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# Powering Up California: Policy Alternatives for the California Energy Crisis

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## Executive Summary

**M**any view California's electricity crisis as proof that electricity deregulation and indeed deregulation in general does not work. This is wrong. California did not deregulate its electricity market, but rather "restructured" it, requiring far more state intervention in electricity transactions than existed before. In doing so, the law created a micromanaged pseudo-market where suppliers of electricity have the ability and incentive to manipulate prices to their advantage, and utilities are forbidden to shop for better prices.

Now, with the centrally-planned and managed market that restructuring's architects created falling down like a house of cards, state leaders labor under the anxious eyes of state residents, and the curious eyes of the nation. They must contend with burning short-term issues as the state's utilities approach bankruptcy and the state grid flirts with blackouts. They also must develop a long-run vision and goals for the state's electricity market and formulate policies to get us there. We argue that the vision ought to be a competitive electricity market and the goals ought to be addressing immediate crises and long-term structural changes to move electricity generation in the state toward competition.

Unfortunately, state leaders are working in an environment of widespread misunderstanding, such as many mistaking the state's restructuring for deregulation. Clear and effective policies, and public support for them, depend on an accurate analysis of the issues at hand and alternatives available. To that end, this study examines California's electricity crisis from three directions, analyzing:

1. The most important aspects of what went wrong with the restructuring;
2. How deregulation of electricity has worked in other states, and even other nations; and
3. Gov. Gray Davis' action plan, point by point.

All three approaches shed distinct light on the policy options available to state leaders and what their likely outcomes might be, and all three lead us to make similar recommendations. Specifically, we recommend that state leaders:

1. **Articulate a Vision of Moving toward Competition That Will Alleviate Concern of Regulatory Intervention.** Too many state leaders are offering isolated policy ideas, would-be silver bullets, and conflicting proposals that fail to tell the market what direction policy is moving and what endstate is sought. Inflammatory, populist rhetoric by state leaders replete with threats of police action and takings only exacerbates uncertainty about California's electricity market. A clear and well-articulated endstate and set of goals will help policy makers formulate coherent and coordinated policy proposals and reassure the public and the market.
2. **Change the Law to Make the Power Exchange (PX) Voluntary.** A spot market is a necessary component of the overall electricity market. But centralized mandatory pools bring to the market perverse incentives and rigidities that create distortions and an inability to adapt to changing market conditions. As a voluntary spot market, the PX can become an independent competitive exchange and develop bidding rules that attract both buyers and sellers.
3. **Help Alleviate the Barriers to Long-term Power Contracts.** State leaders have acknowledged that the utilities need to add forward contracts to their portfolios to hedge against wholesale power price fluctuations but have not developed adequate policies to help make forward contracts happen.

*The governor's 14 January proposal to have the state enter into forward power purchase contracts is not wise. The state would be taking on futures risks with no experience or skills in evaluating those risks, and putting taxpayers at risk for its mistakes. One unavoidable lesson of California's electricity restructuring is that policy makers are ill-equipped to accurately predict how markets will evolve.*

*State leaders could achieve similar results by offering state guarantees to back utilities' initial forward contracts. This would alleviate the credit risk that is driving up forward prices offered to utilities, but dilute the taxpayer's risk and let the utilities negotiate the contracts with their experience, expertise, and incentive to prognosticate correctly.*

*State leaders should immediately convene a summit of leaders from state agencies and cities that generate electricity for resale to explore opportunities for cost-based forward contracts with the utilities. Government agencies control about one-quarter of the state's power generation and resell about 40 million mega watt hours (MWh) each year. Though their loads are very seasonal, if even 10 to 20 percent of that load could be forwarded to the utilities at cost, it would help push forward prices down and lever additional contracts.*

4. **Create a Plan for Phasing Out Price Caps.** A market cannot work without market prices—consumers don't know when to reduce consumption, and suppliers don't know when to increase production. In the short run, price caps only guarantee that utilities will continue to bleed red ink, suppliers will look for other markets in which to sell, and consumers will have no incentive to conserve electricity.

