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SHALL IT BE SAID THAT MY DUSK WAS IN TRUTH MY DAWN?* WHAT STATES CAN GLEAM FROM THE ENVIRONMENTAL CONSEQUENCES OF DEREGULATING ELECTRICITY IN CALIFORNIA

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I. INTRODUCTION

In 1996, the Federal Energy Regulatory Commission (FERC) promulgated Rule 888,¹ which mandated the deregulation and restructuring of the United States electric utility industry. Since the promulgation of Rule 888, states have been struggling to restructure their electric utility industries.² What makes deregulation a difficult environmental issue is that it has uncertain environmental and economic consequences.³ While FERC predicts that the consequences will be “minimal,”⁴ it may have underestimated harmful environmental impacts that could be caused by restructuring.⁵ This paper will look to California, one of the first states to pass a significant deregulation bill,⁶ to see what

* KAHLIL GIBRAN, *THE PROPHET* 6 (1923). [The use of the word “Gleam” in the title is intended to be a pun—Eds.]

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¹ Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21540 (May 10, 1996) (hereinafter Rule 888).

² As of 1999, only seventeen states have begun retail competition. Sudeen G. Kelly, *The New Electric Powerhouses: Will They Transform Your Life?*, 29 ENVTL. L. 285 (1999).

³ See Ann Berwick, *Environmental Implications of Energy Industry Restructuring*, 33 NEW ENG. L. REV. 619, 619 (1999) (conceding that predicting of the environmental consequences of deregulation was necessarily “guess work”).

⁴ *EPA Wants Utilities to Prevent More Air Pollution After Deregulation*, ENERGY REPORT, Monday, Feb. 26, 1996, available at 1996 WL 8375585.

⁵ See *id.*

⁶ See David G. Pettinari, Comment, *You Can't Always Get What You Want – Will Two Recent State Court Decisions Tarnish the Political Promise of Electricity Industry Deregulation?*, 76 U. DET. MERCY L. REV. 501 (1999), which describes California as one of the “pioneer states” for completely deregulating by 1998.

environmental lessons other states can learn from California's attempt at deregulation.

In Part II, this paper will examine the history of electric utility deregulation nationally. In Part III, this paper will discuss the possible environmental consequences of deregulation on a national scale. In Part IV, this paper will examine the history of the restructuring effort in California. In Part V, this paper will analyze the effects of California restructuring on the environment. It will look at the market that has developed after restructuring and assess the effectiveness of the public policy programs California has implemented to protect the environment. It will examine subsidies, mandatory labeling, and command-and-control measures. This paper will point out the limits of market based protections and particularly note their failure to protect the poor. It will examine whether the "green energy"⁷ marketed in the California market is actually green. This paper will also examine the complex hybrid structure California implemented and look at how that structure aids in creating a renewable energy market. Finally, this paper will conclude by describing the environmental lessons other states can learn from the California restructuring experience.

II. DEREGULATION NATIONALLY

In order to understand the movement to deregulate electrical utilities, it helps to understand why utilities were regulated in the first place. When Thomas Edison opened the first major electricity generation plant on September 4, 1882, he began what quickly became a highly competitive industry.⁸ The industry followed a predictable pattern of growth, expanding to over thirty-seven hundred utilities,⁹ followed by concentration.¹⁰ Eventually, by the mid-1920s, sixteen companies controlled 85 percent of the electricity market.¹¹

As huge electricity trusts developed, consumers became concerned that electric utility owners were gouging consumers by setting unreason-

⁷ Green energy and renewable energy are used synonymously for the purposes of this paper.

⁸ See Joseph P. Tomain, *Electricity Restructuring: A Case Study in Government Regulation*, 33 TULSA L.J. 827, 830 (1998).

⁹ See *id.*

¹⁰ See *id.*

¹¹ See *id.*

ably high prices.¹² States began to regulate through Public Utility Commissions (PUCs) to reduce electricity prices.¹³ The justification for regulation was found in the structure of electric utilities. Electric utilities are often described as having three structural components—generation, transmission and distribution.¹⁴ Electric utilities have traditionally been vertically integrated, having one owner control all three functions.¹⁵

Because of the high costs of entry, utilities experienced economies of scale, where “one large utility can produce and sell electricity more cheaply than could a number of small producers.”¹⁶ The economies of scale were exacerbated by vertical integration.¹⁷ These economic conditions lead policy makers to categorize electricity generation as a “natural monopoly”¹⁸ where “one firm can more efficiently deliver a product at a lower cost than multiple firms.”¹⁹ The government allowed a legal monopoly in order to gain the efficiencies of the economies of scale and set prices through regulation in order to avoid the high prices of a monopoly.²⁰

As part of the compensation for governmental regulation, the government allowed utilities to earn a reasonable return on prudent capital investments.²¹ Natural monopolies pose significant public policy problems.²² While a single firm or producer is structurally able to provide the lowest costs, that firm has the incentives of a monopoly and may

¹² PETER NAVARRO, *THE DIMMING OF AMERICA* 4 (1985). See also Tomain, *supra* note 8, at 830-31 (arguing that consumers were concerned with more than just the high prices, but also by the cause of the high prices. “The electric trusts, like the oil trusts before them, were susceptible to stock manipulation and shareholder abuses . . . [and] the public reacted sharply to the electricity trusts and the electricity industry came under scrutiny by state and federal politicians.”).

¹³ See NAVARRO, *supra* note 12, at 4-5.

¹⁴ PAUL L. JOSKOW AND RICHARD SCHMALENSSEE, *MARKETS FOR POWER: AN ANALYSIS OF ELECTRIC UTILITY DEREGULATION* 25 (1983).

¹⁵ See *id.*

¹⁶ LEONARD S. HYMAN, *AMERICA'S ELECTRIC UTILITIES: PAST, PRESENT AND FUTURE* 4 (4th ed. 1992).

¹⁷ See JOSKOW, *supra* note 14, at 25 (making the argument that “it would be wrong to assume that these three segments can be operated independently from one another, by separate firms coordinating their activities . . . without any loss in economic efficiency”).

¹⁸ See *id.* at 29.

¹⁹ See Tomain, *supra* note 8, at 832.

²⁰ See JOSKOW, *supra* note 14, at 30-31.

²¹ See Tomain, *supra* note 8, at 832.

²² See JOSKOW, *supra* note 14, at 30.

artificially inflate prices.²³ Regulating a monopoly is a difficult task, however, as regulations can "provide incentives for inefficiency" by persistently allowing utility earnings which are either too high or too low.²⁴

The efficiency of regulation began to fall apart in the 1960s, when the high costs of the Vietnam War and large amounts of social spending resulted in increased inflation and increasing electric utility costs.²⁵ In addition, the passage of the Clean Air Act in 1972 increased costs as much as twenty-five percent.²⁶ Many Northeast utilities shifted from coal burning plants to oil fueled plants to comply with the Clean Air Act.²⁷ As a response to the oil crisis, utilities began to shift resources to nuclear power.²⁸ Nuclear power became less attractive and cost-effective after the Three Mile Island disaster in 1979.²⁹ The Nuclear Regulatory Commission (NRC) increased the environmental and safety standards for nuclear power plants, resulting in increased costs.³⁰ These economic conditions "put great pressure on utilities to raise prices at unprecedented rates."³¹

While utility owners were frustrated by decreased profits, consumers were frustrated by the price increases.³² Despite public

²³ See *id.* Richard A. Posner described the relationship between utilities to regulators in a regulated monopoly as "manipulative," in which the regulated firm have a perverse incentive to "[hide] profits in costs, for example by purchasing supplies from wholly owned but unregulated subsidiaries at inflated prices that can be covered in its allowed rates." Richard A. Posner, *The Effects of Deregulation on Competition: The Experience of the United States*, 23-Symposium FORDHAM INT'L L.J. S7, S10 (2000).

