the market to find the most efficient means of meeting an identified need. There were problems with this system, of course, but it represented a reasonable accommodation of all three of the policy goals of the regulatory regime: (1) system reliability, (2) rate stability, and (3) efficiency. These three goals are the three legs of the electricity system stool. They cannot all be maximized simultaneously: If we want to maximize efficiency, sacrifices must be made in system reliability and rate stability. The advocates of electricity deregulation project claim that there are no tradeoffs: If society would simply trust in the power of the market, it would be able to maximize all three of these policy goals. They are wrong.

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220 Although it is difficult to imagine the state government of California negotiating under duress, that is precisely what gave rise to the long-term contracts it entered into in the spring of 2001. The Attorney General had a budget of \$4 million to investigate illegal market manipulation at the time—which is equal to the increased revenue the former utility plants could earn in just *one hour* of getting the MCP up to the old price cap of \$250 per MWh. The generators and traders extracted \$40 billion in additional revenues from California ratepayers in 2000 to 2001 (much of that amount may have then been paid to gas suppliers or for the purchase of air emission credits, of course). Their potential war chest to defend litigation challenging market manipulation is therefore up to 10,000 times the Attorney General’s. The only way to change that asymmetrical power relationship was to take the tools of potential market manipulation out of their hands.

Moreover, advocates of deregulation are wrong about what people want from the electricity system. If given a choice, the public would generally choose system reliability and rate stability, even if it means giving something up in efficiency.<sup>221</sup> It certainly would prefer the first two goals if all it is giving up is a *possibility* of greater efficiency. Yet that is what Enron and the other deregulation advocates really offered: In exchange for the possibility of relatively small efficiency gains, society was asked to incur a risk of dramatic reductions in system reliability and rate stability. Moreover, there was a real risk that prices would go up instead of down after deregulation. How else were the new owners of the former utility plants going to pay off their investments at twice the book value of the plants? That outcome is, in fact, what Californians received from AB 1890-style restructuring.

What can FERC, Congress, and other states learn from the California crisis? Despite all of the complex details of the California disaster, the lessons are really quite simple. Moreover, they go to the heart of our political culture and the limits on contemporary political discourse after two decades of increasing attention to economists' concerns about efficiency and a strong rightward shift in American politics. They go, in other words, to a fundamental question of American politics: What should be the relationship between regulators and markets?

It should be clear by now that social institutions structure human relations in any market. If the structure of those social institutions is inadequate or inappropriate, markets alone (together with the asymmetrical power relations that may exist in particular circumstances between buyers and sellers) will dominate the structure of human relations. The California debacle shows conclusively that the resulting structure and relations are unacceptable in the electricity sector. The specific technological characteristics of the industry make it especially vulnerable to market manipulation, while the central importance of electricity to our society and economy make it socially unacceptable to allow such vulnerability. Regulation, therefore, has an important role to play for electricity, and it may still be preferable to "put the genie back in the bottle" by re-establishing a regulated system, despite some of the inherent inefficiencies in such a system, in exchange for relieving ourselves of the risks and costs of the unfettered market. It is certainly worth considering again along with the public power option—rather than simply assuming that markets are the answer. In this case, we would do well to make sure we first understand the question more precisely. In the case of electricity, the relevant question is how to improve efficiency without sacrificing system reliability or price

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<sup>221</sup> This is consistent with what William Golove found in his survey research of consumers. Golove, *supra* note 75.

stability. This is a different question from how to deregulate another industry that seems stodgy and bureaucratic.

California's experience offers some sober lessons for both policymakers and the broader public in light of Enron's subsequent collapse. Together, they should bring pause to the deregulation project. Let us hope that regulation's rationale will not be forgotten the next time somebody promises a free lunch through deregulation and its abstract-sounding and presumably non-threatening euphemism, restructuring. For the vast majority of us who did not have enough insider knowledge to cash out our Enron stocks and options before the price collapsed,<sup>222</sup> we should buy some insurance as a society now to make sure we do not face a similar disaster again.

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222 Enron was formerly the seventh-largest company in the country, based on market valuation and questionable accounting, but by January 2002 the firm's shares were trading for less than a dollar, after having reached a high near \$90 per share. Insiders managed to extract \$1.1 billion in value from their stocks and options before the plunge. Leslie Wayne, *Before Debacle, Enron Insiders Cashed in \$1.1 Billion in Shares*, N.Y. TIMES, Jan. 13, 2002, at A1.