*Gradually, but predictably, raise the price caps. Convene a working group to create an initial schedule and revise the schedule periodically as market conditions change.*

*Tie rate cap increases to milestones in accomplishing other policy changes that increase competition and customer choice in the market and reduce utilities' market power. If other policy changes are successful in allowing market entry and new competitive choices for consumers as well as increased electricity supply, the timetable to remove price caps can be moved up.*

*Meanwhile, implement a system to guard against exercise of market power in utilities' customer charges. Until consumers have options in the face of high prices or bad service from utilities, regulatory oversight is necessary.*

*Encourage utilities to implement real-time pricing and metering so that consumers can adjust their use of electricity as prices change. Implementing real-time pricing and metering can also justify accelerating the schedule for removing price caps.*

5. **Accelerate Completion of New Power Plants with a Constructive Approach to Licensing and Enforcing Environmental Rules.** Restructuring spurred a level of investment in new power plants not seen in decades in California, but the permitting and construction process takes years longer than in other Western states. The problem is not as much the standards as how they are enforced. State regulators do not care if power plants get built, only that the standards are followed. State leaders must get state regulators on board with a new, constructive approach that works with developers to get power plants built without violating the standards.
6. **Integrate Municipal Utilities into the Market as the Market Becomes Competitive.** California's electricity market will not be truly competitive if customers in many of its largest cities are not allowed to choose their electricity provider. As restructuring moves forward, municipal utilities should be integrated into the competitive market. Over the long run, state leaders should challenge the federal government to end the inequities and wealth transfers that federal subsidies for municipal utilities and preference distribution of federal hydropower inflict on California residents.
7. **Do Not Dictate Utility Industry Structure.** Requiring the utilities to sell their power plants turned out to be a mistake when market conditions changed in ways policy makers did not predict. Forbidding utilities to sell power plants repeats the same error. Policy makers do not know the future of the electricity market and should not lock the utilities into any arbitrary structure based on the exigencies of the moment. Ensuring that utilities do not favor their own generation plants is better served by developing good rules to govern how customer choices are reflected in grid loads, by encouraging distributed generation, and ultimately competitive electricity distribution systems.

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## Part 1

# Introduction

Nothing draws the eyes like a car wreck, and so California’s electricity mess has attracted front-stage national attention. Since early summer of 2000 California has teetered on the brink of disaster. Opinion polls reflect a steep decline in Californians’ opinion of electricity deregulation—the percentage of people thinking deregulation was a mistake climbed from 33 percent in September 2000,<sup>1</sup> to 46 percent in October,<sup>2</sup> to 66 percent in January 2001.<sup>3</sup> Indeed, in the last poll, more than half the people surveyed said they did not even believe there was a shortage of electricity.

Many consider California a poster child for why electricity markets cannot and should not be deregulated.<sup>4</sup> But this is wrong for two reasons.

First, and foremost, California did not deregulate the electricity market, but rather “restructured” it, requiring far more state intervention in electricity transactions than existed before. In doing so, the law created a micromanaged market where suppliers of electricity have the ability and incentive to manipulate prices to their advantage, and utilities are forbidden to shop for better prices. It is simply not accurate to label California’s electricity reform “deregulation” when, for example:

- State regulators determine the prices customers pay for their electricity;
- Utilities are not allowed to seek out competitive contracts on their own, but must purchase electricity in a mandatory “power exchange” with bidding rules that require paying the *highest* bid price;
- The state determines what set of activities utilities undertake, such as requiring them to sell their electricity generation plants and buy more electricity through the power exchange;
- Price caps and onerous market rules discourage new competitors from entering the market; and
- New regulatory strictures created by the restructuring law constrain business decisions on such matters as plant maintenance and transmission lines.

The past year of price spikes and the looming threat of blackouts result not from “unfettered free markets,” but from the political micromanagement and market distortions that restructuring wrought.

Second, dwelling on California’s failures instead of on states who have had considerable success in deregulating electricity, such as Pennsylvania, is like skipping the Superbowl to watch the last place teams

<sup>1</sup> Opinion Research Corporation, September 18, 2000.