²⁴ JOSKOW, *supra* note 14, at 31. In addition, regulation provided incentives for inefficient investment in generation facilities because it "encouraged utilities to build large, long-lived generating stations that took a decade or more to construct" and over that decade, utilities would be unable to take advantage of new technology. See HYMAN, *supra* note 16, at 327.

²⁵ See NAVARRO, *supra* note 12, at 7.

²⁶ See *id.* at 8.

²⁷ See *id.*

²⁸ See *id.*

²⁹ On March 28, 1979 a cooling system malfunction resulted in the first major nuclear accident in America. See HYMAN, *supra* note 16, at 136-7. Consumers and investors lost confidence in nuclear power. After the accident "even proponents of the nuclear effort seemed to be thinking more in terms of finishing what was already under construction [rather] than planning for additional facilities." *Id.* at 137. No new plants were ordered. See *id.* at 33.

³⁰ NAVARRO, *supra* note 12, at 10.

³¹ Tomain, *supra* note 8, at 834.

³² See NAVARRO, *supra* note 12, at 10.

frustrations, PUCs were obliged to allow utilities some profit and were, therefore, forced to increase electricity prices. The public frustration did lead the PUCs, however, to increase rates much more slowly than the increased costs.³³ This rate suppression provided utilities with perverse incentives to forgo economically sound investments.³⁴

The rapid increases in costs in the United States electricity market, concerns about energy conservation, and the belief that the use of environmentally efficient technologies might be commercially viable combined to create a political environment willing to allow increased competition in the electric utility industry.³⁵ In response to these concerns, Congress passed the Public Utility Regulatory Policies Act of 1978 (PURPA).³⁶ PURPA allowed for non-utilities to engage in electrical generation as independent power producers, or qualifying facilities.³⁷ PURPA had the specific goal of encouraging the development of alternative electricity sources.³⁸

Many of these qualifying facilities were efficient and profitable.³⁹ However, in order for qualifying facilities to get their energy to the market, they needed to use the transmission lines, which were still a monopoly owned by the utilities.⁴⁰ As qualifying facilities became more successful they demanded access to a wider market through the national transmission lines.⁴¹ PURPA gave FERC the power to, under some circumstances, force electrical utilities to allow these new competitors to use transmission facilities.⁴²

³³ See *id.* at 9.

³⁴ See *id.* at 12.

³⁵ See Rudy Perkins, Note, *Electricity Deregulation, Environmental Externalities and the Limitations of Price*, 39 B.C. L. REV. 993, 997 (1998).

³⁶ Pub. L. No. 95-617, 92 Stat. 3117 (1978).

³⁷ PURPA allowed these independent power operators to sell their power to utilities at "avoided" cost. PURPA § 210. Avoided cost was the "utility's estimated cost of generating the equivalent amount of power by building new baseload capacity," not the actual market value of the electricity. See Michael Evan Stern & Margaret M. Mlynczak Stern, *A Critical Overview of the Economic and Environmental Consequences of the Deregulation of the U.S. Electric Power Industry*, 4 ENVTL. LAW. 79, 87 (1997) [hereinafter *Critical Overview*], available at WL 4 ENVTLAW 79.

³⁸ Public Utility Regulatory Policy Act § 2.

³⁹ See Tomain, *supra* note 8, at 835.

⁴⁰ See *Critical Overview*, *supra* note 37, at 90.

⁴¹ See *Id.*

⁴² Public Utility Regulatory Policies Act § 203

In 1992, Congress moved one step closer to electric competition by passing the federal Energy Policy Act of 1992 (EPAct), which removed some regulatory burdens from qualifying facilities and allowed increased access to transmission lines.⁴³ The EPAct was designed to slow the rise of American oil imports, conserve energy, encourage efficiency, provide new energy options and more diverse supplies, develop renewable energy resources, increase competition in the electric industry, and address global warming.⁴⁴

The success of qualifying facilities has lead to the conclusion that electrical generation no longer experiences economies of scale or is hampered by high costs of entry, and is, therefore, no longer a "natural monopoly."⁴⁵ This conclusion helped lead to deregulation⁴⁶ in part because economists already believed it was possible to separate the components of a natural monopoly.⁴⁷ This theory was tested with telephone deregulation.⁴⁸ Called the "Bell doctrine," this theory posits that where a regulated industry nonetheless results in monopolistic characteristics, the appropriate response is to "quarantine" the monopolistic section of the industry and allow competition in other areas.⁴⁹

Rule 888 was an attempt to quarantine generation from transmission and distribution.⁵⁰ It envisioned an independent systems operator to control the transmission lines and ensure non-discriminatory open access to transmission lines in order to assure competition.⁵¹ FERC needed to decide how to deal with the politically difficult issue of stranded costs, "the costs prudently incurred by the local utilities that will not be

⁴³ See Perkins, *supra* note 35, at 1009.

⁴⁴ H. R. REP. NO. 102-474, pt. 1, at 133 (1992).

⁴⁵ HYMAN, *supra* note 16, at 165-66 ("Today, the generating sector of the electric utility industry no longer seems to exhibit economies of scale, and may be ripe for control by means of competition instead of regulation.").

⁴⁶ See Tomain, *supra* note 8, at 840. See also Andrew Noceto et al., *Agency Action: Business Regulatory Agency*, 16-WTR Cal. Reg. L. Rep. 158, 158 (1999), available at WL 16-WTR CARLR 158.

⁴⁷ See Noceto, *supra* note 46.

⁴⁸ See *id.*

⁴⁹ Paul L. Joskow & Roger G. Noll, *The Bell Doctrine: Applications in Telecommunications, Electricity, and Other Network Industries*, 51 STAN. L. REV. 1249, 1250 (1999). In the case of Telecommunications, this theory suggested that AT&T and GTE used monopolistic tendencies of local telephone lines to dominate a long-distance industry that could otherwise be competitive. See *id.*

⁵⁰ See Rule 888, *supra* note 3.

⁵¹ See *id.* at 21565.

recoverable through market-determined prices, and that result from the utilities' reliance on the previous regulatory structure."⁵² Rule 888 dealt with stranded costs by endorsing the view that utilities should recover "legitimate, prudent and verifiable stranded costs."⁵³

Rule 888 was met with both praise and criticism: proponents of the rule stressed that competition would result in lower rates and increased efficiency,⁵⁴ while critics believed that deregulation would pose a threat to the environment.⁵⁵ Critics also worried that the poor would bear an inordinate burden of both the economic and environmental costs of deregulation.⁵⁶ To allay fears that deregulation would pose a threat to the environment, FERC wrote an Environmental Impact Report (EIR). In this report, FERC conceded that the rule would have a negative impact if the industry favored coal, but argued that deregulation would have a positive impact if the industry favored natural gas, and concluded that "any negative impacts that the rule might cause are a small fraction of the uncertainty inherent in fuel price projections."⁵⁷

⁵² *Indianapolis Power & Light Co. v. Pennsylvania Pub. Util. Comm'n*, 711 A.2d 1071, 1074 (Pa. Commw. Ct. 1998).

⁵³ *Supra* note 3, at 21540.

⁵⁴ See *Critical Overview*, *supra* note 37, at 101 ("In theory, the dismemberment of the traditional electric utility system . . . will lead to the dynamism of a truly competitive market in electricity, which is both economically and environmentally efficient."). But see *id.* at 104-5 (arguing that "if 'economic efficiency' connotes the lowest price, deregulation proponents must properly define that price to include all consequences attendant to the proposed alternations to the existing system of electric power generation").

⁵⁵ Critics argued that deregulation of electric utilities would lead to increased emissions of carbon dioxide because competition would lead to more frequent use of older coal-fired power plants, increased demand for electricity would result in more use of fossil fuel for electricity generation, uncertainty would delay the retirement of some older plants, and restructuring would reduce investment in renewable technology. See Edward A. Smeloff, *Utility Deregulation and Global Warming, the Coming Collision*, 12-SPG NAT. RESOURCES & ENV'T 280 (1998), available at WL 12-SPG NATRE 280.