<sup>2</sup> Power Perception, October 26, 2000, [www.powerperceptions.com](http://www.powerperceptions.com).

<sup>3</sup> Mark Barabak, “Most Californians Think Electricity Crunch Is Artificial,” *Los Angeles Times*, January 7, 2001.

<sup>4</sup> Nancy Vogel, “Deregulation Foes Pointing to California,” *Wall Street Journal*, August 15, 2000, p.A3.

work on new plays. States and other entities that have made effective and efficient use of deregulation should be studied for successful strategies, rather than California's experience tarring deregulation with the brush of inevitable failure. Too much of the current public debate is focused on looking for easy answers, assigning blame, or trying to shift to others the costs of the current mess and of returning to reasonable prices. Public policy leaders, from Gov. Gray Davis and other Western state governors on down, are calling predominantly for regulatory solutions and blaming "unfettered free markets" for the current crisis, with little attempt to analyze the true causes or develop alternative approaches to resolving it. The state's electric utilities, which had a prominent role in crafting the restructuring, are now calling for re-regulation of the market.

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Fortunately, others realize that deregulation can and should work in California and the focus should be getting back on track. Daniel Kirshner, an activist with Environmental Defense and a board member of the Independent System Operator (which oversees the power grid), says that the short run will be painful and require astute policy making, but that competition can work if we give it time.<sup>5</sup> The staunchest defender of continuing to move California toward competitive electricity generation markets has been the Federal Energy Regulatory Commission. FERC orders on the California market have consistently been structured to bring about market pricing and competition, and the commission often states that market forces are in the long run far better able to resolve the problems California faces than a return to monopoly regulation.<sup>6</sup> FERC recognizes that creating a free market and then constraining it by intervention is the heart of the problem in the California energy crisis, and more intervention can only break the system further.

The focus of state policymakers should be on moving forward toward a competitive electricity market with reasonable prices and reliable service driven by consumer choices. Unfortunately, state leaders are working in an environment of widespread misunderstanding, such as many mistaking the state's restructuring for deregulation. Clear and effective policies, and public support for them, depend on an accurate analysis of the issues at hand and alternatives available. To that end, this study examines California's electricity crisis from three directions, analyzing:

1. The most important aspects of what went wrong with the restructuring;
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All three approaches shed distinct light on the policy options available to state leaders and what their likely outcomes might be, and all three lead us to make similar recommendations, which we recapitulate in the final section.

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<sup>5</sup> William Booth, "Mutiny on the Meter?," *Washington Post*, December 3, 2000, p.H1.

<sup>6</sup> See [www.ferc.fed.us/electric/bulkpower.htm](http://www.ferc.fed.us/electric/bulkpower.htm).

## Part 2

# Background—California Restructures its Electricity Market

In 1996, after considerable wrangling, the state legislature unanimously passed AB 1890 with great fanfare and rhetoric about removing the barriers and letting the market go. One can read the full bill, so we will not provide details here, but a few key aspects of the law are worth highlighting.<sup>7</sup> The law:

- Created the Power Exchange, a centralized market in which all exchanges between electricity generators (sellers) and utilities (buyers) must occur, governed by an appointed stakeholder board.
- Required the state’s investor-owned utilities (IOUs) to sell off their electricity generation assets, though environmental review and other problems have bogged down the sale of hydropower facilities.
- Provided for the IOUs to recover “stranded costs” (investments in plants and alternative energy required under law or policy but which would not be competitive assets in a deregulated market) from the ratepayers through a “competitive transition charge” included in each month’s bill.
- Mandated a 10 percent rate cut by all IOU’s and froze their rates, with the caps to be lifted for each utility once its stranded costs are paid off, or in 2002 in any event.
- Placed utilities’ transmission systems under the control of the Independent System Operator (ISO). Though transmission lines are still owned by the utilities, they are managed by the ISO under an appointed stakeholder board similar to that controlling the Power Exchange.
- Gave government-owned utilities the option to take part in competition and did not require them to buy and sell power exclusively through the Power Exchange.