⁵⁶ See *Critical Overview*, *supra* note 37, at 111 (stating that "viewed in the very best light, the nation's failure to provide subsidized electricity will mean that millions of U.S. citizens could see their standard of living decline to early twentieth century levels"). See also Stephen M. Johnson, *Economics v. Equity: Do Market-Based Environmental Reforms Exacerbate Environmental Injustice?*, 56 WASH. & LEE L. REV. 111, 118 (1999) (arguing that the market, and market based reforms, "encourage polluters to shift pollution to lower-income communities").

⁵⁷ Alan Miller & Adam Serchuk, *The Promise and Peril in a Restructured Electric System*, 12-FALL Nat. Resources & Env't 118, 119 (1997), available at WL 12-FALL NATRE 118.

III. NATIONAL ENVIRONMENTAL ISSUES

The Environmental Protection Agency (EPA) argued publicly that the FERC EIR was incorrect in assessing potential environmental damage as "minimal."⁵⁸ United States electric utilities have been a major contributor to global environmental problems.⁵⁹ Electric utilities are a major source of nitrous oxides, sulfur dioxide and carbon dioxide.⁶⁰ In fact, the EPA estimates that electricity utilities accounted for 36 percent of carbon dioxide emissions and 25 percent of nitrous oxide emissions in the United States in 1998.⁶¹ Nitrous oxides and sulfur dioxide are a major cause of acid rain,⁶² while carbon dioxide is a significant greenhouse gas.⁶³ Old coal plants, which were "grandfathered," so as to be immune to the Clean Air Act, cause most of the damage.⁶⁴

The clash between the EPA and FERC over the EIA was essentially an argument over the future of these coal plants.⁶⁵ The EPA was skeptical about FERC's assertion that electrical generators would have no incentive to crank up the use of cost of operating coal-firing plants because natural gas would remain cheaper than operating coal-firing plants.⁶⁶ The EPA was concerned that if FERC was wrong, and natural gas did not retain a competitive advantage, restructuring would encourage utilities to increase the use of coal burning plants, and thus increase pollution.⁶⁷ The controversy eventually led to a large political conflict between the Environmental Protection Agency and FERC.⁶⁸

⁵⁸ See *supra* note 4.

⁵⁹ See RICHARD L. OTTINGER ET AL., ENVIRONMENTAL COSTS OF ELECTRICITY 13 (1990).

⁶⁰ See *id.*

⁶¹ United States Environmental Protection Agency, National Air Pollutant Trends 1900-1998 2-2, 8-3 (2000), at <http://www.epa.gov/ttn/chief/trends98/emtrnd.html>.

⁶² See OTTINGER, *supra* note 59.

⁶³ See *id.*

⁶⁴ See Ann Brewster Weeks, *Advising Nature: Can We Get Clean Air From the Old Dirties?*, 33 NEW ENG. L. REV. 707, 710-11 (1999). See also Berwick, *supra* note 3, at 621-2 (arguing that grandfathering means that "Eisenhower era plants" who did not have to comply with the heightened standards of the Clean Air Act will have "a competitive edge" in a deregulated market).

⁶⁵ See Miller & Serchuk, *supra* note 57, at 119.

⁶⁶ See National Air Pollutant Trends 1900-1998, *supra* note 61.

⁶⁷ See *id.*

⁶⁸ About Rule 888, Nichols said, "[We at the EPA] don't want them to screw things up." FERC chair Elizabeth Moler countered, "we have declined the honor of doing EPA's job, but I don't think we 'screwed it up.'" *Utilities Not Doing Enough to Protect Public*

In addition to a possible increase in dirty gases released by coal burning plants, electrical restructuring could have other negative environmental effects.⁶⁹ It could affect the patterns in which nuclear power plants are used, causing a shift to coal use as nuclear power becomes less competitive.⁷⁰ If nuclear power plants continue to be used, the public suffers incremental harms from the radioactive waste.⁷¹ Shutting down nuclear power plants would cause an entirely different set of environmental problems, because, if the plants are closed, the radioactive waste from nuclear power plants will have to be safely isolated from the environment for at least 10,000 years.⁷²

IV. RESTRUCTURING IN CALIFORNIA

Pre-restructuring regulatory reform had a "profound" effect on the California electrical utility industry, in part because of the success of qualifying facilities.⁷³ By the 1990s, qualifying facilities in California increased from a negligible percentage of electricity-generating capacity to almost 12 percent of dependable capacity in 1991.⁷⁴ However, electricity prices were high. The impetus for reform was the belief that regulation of the industry caused inflated electricity prices.⁷⁵

Health, EPA's Nichols Declares, UTIL. ENV'T REP., Nov. 8, 1996 at 1, available at 1996 WL 13198920. Several senators, including Frank Murkowski, the chairman of the Energy and Natural Resources Committee, rallied to FERC's defense. The Senators wrote a letter to FERC in which they argued that the EPA used a "worst-case set of assumptions" and was attempting to "delegate to sister federal agencies [its] authority." *Stand Firm Against Environmentalist on Restructuring, Senators Tell FERC*, ENERGY REPORT, Feb. 26, 1996, available at 1996 WL 8375587.

⁶⁹ See Berwick, *supra* note 3, at 620.

⁷⁰ See *id.* at 621.

⁷¹ See *id.* at 620.

⁷² *Nuclear Waste Policy Act: Hearings on Proposed Amendments Before Sen. Comm. Of Energy and Natural Res.*, 104th Cong. (Mar. 2, 1995) (statement of Bill Magavern, Director, Critical Mass Energy Project).

⁷³ Dierdre O'Callaghan & Steve Greewald, *PURPA from Coast to Coast: America's Great Electricity Experiment*, 10-WTR NAT. RESOURCES & ENV'T 17, 20 (1996) ("Implementation of PURPA transformed California's electric infrastructure from a model of nineteenth century natural monopoly regulation into a vision of a highly competitive, technology-driven twenty-first century energy services web.").

⁷⁴ See *id.*

⁷⁵ See HYMAN, *supra* note 16, at 330 ("The desire for reform is based on the belief that the regulatory system has not worked: it has produced an industry unmindful of costs, because all costs could be passed on to captive customers.").

On April 20, 1992, the California Public Utilities Commission (CPUC) issued a Rulemaking proceeding in order to restructure California's electric utility industry.⁷⁶ The CPUC explored two possibilities—the first of which was a structure of retail competition that would allow retail customers to choose among electric suppliers and a wholesale, pool-oriented structure.⁷⁷ This “poolco” system, like the U.K. system, would have resulted in a centrally determined wholesale price based on a winning bid.⁷⁸ The debate over whether to implement a bilateral and pool-oriented trading system was contentious.⁷⁹ Eventually, CPUC negotiated a joint memorandum of understanding with several major utilities, including giant Southern California Edison.⁸⁰ This compromise envisioned a hybrid system that would allow both pool-based and bilateral trading.⁸¹

In 1996, the California state legislature passed Assembly Bill 1890, which restructured the California electric utility industry using the CPUC model.⁸² The Assembly retained transmission as a state-regulated monopoly, while competition was introduced to electricity generation.⁸³ In order to facilitate the market, the bill created an oversight board and authorized the creation of two quasi-public corporations—an Independent Systems Operator (Cal-ISO),⁸⁴ and a Power Exchange (PX).⁸⁵

⁷⁶ CPUC, *Electric Restructuring in California: An Informational Report* (1997), (October 21, 1999), at www.cpuc.ca.gov/divisions/Environmental/restruct/open.html [hereinafter *Informational Report*].

⁷⁷ A poolco is where there is a centrally determined wholesale price based on a winning bid. See Lori M. Rodgers & Joseph F. Schuler, Jr., *Ready, Fire, Aim: California and the Nation on the Eve of Competition*, PUB. UTIL. FORT., Jan. 1, 1998, at 26 [hereinafter *Eve of Competition*].