The law was intended to bring about competition and customer choice in power generation (see Figure 1), but wound up a bundle of compromises, getting unanimous approval only by offering something for everyone (legislators, utilities, consumer groups, environmental groups, etc.), and creating a muddled, centrally planned market lacking equal opportunity for all participants, incentives for new firms to enter the market, and meaningful opportunities for customers to choose among service providers.<sup>8</sup>

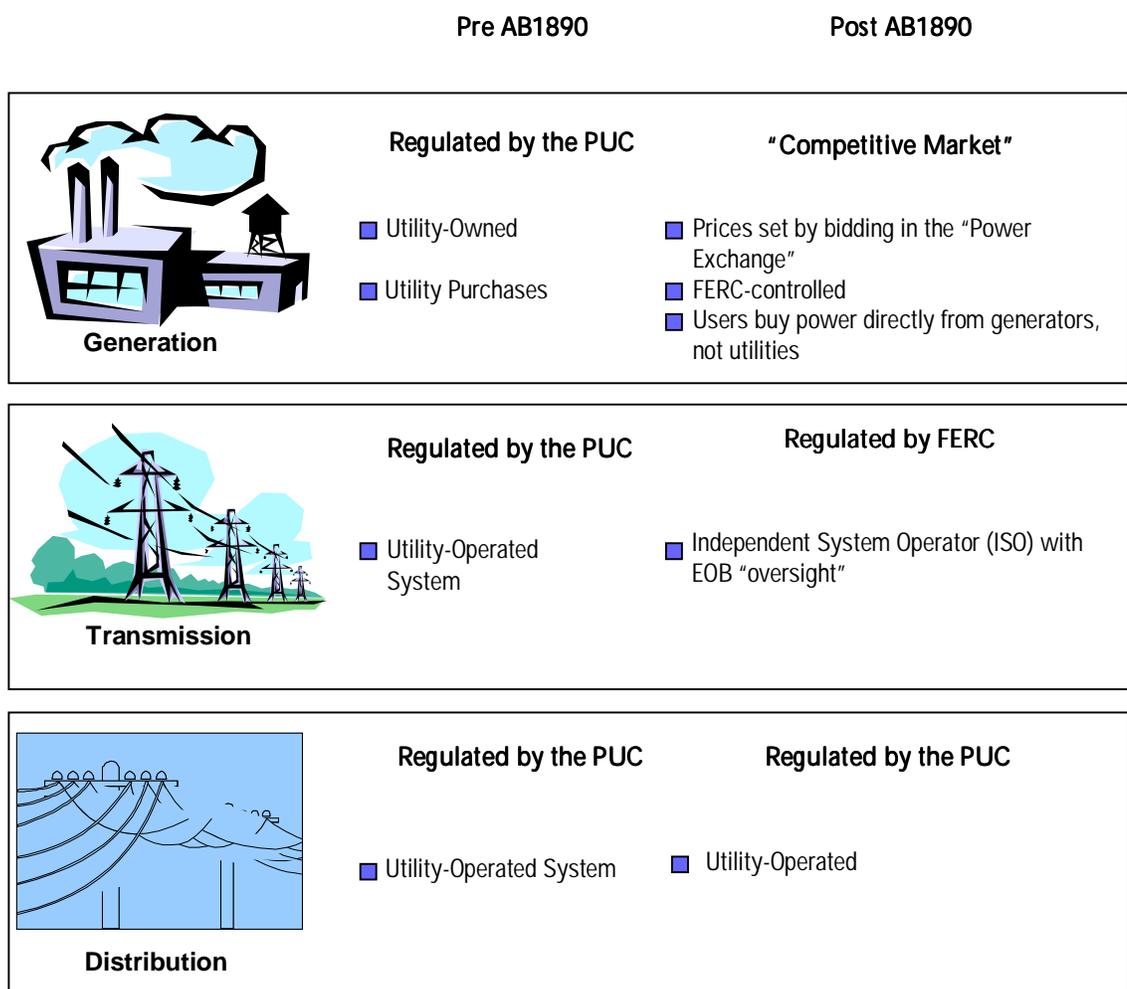
<sup>7</sup> See the bill at [www.leginfo.ca.gov/pub/95-96/bill/asm/ab\\_1851-1900/ab\\_1890\\_bill\\_960924\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/95-96/bill/asm/ab_1851-1900/ab_1890_bill_960924_chaptered.pdf).