⁷⁸ See *id.*

⁷⁹ See Keith R. McCrea & Gregory K. Lawrence, *East and West Coast Restructuring Efforts*, 12 – SPG NAT. RESOURCES & ENV'T 243, 244 (1998).

⁸⁰ See *id.* at 244 (“The debate between the Poolco and direct access [bilateral trading] advocates had much the fervor of a crusade . . . [but] the gulf between the two camps began to narrow when Southern California Edison . . . negotiated a memorandum of understanding [with CPUC].”).

⁸¹ See *Eve of Competition*, *supra* note 77, at 26.

⁸² A.B. 1890, 1996 Leg., Reg. Sess. (Cal. 1996), LEXIS 1996 Cal ALS 854.

⁸³ Cal. Pub. Util. Code § 330 (b).

⁸⁴ The ISO was to designed operate the transmission grid in such a way to provide open access to generators and insure reliability. California Oversight Board, Decision 97-05-1, Appendix A, Bylaws of the California Independent System Operator Corporation, A California Non-Profit Benefit Corporation, Article II § 2 (a)-(b) (March 23, 2000) at <http://www.eob.ca.gov/documents/index.html>.

Assembly Bill 1890 was controversial. Proponents argued that the bill was "unique in its comprehensive approach to restructuring."⁸⁶ The California legislature followed FERC guidelines in Rule 888 and argued that "prudent" stranded costs should be recoverable.⁸⁷ Moreover, the bill created a fund to support environmental programs.⁸⁸ CPUC issued a detailed report arguing that the negative environmental impact of restructuring would probably be minimal and the overall effect would benefit the environment.⁸⁹

The California legislature clearly viewed the benefits of restructuring as greater than merely reducing prices, but to "ensure that California's transition to a more competitive electricity market structure . . . creates a new market structure that provides competitive, low cost and reliable electric service . . . and preserves California's commitment to developing diverse, environmentally sensitive electricity resources."⁹⁰ Unfortunately, it appears that the legislature was overly optimistic about price reductions. Over the summer, customers of San Diego Gas and Electric Co. (SDG&E), the first California customers to pay market costs for electricity, had their bills spike by two to three hundred percent.⁹¹

⁸⁵ The Power Exchange is designed to act as an auction, ensure that the participants fulfill their obligations and arrange scheduling with the ISO. See California Oversight Board, Decision 97-05-1, Appendix B, Bylaws of the California Power Exchange Corporation, A California Non-Profit Benefit Corporation, Article II § 1 (a), (c) and (d), (Mar. 23, 2000) at <http://www.eob.ca.gov/documents/index.html>.

⁸⁶ Keith R. McCrea & Gregory K. Lawrence, *East and West Coast Restructuring Efforts*, 12 – SPG NAT. RESOURCES & ENV'T 243, 245 (1998).

⁸⁷ See *supra* note 38. California allowed utilities to recover stranded costs through a non-bypassable "competitive transition charge." But see McCrea, *supra* note 79, at 245 ("utilities are at risk for any . . . stranded costs which they are unable to fully recover by the end of 2001.").

⁸⁸ Cal. Pub. Util. Code § 381.

⁸⁹ See *Informational Report*, *supra* note 76, at Chapter 4.

⁹⁰ A.B. 1890 § 1(a), 1996 Leg., Reg. Sess. (Cal. 1996), LEXIS 1996 Cal ALS 854.

⁹¹ Anne C. Mulkern & Mark Katches, *Deregulation a failed experiment? Energy: Consumers have little power in California's current electricity market*, ORANGE COUNTY (CAL.) REG., July 23, 2000, at A01, available at 2000 WL 4842122. While a hot summer was certainly a significant cause of the increases, the major problem is that consumption is increasing by "about two major power plants per year," in part because of a transition to a computer-based economy. See Nancy Vogel, *California and the West Demand for Electricity Tests Power-Grid Operator Deregulation: Acting as a traffic cop on the electron freeway, young agency faces tough task amid shortages*, L.A. TIMES, July 6, 2000, at A3, available in 2000 WL 2257914 [hereinafter Vogel]. The crisis got so bad that on June 14, northern California was hit by rolling blackouts as the ISO ordered PG&E to cut off power to 97,000 customers. *Id.* The blackouts were California's "first

V. THE CALIFORNIA SYSTEM

California's electrical utility industry was in fairly good shape, environmentally, prior to restructuring. California had very few coal-fired power plants within its border⁹² and imported most of its coal generated fuel from plants in the Southwest owned by California companies.⁹³ California has two nuclear power plants—the San Onofre Nuclear Generating Station in San Diego County and the Diablo Canyon Nuclear Power Plant in San Luis Obispo County.⁹⁴

In 1995, 20 percent of California's power was generated in state by hydroelectric plants, 14 percent by nuclear power, 7 percent by coal, and 30.5 percent by natural gas.⁹⁵ In addition, 18.5 percent of power was imported from the Pacific Northwest or the Southwest.⁹⁶ Between 1991 and 1995 California coal consumption dropped from approximately 9.7 percent to 7 percent of the total yearly consumption of electricity.⁹⁷

One of the major environmental concerns of electrical restructuring in California was the belief that renewable energy may not be commercially viable and would be unable to survive a deregulated market.⁹⁸ As of 1999, it cost 5.3 cents per kilowatt/hour for renewable energy, and about 2.5 cents per kilowatt/hour to use coal or oil.⁹⁹ Critics

deliberate blackouts since World War II." See Nancy Rivera Brooks, *Consumers Seek Repeal of Utility Deregulation Electricity: Surging bills and shortages have convinced many that competition isn't working. But a solution is elusive.*, L. A. TIMES, July 29, 2000, at A1, available at 2000 WL 2264592 [hereinafter Brooks]. The blackouts nearly knocked out power to ten states. Mulkern & Katches, *supra* note 91. Things got so bad that the ISO staff proposed operating a floating power plant from a barge in the San Francisco Bay. See *supra* Vogel.

⁹² This, however, is an example of a negative environmental externality. Because California does not have to deal with the consequences of the coal-generated pollution caused by the electricity it imports, California is unlikely to take account of the environmental damage the coal-fired plants cause to others.

⁹³ See *Informational Report*, *supra* note 76.

⁹⁴ In addition, several California utilities, including Southern California Edison, are part owners of the Palo Verde Nuclear Generating Station in Arizona. See *id.*

⁹⁵ See *id.* at table 1-2.

⁹⁶ See *id.* at table 1-2.

⁹⁷ See *id.* at table 1-2.

⁹⁸ See Peter Asmus, *Deregulation Means a Clean Power Option for Many Americans*, GREENWIRES, Jan. 1, 2000, available at 2000 WL 10471102.

⁹⁹ See Robert D. Hazel, Note, *Electric Utility Regulatory Reform: The Demise of Alternative Energy*, 8 S.C. ENVTL. L.J. 137 (1999).

wondered if renewable energy could survive if consumers were unwilling to pay added premiums.¹⁰⁰

California decided to set up a fund to subsidize renewable energy.¹⁰¹ Theoretically, subsidizing renewable energy will make it cheaper and thus more competitive with less environmentally-friendly production methods such as coal.¹⁰² The California renewable energy fund has a four-year, \$540 million budget raised from Southern California Edison, Pacific Gas and Electric Company, and the San Diego Gas and Electric Company.¹⁰³ The fund is organized by the California Energy Commission, which divided the fund into four accounts—the Existing Renewable Resources Account (\$243 million), the New Renewable Resources Account (\$162 million), the Emerging Renewable Resources Account (Buy-Down Program—\$54 million), and the Consumer-Side Renewable Resources Account.¹⁰⁴ One-percent of the budget (\$5.4 million) was put aside, and later used for a plan to educate consumers about renewable energy.¹⁰⁵

The Existing Renewable Resources Account was designed to help maintain in-state existing renewable technologies during the first four years of restructuring.¹⁰⁶ It allocates \$243 million in subsidies—\$135 million to biomass, waste-tire, and solar thermal energy, \$70.2 million to wind, and \$37.8 million to geothermal, small hydroelectric digester gas, landfill gas, and municipal solid waste.¹⁰⁷ Renewable suppliers with eligible generators receive a monthly cents-per-kilowatt-hour payment.¹⁰⁸

The New Renewable Resources Account contains \$162 million to support prospective new renewable electricity generation projects built in

¹⁰⁰ See *cf. id.* See also Bryan Lee, *Green Fees: Will consumers pay for environmentally friendly power? In theory, yes; In practice, maybe not*, Sept. 13, 1999, WALL ST. J., at R12.