<sup>8</sup> For more on how the bill was created and passed, see: Christian Berthelson, “Genesis of State’s Energy Fiasco,” *San Francisco Chronicle*, December 31, 2000; Richard Nemeec, “California Energy: Whose Job Is It, Anyway?,” *California Journal*, March 2000, pp.34-39; Rebecca Smith, “California Law Shows How Not to Structure Utility Deregulation,” *Wall Street Journal*, November 27, 2000, p.A1; and Daniel Weintraub, “Power Lines Lead to Deregulation’s Champion,” *Orange County Register*, August 9, 2000.

For a few years these flaws caused not catastrophe but only disappointment. Virtually no new firms entered the market, so few customers switched providers, and prices did not change much beyond the mandated 10 percent rate cut. Indeed, most people seemed to forget California had restructured the electricity market.

But the summer of 2000 changed that. For four years electricity demand had grown 14 percent with the state’s population and the increasingly digital economy. Meanwhile, electricity supply had limped along to a mere two percent growth. The state had become a big energy importer, bringing in 20 percent of its electricity from neighboring states.

**Figure 1: Regulation Before and After Restructuring**



Source: California Public Utilities Commission, *California’s Electricity Options and Challenges*, [www.cpuc.ca.gov/published/report/gov\\_report.htm](http://www.cpuc.ca.gov/published/report/gov_report.htm).

In 2000, as temperatures started to rise, demand for electricity threatened to outstrip supply, and flaws in the system created by restructuring became gaping fractures, unleashing a flood of woe. Wholesale prices rose dramatically, causing radical price spikes in San Diego where retail prices were no longer capped. Caps were

quickly re-imposed in San Diego, but as the utilities were forced to pay far more for electricity than they were allowed to charge customers, their losses began to rack up to billions of dollars. Meanwhile, with prices capped, customers had no incentive to conserve electricity and thus moderate demand, and the state began to flirt with blackouts. Winter failed to bring sufficient relief, and California's crisis has continued to grow.

Meanwhile, other states in the nation deregulated their electricity markets with far greater success. The Center for the Advancement of Energy Markets has ranked state deregulation plans according to how effective they are in transitioning from monopoly to competition and customer choice.<sup>9</sup> In July 2000 they **ranked California 16<sup>th</sup> in the nation**, with many states ranking lower only because their deregulation plans were incomplete.

At the top of the rankings is Pennsylvania, where customers were given meaningful choices between electricity providers, new companies were encouraged to enter the market, prices have gone down for those who shopped for price, and "green power" has achieved a respectable market share. Most importantly, Pennsylvanians reveal in surveys that they are happier with their electricity service than most people in the nation. Deregulation—done right—does work and does benefit consumers.

Lawmakers in other states would be wise to learn at least as much from Pennsylvania as they do from California. Nonetheless, there are some specific lessons from California's restructuring that everyone should understand.

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<sup>9</sup> Ken Malloy and Mohammad Amer, *Retail Energy Deregulation Index, 2000: A Scorecard for Measuring State Progress on Electric Restructuring*, Center for the Advancement of Energy Markets, [www.caem.org](http://www.caem.org).

## Part 3

# What Went Wrong? Dissecting California's Restructuring Plan

The 1996 restructuring bill mingled regulatory and market theory with political imperatives, creating a system that was neither deregulated nor the standard regulated monopolies. Instead of removing controls on the generation of electricity and creating some rules of the road to allow competitive markets to develop, the restructuring sought to create an entire market structure, from the top down, and to specify how participants could interact within the market structure.

As a complete discussion of restructuring elements that have proven problematic, and in some cases disastrous, would be tedious, we will explore just five fundamental elements. That five substantive problem areas can be singled out is a lesson in itself—something as complex and dynamic as a competitive market cannot be planned and packaged in a piece of legislation. Attempts to repair the mistakes of restructuring can easily fall victim to the same hubris, rather than focusing on simplifying the rules and minimizing interventions and distortions so that market forces can work. Examining these five problem elements of the restructuring demonstrates a cataclysm of unintended consequences and an overall inability of the structure to adapt to changing market conditions.