¹⁰¹ A.B. 1890 Article 7 § 381, 1996 Leg., Reg. Sess. (Cal 1996), LEXIS 1996 Cal ALS 854.

¹⁰² See Perkins, *supra* note 35, at 1024.

¹⁰³ Cal. A.B. 1890 Article 7 § 381 (e).

¹⁰⁴ Cal. Energy Comm'n, *Renewable Energy Programs Overview*, at http://www.energy.ca.gov/renewables/renewables_fact_sheet.html (last visited Oct. 27, 2000).

¹⁰⁵ CAL. ENERGY COMM'N, RENEWABLE ENERGY CONSUMER EDUCATION MARKETING PLAN 3, (1999) [hereinafter MARKETING PLAN].

¹⁰⁶ CAL. PUB. UTIL. CODE § 381 (c) 1.

¹⁰⁷ See California Energy Commission, *Existing Renewable Resources Account*, at http://www.energy.ca.gov/renewables/existing_renewables.html (last visited Oct. 27, 2000).

¹⁰⁸ See *id.*

California after September 26, 1996.¹⁰⁹ This fund works on a bid system in which bids are submitted for potential projects in an auction.¹¹⁰ Winning bids can earn up to 1.5 cents per kilowatt-hour in incentives.¹¹¹ At the first auction, fifty-five of the bids were determined to be eligible for funding and the fund provided incentives for the creation of 300 megawatts of wind-powered electrical capacity, 157 megawatts of geothermal generation facilities, 70 megawatts of landfill gas generation, twelve megawatts of biomass generated energy, 1 megawatt of digester gas, and 1 megawatt of small hydroelectrical generation.¹¹²

The Emerging Renewable Resources Buy-Down Program authorizes \$54 million in rebates of as much as \$3,000 per kilowatt/hour residential, industrial, commercial or agricultural customers who purchase and install a renewable electricity generation system.¹¹³ In order to be eligible, the system must be connected to the electric grid.¹¹⁴ This program covers photovoltaics, small wind turbines, fuel cells and solar thermal systems.¹¹⁵

The Consumer Side Renewable Resources Account is designed to provide an incentive for consumers to use renewable power.¹¹⁶ It earmarks \$81 million to provide a 1.25 cent/kilowatt hour rebate for customers who use recognized renewable resources.¹¹⁷ Only energy generated in California by a non-utility generator is eligible for the rebate.¹¹⁸ Between the inception of the program in April 1998 and December 1999, 1.79 million customers have received \$13,081,923 in rebates.¹¹⁹

¹⁰⁹ See California Energy Commission, *New Renewable Resources Account*, at http://www.energy.ca.gov/renewables/new_renewables.html (last visited Oct. 27, 2000).

¹¹⁰ See *id.*

¹¹¹ See *id.*

¹¹² See *id.*

¹¹³ California Energy Commission, *Emerging Renewables Buy-Down Program*, at <http://www.energy.ca.gov/greengrid/index.html> (last visited Oct. 27, 2000).

¹¹⁴ See *id.*

¹¹⁵ See *id.*

¹¹⁶ California Energy Commission, *Customer Credit Account*, at <http://www.energy.ca.gov/greenpower/index.html> (last visited Oct. 27, 2000).

¹¹⁷ Up until December 1999, the incentive was 1.5 cents per kilowatt/hour. See *id.*

¹¹⁸ See *id.*

¹¹⁹ California Energy Commission, *Historical Data for the Customer Credit Subaccount*, at http://www.energy.ca.gov/renewables/customer_credit_table.html (last visited Oct. 27, 2000).

Finally, CPUC, under the auspices of Assembly Bill 1890 and Senate Bill 90, started an education program, called the Renewable Energy Consumer Education Plan (RECE).¹²⁰ The plan allocates a \$5.4 million, three-year budget.¹²¹ CPUC plans to begin by focusing on informing potential “early adopters.”¹²² Then, with a combination of word of mouth, a grass roots organization, and a mass media campaign, CPUC hopes to inform a broader base of potential customers.¹²³

VI. ANALYSIS

A. Externalities

Environmentalists are concerned about the effects of restructuring because “the market is not only inadequate to guide consumers’ allocation of resources in a way that advances the public goal of environmental protection and least overall cost, it may, in some instances, guide the investment and consumption in directions that damage the environment and increase long-term cost.”¹²⁴ This is because environmental consequences are often externalities,¹²⁵ and markets tend to ignore negative externalities.¹²⁶

Externalities in electrical energy generation, transmission and distribution for example, include the loss of fisheries caused by the use of a hydroelectric dam, and the environmental damages caused by burning fossil fuels.¹²⁷ These externalities may lead to the “tragedy of the commons,” in which actors face an environmental incentive to misuse collective property.¹²⁸ Where negative externalities are unaccounted for, “low-priced power may not be the same as low-cost power,” because the

¹²⁰ See MARKETING PLAN, *supra* note 105, at 3.

¹²¹ See *id.*

¹²² See *id.* at 5.

¹²³ See *id.*

¹²⁴ Perkins, *supra* note 35, at 1033.

¹²⁵ An externality occurs where the cost of an action is not born by the entity engaging in that action. See Paul S. Kibel, *National Incentives to Protect Natural Resources: Preserving Their Plate in International Trade*, 29 ENVTL. L. REP. 10411 (1999) (discussing negative externalities).

¹²⁶ See Perkins, *supra* note 35, at 1033.

¹²⁷ See *id.* at 995.

¹²⁸ Garret Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968) (arguing that actors have incentives to waste or misuse community property).

true costs are not included in the price.¹²⁹ Some of the causes of externalities include: that consumers have limited knowledge, that individuals use a short time frame to assess costs, that it is difficult to price a problem that is geographically diffused, and that many environmental harms are uncertain.¹³⁰

California attempted to solve the problem of environmental externalities in providing consumers with knowledge and information about the external costs by subsidizing and marketing renewable resources,¹³¹ and by forcing electricity generators to display a "power content label" on mail and Internet advertising.¹³² If consumers know the possible costs and benefits of their behavior they are able to make rational decisions.¹³³ For this reason, information is a prerequisite for markets to run efficiently.¹³⁴ This type of mandatory labeling helps the market account for "otherwise hidden environmental side-effects."¹³⁵

Despite labeling, one of the problems the California residential market has encountered is false or misleading advertising relating to the environmental quality of the energy provided.¹³⁶ In an attempt to deal with misinformation, the Assembly passed Senate Bill 1305, which requires generators to report consumption and fuel use figures to the California Energy Commission (CEC).¹³⁷ The CEC may then certify a generator's mix as renewable.¹³⁸ Oddly, the provisions of SB 1305 apply

¹²⁹ See Perkins, *supra* note 35, at 993.

¹³⁰ See *id.* at 1035.

¹³¹ See *supra* note 100 and accompanying text.

¹³² The label, which is based on FDA food labels, is designed to serve as a quick and easy display for consumers to get information about the electricity they purchase. California Energy Commission, *California's Power Content Label*, at http://www.energy.ca.gov/consumer/power_content_label.html (last visited Oct. 27, 2000).