## A. Planning the Market—The Independent System Operator and Power Exchange

Participants who crafted California's electricity restructuring did not have much faith in the market process. Legislators were concerned about loss of control over the system and that customers would not understand it. The utilities came from a regulated monopoly culture and were not used to operating in competitive markets. Consumer groups are perpetually suspicious of market power and abuses by corporations. Environmental groups did not want customer choices to undermine existing conservation and renewable resource mandates. For all of them, restructuring meant developing a set of specifications for the market that would achieve the new, vaguely defined objective of competition, while retaining those elements of the old system deemed imperative. But thinking about the market as a set of specifications, rather than the process that it is, tends to mold changes into the old way of doing things. Consider the U.S. Army's llamas.

In the early 1940s, so the story goes, the army wanted a dependable supply of llama dung, as required by specifications for treating the leather used in airplane seats. Submarine attacks made shipping llama dung from South America unreliable, so the army attempted to establish a herd of llamas in New Jersey. Only after

the attempt failed did anyone question the specification. Subsequent research revealed that the U.S. army had copied a British army specification dating back to Great Britain's era of colonial expansion.

The original specification applied to saddle leather. Great Britain's pressing need for the cavalry to patrol its many colonies meant bringing together raw recruits, untrained horses, and new saddles. The leather smell of the new saddles made the horses skittish and unmanageable. Treating the saddle leather with llama dung imparted an odor that calmed the horses. The treatment, therefore, became part of the leather's specification, which remained unchanged for a century.

The lesson is: If someone says, “We’ve always done it that way,” watch out for llama dung.

A competitive order arises spontaneously, and not from the result of planning or regulatory intervention. Conversely, ordered competition reflects an attempt to engineer a market from the top down. “The purpose of a competitive order is to make competition work; that of so-called ‘ordered competition,’ almost always is to restrict the effectiveness of competition.”<sup>10</sup> California’s electricity restructuring embraced ordered competition most vividly by establishing a mandatory, centralized market for all exchanges (the Power Exchange), by vesting complete control of the grid in a centralized body (the Independent System Operator), and by rejecting the messy, uncontrollable practice of bilateral forward (long-term) contracts between utilities and power generators.

### 1. The Power Exchange

The California Power Exchange (CalPX or PX) describes itself in its primer.

*PX conducts daily auctions to allow the competitive trading of electricity in the forward (Day-Ahead and Day-Of) markets. CalPX accepts demand and generation bids (price, quantity) from its participants, and determines the market clearing price (MCP) at which energy is bought and sold. In addition, CalPX serves as a scheduling coordinator and submits balanced demand and supply schedules for successful bidders to the ISO, along with:*

- *Ancillary service bids to maintain system reliability.*
- *Adjustment bids, which are decremental/incremental bids to relieve or eliminate congestion on the transmission grid.*
- *Supplemental energy bids, which are used by the ISO to match loads and resources on a real-time basis.*

*CalPX also performs settlement functions with the ISO, CalPX participants (including utility distribution companies), marketers, aggregators (non-utility retailers) and other scheduling coordinators. “Settlement” is the process of financial settlement for energy bought and sold. CalPX collects and disperses monies based on settlements and all transaction costs incurred with the ISO and CalPX.<sup>11</sup>*

Table 1 outlines the responsibilities of the participants in the PX. Two characteristics stand out about the rules for the PX that restructuring put in place. First, it is a mandatory centralized market, with the private

<sup>10</sup> Friedrich A. von Hayek, *Individualism and Economic Order*, (Chicago: University of Chicago Press, 1948), p.111.

<sup>11</sup> California Power Exchange, *California’s New Electricity Market—The Basics: How the California Power Exchange Works*, December 1999, p.3, [www.calpx.com/news/publications/primerv6.doc](http://www.calpx.com/news/publications/primerv6.doc).

utilities required to buy and sell all of their power through the PX, and second, the bidding rules created a market-clearing price that aggregated prices upward.

CalPX	Participants
<ul style="list-style-type: none"> <li>▪ Receive demand and supply bids.</li> <li>▪ Determine market-clearing price (MCP).</li> <li>▪ Determine zonal prices (MCP adjusted for congestion).</li> <li>▪ Serve as scheduling coordinator for participants.</li> <li>▪ Settle trades in CalPX markets (settlement).</li> <li>▪ Prepare and send invoices.</li> <li>▪ Operate funds transfers for settlement and billing.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Submit demand or supply bids that are complete and on time.</li> <li>▪ Comply with operational instructions provided by CalPX or the ISO.</li> <li>▪ Provide end-user-metered data as required by the CalPX Tariff.</li> <li>▪ Promptly meet all obligations—operational and financial—arising from market participation.</li> </ul>

Source: California Power Exchange, *California's New Electricity Market: The Basics: How the California Power Exchange Works*, December 1999, p.17.

The market was mandatory for several reasons.<sup>12</sup> Restructuring architects wanted to be certain utilities did not tie themselves down with long-term contracts that would lock in current prices when everyone expected prices to fall. Regulators were also concerned that the market be transparent—everyone can see what is being bid and bought in the PX. They worried that a market where utilities could make contracts directly with power generators or could use alternative markets would make it difficult for consumers to see how power was being exchanged in the market. Unfortunately, reality has not lived up to the ideal. Data on bids and transactions take months to become available, and the information is often incomplete or aggregated. Nothing in the data on the PX Web site helps consumers to choose among power providers.

The second noticeable fact about the PX—its bidding rules—arose from concerns similar to the first. In order to provide the transparency regulators sought, they enacted bidding rules to create a market-clearing price. Think of this simplified version of the rules. Suppose there are 12 power generators, each of which provides 10 units of electricity. Each day they bid what price they want to be paid for their 10 units of electricity the next day. Suppose total demand for electricity is 100 units. The PX then starts with the lowest bid and adds up the bids until it reaches 100 units (10 power generators). Since the PX governs all transactions between the utilities and generators, and pools them, the market-clearing price is the one that delivers all 100 units demanded—which is the *highest* of the 10 selected bids (if the price offered was lower, the 10<sup>th</sup> generator would not sell, and total demand would not be met). All sellers receive this highest bid, market-clearing price, and the utilities have to pay that price for all their electricity.

As long as supply is greater than demand, bids under this rule should be competitive. The two highest-bidding power generators' bids are rejected, so the generators have an incentive to bid competitively. When the PX was created, everyone assumed supplies of electricity would grow faster than demand as competition stimulated new entry into the market. But, due to other elements of the restructuring and existing regulations, market entry and increasing supplies did not materialize (more on this below). So, in our simple story, total demand rose to 120 units of electricity. Once that happened, power generators soon realized that all of their bids would be accepted *no matter what price they asked*. With a myriad of forces at work driving up

<sup>12</sup> For background on the PX rules rationale, see: Rebecca Smith, "Lack of Cooperation Hurts California Power Bid," *Wall Street Journal*, January 10, 2001, p. A1; "Energy Mess Will Get Worse—Why the Lights are Flickering All Over California," *Sacramento Bee*, December 24, 2000; and Howard Fine, "Power Exchange: A Lightning Rod for Blame," *Los Angeles Business Journal*, November 27, 2000, p.1.

wholesale electricity prices (again, more on this below), PX bidding rules allowed, and even encouraged, power generators to charge very high prices and make very large profits.

Imagine if you were not allowed to purchase food anywhere else (and not even to have your own garden or farm animals) but had to buy your groceries from a “grocery exchange” where the food growers and manufacturers set whatever prices they wanted each day. As long as there is more food than people want to buy, prices would be competitive and people would get food—though they might not be happy with having their grocery options so tightly controlled. But if more people moved into the area, or everyone just got hungrier, and demand began to clear the shelves every day, the food producers could begin to charge whatever they wanted, and people would have to pay. The rules of this game give consumers no other place to go for food and forbid them to bargain directly with food producers for a better deal.