¹³³ See LARRY N. GERSTON ET AL., *THE DEREGULATED SOCIETY* 32 (1988).

¹³⁴ See Johnson, *supra* note 56, at 149.

¹³⁵ Perkins, *supra* note 35, at 1038 ("Mandatory electricity labeling, property done, is a clear case of regulatory intervention helping achieve the optimal allocation of social resources where the market itself would not have done so.").

¹³⁶ See Jeff B. Slaton, note, *Searching for "Green" Electrons in a Deregulated Electricity Market: How Green is Green?*, 22 – FALL ENVIRONS ENVTL. L. & POL'Y J. 21 (1998).

¹³⁷ S.B. 1305, 1997 Leg., Reg. Sess. (Cal. 1997), LEXIS 1997 Cal ALS 796. See Lori M. Rodgers, *Green Electricity, It's in the Eye of the Beholder*, PUB. UTIL. FORT., Aug. 1998, at 38 [hereinafter *Eye of Beholder*].

¹³⁸ See *id.*

only to potential and actual customers,¹³⁹ and not to “advertisements and notices in general circulation media.”¹⁴⁰

One attempt at a solution to the problem of misleading advertising came from the market. Center for Resource Solutions, a private non-profit organization, established the Green-e logo.¹⁴¹ The Green-e logo was based on the popularity and success of the recycling logo.¹⁴² A Green-e is a way to verify that energy is renewable and environmentally clean.¹⁴³ The requirements for Green-e certification are: (1) at least 50 percent of the electricity must be from renewable sources, (2) the electricity that is not from renewable resources must be from sources with reduced emission air pollutants, (3) the company generating the energy must sign a code of conduct and release environmental information, (4) the company must agree to undergo a review to ensure that their advertising contains no misleading environmental information, and (5) the company must agree to a third-party audit to ensure compliance.¹⁴⁴

California has made a step towards a cleaner environment by informing customers of negative environmental externalities, but they do not go far enough. Currently, generators are only required to disclose their fuel mix or their percentage of electricity generated using renewable resources.¹⁴⁵ A more complete plan would also include forced disclosure of emissions.¹⁴⁶ Moreover, in order to assure an informed consumer base, California should amend Senate Bill 1305 to remove the exception for “advertisements and notices in general circulation media.”¹⁴⁷

B. *Beyond Externalities*

However, even if the externalities are included in the cost of the energy, significant environmental goals may still not be reached. One of the major reasons is that each of these methods is designed to work on the macro-level and do not deal with the distribution of wealth or the

¹³⁹ See *id.*

¹⁴⁰ Cal. SB 1305 § 398.4 (b).

¹⁴¹ Center for Resource Solutions, *What is Green-e?*, at <http://www.green-e.org/what/index.html> (last visited Oct. 27, 2000).

¹⁴² See *id.*

¹⁴³ See *id.*

¹⁴⁴ See *id.*

¹⁴⁵ See Lisa Prevost, *Renewable Energy: Toward a Portfolio Standard?*, PUB. UTIL. FORT., Aug. 1, 1998, at 30.

¹⁴⁶ See *id.*

¹⁴⁷ See *Eye of Beholder*, *supra* note 137, and accompanying text.

distribution of pollution.¹⁴⁸ When there are gross disparities in wealth and purchasing power between communities and nations, cost-benefit market-based decision-making may distribute costs to the poor and benefits to the wealthy.¹⁴⁹ This is, in part, because where the individuals harmed by the pollution are dispersed or poor, they may not be in a position to bargain with the polluter.¹⁵⁰ In addition, a diverse group of individuals may have a more difficult time gathering information and the transaction costs of engaging in a legal battle may be prohibitive.¹⁵¹ Finally, while the market may under-compensate poor human communities, it ignores non-human communities.¹⁵²

C. *Renewables in the New Market*

Prior to restructuring, many environmentalists and utilities were optimistic that, despite potentially higher costs, the green energy market would still be competitive because industry, businesses, and residential consumers would be willing to pay a premium for green energy.¹⁵³ To determine whether consumers are willing to pay a premium for green electricity, it is important to look at the early results of restructuring, before a hot summer caused a spike in demand.¹⁵⁴

In the early days of restructuring, green energy appeared to have become the most popular way to market energy.¹⁵⁵ Residential competition in green power was described as "robust,"¹⁵⁶ and price-based competition as "not vigorous."¹⁵⁷ Energy service providers had difficulty

¹⁴⁸ See Johnson, *supra* note 56, at 116.

¹⁴⁹ See generally, United Nations Framework Convention on Climate Change, May 9, 1992.

¹⁵⁰ See Johnson, *supra* note 56, at 156.

¹⁵¹ See *id.*

¹⁵² See AL GORE, EARTH IN THE BALANCE 189 (1992).

¹⁵³ See Lee, *supra* note 100.

¹⁵⁴ This is because "on a hot summer day California simply cannot round up enough electricity to meet demand." See Brooks, *supra* note 91, at A1. Under such conditions any electricity will fetch a high price.

¹⁵⁵ See MARKETING PLAN, *supra* note 105, at 16 ("Given AB 1890's mandated 10 percent rate cut for residential customers of the IOUs over the next few years, 'greenness' is virtually the only distinguishing product variable affording ESPs [Energy Service Providers] and entrée to the residential market.").

¹⁵⁶ Ryan Wiser, et al., *California's Electric Market: What's in it for the Customer*, PUB. UTIL. FORT., Aug. 1, 1998, at 38, 44.

¹⁵⁷ *Id.* at 44.

distinguishing their product based on cost alone.¹⁵⁸ Therefore, one of the only ways into the market was through “premium-priced, value-added products” like green power.¹⁵⁹ For these reasons, “green power” appeared to be dominating advertising and marketing campaigns aimed at residential markets prior to the energy crisis.¹⁶⁰

However, just because “green energy” is marketed does not mean that the advertising was effective.¹⁶¹ Consumer groups complained that small businesses and residential customers were unable to take advantage of restructuring.¹⁶² Particularly perturbing to some is that while “green energy” was extensively marketed, only around 1 percent of residential customers switched electric providers.¹⁶³ This caused the Ralph Nader-led advocacy group, Public Citizen, to call the advantages of restructuring “largely a hoax on consumers.”¹⁶⁴ While some concern is warranted, it is important to remember, “[i]t was never intended that the success of California’s market be gauged by the number of customers who have ‘switched.’”¹⁶⁵ In fact, “the ‘diffusion’ of new products is rarely immediate, but typically starts slowly before accelerating.”¹⁶⁶ The slow pace of switching is comparable to the rate of switching after the breakup of AT&T.¹⁶⁷

While the residential market remains untapped, more governmental, industrial, and business customers have switched to “green power.”¹⁶⁸ Santa Monica was one of the first cities to switch to green

¹⁵⁸ See *id.* at 40.

¹⁵⁹ *Id.* at 42.

¹⁶⁰ See *id.* at 39.

¹⁶¹ See *Mix of Jeers and Praise for California’s First Anniversary of Retail Competition*, ELECTRIC UTIL. WK. 7 (1999), 1999 WL 12165320 [hereinafter *Mix*].

¹⁶² See *id.*

¹⁶³ See *id.*

¹⁶⁴ See *Consumer Group Calls California’s ‘Green’ Electricity A Hoax*, DOW JONES INT’L NEWS SERV., Oct. 22, 1998.

¹⁶⁵ See *Mix*, *supra* note 161 (citing Californian’s for Affordable & Reliable Electric Services (CARES)).

¹⁶⁶ Wiser, *supra* note 156, at 39.

¹⁶⁷ See *id.* at 39, 40 (“In the first year after the 1984 breakup of the Bell system, for example, AT&T’s share of the interstate telephone market declined by less than 4 percent, despite aggressive marketing on the part of its challengers.”).

¹⁶⁸ As of September 1999, around 16 percent of the industrial market had switched to new electricity providers. See *MARKETING PLAN*, *supra* note 105, at 17.

power.¹⁶⁹ Chula Vista has followed, and San Diego may be on the way.¹⁷⁰ Large businesses that have switched include Time-Warner,¹⁷¹ Kinko's,¹⁷² and Los Angeles Airport (LAX), which signed an agreement with the Los Angeles Department of Water and Power that will incrementally increase "green power" to 50 percent over a ten-year span.¹⁷³

The number of business and industrial customers switching to green energy bodes well for the future of the renewable resources market because as more consumers shift to "green energy," the price should drop, and thus become more competitive.¹⁷⁴ Early results suggested that renewable resources might already be competitive: since restructuring, California experienced extensive investment in "green energy," including proposals for \$1.5 billion in new clean and efficient power plants.¹⁷⁵ Before the summer price hikes, consumers were able to buy green power cheaper than power from older, dirtier sources.¹⁷⁶

While the market in renewable resources seems strong, it is difficult to assess the effect of the renewable resource incentives because very few customers switched services and it is difficult to determine how many, if any, customers switched to the renewable energy because of the incentives.¹⁷⁷ Given that California has a \$23 billion electric industry,¹⁷⁸ simple math suggests that \$540 million in subsidies over four years would not go very far, particularly when it cost 5.3 cents per kilowatt/hour for renewable energy compared to 2.5 cents per kilowatt/hour to use coal or

¹⁶⁹ See Michael Lohite, *Santa Monica plans to buy all 'green' power, aims to set example for nation*, San Diego Union-Tribune, June 2, 1999, at A6.

¹⁷⁰ See Lee, *supra* note 100.

¹⁷¹ See Press Release, Commonwealth Energy Procures "Green" Contract From Time Warner Communications (Nov. 11, 1999), at <http://www.powersavers.com/commonwealthnews/35press.htm>.

¹⁷² See Press Release, Greenmountain.com Signs Kinko's For Cleaner Electricity: Kinko's Leads Growing Business Trend, Supporting Renewable Energy by Switching to a Cleaner Energy Service Provider (Oct. 5, 1999), at http://www.eren.doe.gov/green-power/kinkos_1199_pr.html.

¹⁷³ The airports contend that this shift will not cost the airport any money, but they have budgeted \$252,500 per year just in case. See Press Release, Los Angeles World Airports Authorized to Sign 10-year Agreement with DWP to Purchase Green Power (Oct. 19, 1999), at http://www.lawa.org/html/LAWA_show_news.asp?news=39.

¹⁷⁴ See Lee, *supra* note 100, at R12 (citing Michael Feinstein, one of the Santa Monica city council members who voted for a "green energy" program).

¹⁷⁵ See Mix, *supra* note 161.

¹⁷⁶ See Asmus, *supra* note 98.

¹⁷⁷ See Mix, *supra* note 161.

¹⁷⁸ See Noceto, *supra* note 46.

oil.¹⁷⁹ Still, the subsidies were designed only to “make sure we didn’t throw out the baby with the bath water on the renewables.”¹⁸⁰

D. *Confirming Environmental Benefit*

Even if energy is accurately marketed as “green,” it may not actually have a positive environmental impact.¹⁸¹ One of the unique aspects of energy as a commodity is that it is indistinguishable—all generators place electricity into the same transmission grid.¹⁸² Green energy purchases may have no environmental impact “because the green energy has already been sold” into the pool.¹⁸³ If the renewable energy and the coal-based energy all go into the same pool, then how can consumers determine if they are getting green energy? How can consumers determine that the green energy will help the environment?

California found an elegant answer to the question in the structure of the new electric industry, which combines a pool-co system with a bilateral market.¹⁸⁴ A pool-co model serves as “an auctioneer, a power dispatcher and a bill collector.”¹⁸⁵ Pool-co structures have been opposed as “the very type of ‘command and control’ regulation which has contributed so significantly to . . . exorbitant electric rates.”¹⁸⁶ However, pool-co is viewed more technically efficient¹⁸⁷ and fair than bilateral trading.¹⁸⁸

Bilateral trading, on the other hand, allows for direct contracts between electricity generators and buyers.¹⁸⁹ This is based on the

¹⁷⁹ See Hazel, *supra* note 99, at 139.

¹⁸⁰ Joseph F. Schuler, Jr., *Looking Back on Deregulation: Four States Eight Views*, PUB. UTIL. FORT., Nov. 15, 1998, at 26 (citing CPUC Commissioner P. Gregory Conlon).

¹⁸¹ See Slaton, *supra* note 136, at 29.

¹⁸² See Asmus, *supra* note 98.

¹⁸³ See Slaton, *supra* note 136, at 29.

¹⁸⁴ See *infra* p. 10.

¹⁸⁵ Peter Navarro, *A Guidebook and Research Agenda for Restructuring the Electricity Industry*, 16 ENERGY L.J. 347, 389 (1995) [hereinafter *Guidebook*]. Note, however, that this model assumes the existence only of an ISO. California has the Power Exchange (PX) operate as the auctioneer and bill collector while the ISO serves as a distributor. See *supra* notes 84-85.

¹⁸⁶ See *id.* at 390.

¹⁸⁷ Unlike bilateral trading, a pool-co may allow for a more efficient use of transmission lines. See *id.* 389.

¹⁸⁸ Pool-co systems will “substantially reduce the gap between the average cost and marginal price that might otherwise occur” with bilateral trading. See *id.* at 390.

¹⁸⁹ See *id.* at 381.

"fiction" that the same energy a buyer purchases will be delivered through the transmission lines.¹⁹⁰ Bilateral trading is controversial, in part, because it "purports to create a point-to-point contract path for transmission, ignoring the dynamics of grid physics."¹⁹¹ Professor Charles Koch describes it elegantly: "the results of these characteristics can be envisioned by considering a person in Spain buying a cup of water from someone in the United States. The person in the United States must deliver the water by dropping it into the Atlantic Ocean; the purchaser dips a cup of water out of the ocean."¹⁹² Most significantly, bilateral trading has been criticized as "unfair" to small consumers and residential customers.¹⁹³

This hybrid system should allow consumers to reap the benefits of both models, but "California's creation of a separate ISO and PX, with mandatory use of a scheduling coordinator to schedule bilateral contracts with the ISO, is more complex than what most states are trying."¹⁹⁴ The complexity provides benefits, as consumers will get the fairness of a pool-co system and the "fiction" of direct contacts.¹⁹⁵

The California model provides increased fairness compared to bilateral trading alone, because bilateral trading provides a system in which larger consumers will be able to take advantage of the greater bargaining power and receive better prices.¹⁹⁶ Such a system may exacerbate environmental injustices because "in a free market, low-income communities will never have sufficient financial resources to buy clean air, clean water, and similar environmental and public healthy resources from wealthy communities or polluters."¹⁹⁷ The California

¹⁹⁰ See *id.* at 381-382.

¹⁹¹ *Id.* at 387.

¹⁹² Charles Koch, *Control and Governance of Transmission Organizations in the Restructured Electric Industry* (forthcoming 2000).

¹⁹³ Large customers will have more bargaining power and "more resources to fathom the market" and thus "better access to bargains than smaller customers." *Guidebook*, *supra* note 185, at 388.

¹⁹⁴ *Eve of Competition*, *supra* note 77, at 31.

¹⁹⁵ See *Guidebook*, *supra* note 185, at 394-95 (discussing the "[p]ros and [c]ons" of such a hybrid system).

¹⁹⁶ See *id.* at 388. But see, Hazel, *supra* note 94, at 140 (arguing that industrial customers, usually large consumers of electricity, have benefited more than residential customers from deregulation).

¹⁹⁷ Johnson, *supra* note 56, at 119-120 (arguing "environmental law developed and flourished precisely because economic theory, and the free market, did not address those social concerns").

system, by including pool-co characteristics allows for more transparent prices, and therefore more fairness, than a solely direct access system.¹⁹⁸

The hybrid also allows for the "fiction" of direct contacts through bilateral trading. The bilateral trading component of the California restructuring plan allows customers to know what they are paying for, rather than what they are getting.¹⁹⁹ A marketer selling "green energy" can purchase energy from the power exchange (pool) or directly from a generator. Energy bought from the Power Exchange is designated the "California Power mix," and does not count as "green energy" for California (or green-e) certification.²⁰⁰ Only a direct purchase from a generator that is verified as green by the State of California counts towards "green energy" certification.²⁰¹ While consumers can never know that they are consuming energy that was generated using renewable resources, consumers can be certain they are paying "green energy" companies to generate power.²⁰² Because this system makes bilateral trades with green energy generators a commodity, it also encourages further investment in green energy generation facilities.

This system is not perfect. According to the 1999 Power Content Label, 12 percent of the electricity sold to the power exchange was generated using "eligible renewables."²⁰³ What is to stop marketers from purchasing renewable energy, which would have otherwise been sold into the pool, and selling it for a premium?

The best solution is to institute a "renewable portfolio standard." A renewable portfolio standard is a market-based approach that is similar in design to the federal sulfur-dioxide trading program.²⁰⁴ A renewable portfolio standard establishes an across the board minimum amount of electricity that must be generated from renewable resources.²⁰⁵ Generators receive a credit for each kilowatt/hour of renewable energy sold to the pool, and can sell those credits to generators who do not reach the minimum.²⁰⁶

¹⁹⁸ See *Guidebook*, *supra* note 185, at 390.

¹⁹⁹ See *California's Power Content Label*, *supra* note 132.

²⁰⁰ See *id.*

²⁰¹ The California Power Exchange verifies trades. See *id.*

²⁰² See *id.*

²⁰³ See *id.*

²⁰⁴ See Prevost, *supra* note 145, at 30.

²⁰⁵ See *id.*

²⁰⁶ See *id.* at 30-31 (quoting American Wind Energy Association executive director Randall Swicher as saying "credits are central to the concept if you are intending to

Each state would have a difficult problem setting the initial percentage. If the percentage is too high, it could be difficult for green marketers to distinguish their product.²⁰⁷ If the percentage is too low, it fails to protect renewable resources. I believe that the solution is to set the initial percentage slightly below the status quo, to ensure that renewable resources do not switch from the pool.²⁰⁸

Renewable portfolio standards have three significant problems: they may be expensive, they may be unconstitutional, and they may be unfair to in-state businesses.

First, renewable portfolio standards may be expensive.²⁰⁹ Critics have estimated that federal renewable portfolio standards would increase costs by somewhere between 15 cents to 7 dollars a month per residential customer.²¹⁰ Most of the studies suggest that the increase in costs would be "minimal."²¹¹ These analyses may be flawed because the studies fail to account for risk.²¹² Because renewable resources have relatively stable year-to-year costs, the renewable resources are less financially risky than fossil fuel generators.²¹³ Including a low-risk, but higher-cost investment in a portfolio is a well-established way to maximize investments—similar to the stabilizing effect treasury bonds have on an investment portfolio.²¹⁴ Because of the positive effect renewable resources have on risk, a portfolio in renewable resources may actually reduce overall costs.²¹⁵

encourage compliance and encourage a market for these technologies through private-sector decision making").

²⁰⁷ See *id.* at 36 (arguing a renewable standard set close to "what the market will achieve on its own will make it easy for every energy provider to look green" making green power "a much tougher sell").

²⁰⁸ For California, the figure would need to be set near 12 percent according to 1998 figures. See *California's Power Content Label*, *supra* note 132.

²⁰⁹ See Prevost, *supra* note 145, at 32-34.

²¹⁰ See *id.*

²¹¹ See Shimon Awerbuch, *Getting It Right: The Real Cost Impacts of a Renewables Portfolio Standard*, PUB. UTIL. FORT. Feb. 15, 2000, at 44.

²¹² See *id.* at 45 (arguing that renewable resources are "devoid" of systematic risk).

²¹³ See *id.* at 50.

²¹⁴ See *id.* at 45 (arguing that renewable resources are like government T-bills which "improve efficiency. They raise expected returns at any given level of risk, even though their own expected return is lower").

²¹⁵ See *id.* ("Portfolio theory tell us that when properly constructed . . . [a portfolio consisting of] riskless renewables serves to lower overall generating costs.")

Renewable portfolio standards may also pose a constitutional problem.²¹⁶ Most significantly, if a renewable portfolio standard applied to out-of-state generators, it may be constitutionally impermissible because of the dormant commerce clause.²¹⁷ A renewable portfolio standard that applies just to in-state businesses, however, may be permissible as long as the program applies only to in-state businesses and only requires a mix of renewable energy, rather than attempting to set prices.²¹⁸ Unfortunately, if a renewable portfolio standard applies only to in-state businesses, it may be unfair.²¹⁹ Because in-state businesses would have to bear the financial burden of a renewable portfolio standard, the prices of in-state generated electricity could rise and become less competitive.²²⁰

I believe that the benefits of a renewable energy portfolio would outweigh the costs because consumers would be assured that the demand for renewable energy results in investment in new facilities, not merely a shifting of renewable resources away from the power pool.

VII. CONCLUSION

As states struggle to undo almost eighty years of state regulation and restructure their electrical utility industries, the potential environmental consequences of deregulation pose a significant problem. Electrical generation is a major emitter of various dirty gasses. The market poses two significant environmental problems: the market may not effectively include the costs of negative environmental externalities into the price of electricity, and the deregulation may pose a threat to the renewable resources industry.

California attempted to account for negative environmental externalities by a program of mandatory labeling, which would require

²¹⁶ See Steven Ferrey, *Renewable Subsidies in the Age of Deregulation*, PUB. UTIL. FORT., Dec. 1997, at 26-27 (contending that some portfolio standards may be unconstitutional while others may be permissible).

²¹⁷ A state may not impose a levy on the sales of goods or services sold through interstate commerce in order to subsidize in-state industries. See *id.* at 24.

²¹⁸ See *id.*

²¹⁹ See Prevost, *supra* note 145, at 35-36 (discussing the similar negative effect on competition in a deregulated environment of states having different air standards for electric generators).

²²⁰ See *cf.* Prevost, *supra* note 145, at 35-36 (citing New Jersey Public Service Electric and Gas Co. Vice President Tony Borden who stated "we don't think it's fair for other utilities to just grind it up a few notches on the output of their plants and send that power here when they don't have to meet the standards we do").

disclosure of a seller's electric mix. However, the California labeling program is incomplete because labeling is not required in mass media advertisements and because the program was limited only to fuel mix, and excluded emissions. Although mandatory labeling will help to incorporate externalities into price, merely including externalities will not solve the more troublesome problems of unfair distribution of pollution.

California attempted to foster a market in renewable energy by creating a \$540 million, four-year renewable resource subsidy, certifying green energy, and implementing an inventive hybrid restructuring system that allows for both pool-based and bilateral trading. The unique hybrid structure allows customers to know that the money they put into green energy would go to renewable energy generators while minimizing distributional unfairness. Unfortunately, early results were mixed. While companies were vigorously marketing renewable "green energy," very few residential customers switched to a new supplier. However, decreasing prices for green energy, the brisk pace of industrial switching and investments in renewable technology suggest a bright future.

Unfortunately, California failed to deal with one important problem, the possibility that consumers could pay for green energy without affecting the percentage of the electrical market that consists of renewable resources. To ensure that demand for green energy results in new investments in renewable technology, states should implement a hybrid system similar to California's, but with a renewable portfolio standard that would require that a certain percentage of the energy sold into the pool consists of renewable resources. A state with a strong mandatory labeling requirement, a carefully built hybrid restructuring system, carefully constructed short-term subsidies, and a renewable portfolio standard will go a long way towards minimizing the environmental consequences of electrical electricity deregulation.