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The system was very brittle and could not adapt to changing market conditions, especially to demand growing to match or even exceed supply.

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Such a market doesn’t make sense to anyone, but in the murk of restructuring it seemed like a good idea, allowing competitive exchanges but also retaining central control and oversight of all transactions. But the system was very brittle and could not adapt to changing market conditions, especially to demand growing to match or even exceed supply. At this point, there is no competitive pressure to keep bid prices down, and the only alternative to paying power generators whatever they want is blackouts or regulatory controls on what the generators can charge, retreating to a regulated market.

State and federal policy makers are wrestling with how to modify the PX to solve its problems without eliminating it. A competitive and efficient electricity market does require something like a PX, a place to make real-time (spot) transactions at minimal transactions costs. The problems arose when the PX was made a mandatory, all-encompassing pool instead of a voluntary spot market.

The Federal Energy Regulatory Commission (FERC) in its December 15, 2000 order ended the mandatory PX buy-sell requirement for California’s private utilities.<sup>13</sup> According to the Public Utilities Commission, it cannot follow suit until there is a change in legislation.<sup>14</sup> The PX itself has sued FERC for this and other elements of its order, arguing that FERC is wrong to order load removed from PX exchanges, that the PX must be a monopoly to work properly, and that converting to a different system would cost more money and waste the \$100 million spent creating the PX. FERC replies that the PX is “free to reconstitute itself as an independent exchange with no regulatory mandated products and offer the services needed by market participants.”<sup>15</sup> But the PX insists that it must be a monopoly to function efficiently.<sup>16</sup>

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<sup>13</sup> Federal Energy Regulatory Commission, *Order Directing Remedies for California Wholesale Electric Markets*, (Washington, D.C.: FERC, December 15, 2000), p.4, [www.ferc.fed.us/electric/cal1215order.pdf](http://www.ferc.fed.us/electric/cal1215order.pdf).

<sup>14</sup> *Ibid*, pp.35, 39.

<sup>15</sup> *Ibid*, p.36.

<sup>16</sup> Follow the back and forth in the PX filing ([www.calpx.com/2875-Emergency%20Motion%20and%20Petition%20for%20Stay-9th%20Cir.doc](http://www.calpx.com/2875-Emergency%20Motion%20and%20Petition%20for%20Stay-9th%20Cir.doc)), FERC’s reply ([www.ferc.fed.us/electric/bulkpower/finalca1.pdf](http://www.ferc.fed.us/electric/bulkpower/finalca1.pdf)), and the PX’s counter-reply ([www.calpx.com/2884-DEG-Answer%20to%20FERC.doc](http://www.calpx.com/2884-DEG-Answer%20to%20FERC.doc)).

Policy makers should embrace FERC's approach. There is a necessary role for a voluntary spot market, a role the PX can fill.<sup>17</sup> As a voluntary market, the PX would have to adopt bidding rules attractive to both buyers and sellers, not ones that give sellers discretion to bid as they please while the buyers have no choice but to take what is bid. Real competition will provide better oversight of transactions than does the current centralized system.

## **2. Forward (Long-term) Contracts**

The alternative to buying power in real time in the spot market is to contract for delivery of electricity at a specified price over a specified period—forward contracting. Forward contracts lock in a price, so if prices go up, the buyer has made a good deal, but if prices go down, the seller made the better deal. But both buyers and sellers often prefer to have some forward contracts to balance the risks of the spot market—uncertainty and volatility.

By requiring utilities to buy all of their power in the PX, the restructuring bill did not at first allow the utilities to enter into forward contracts. In 1999, the PX began to offer forward contracts, but the PUC would not allow the utilities to contract forward for more than five percent of their load.<sup>18</sup> The PUC also would not allow the utilities to form forward contracts directly with power generators (bilateral contracts), but limited them to the PX block forward contracts.

Only in August 2000, well into the summer crisis, did the PUC relent and allow the utilities to seek bilateral forward contracts outside the PX. In December, FERC released the entire 40,000 megawatt (MW) load in California from the mandatory PX, granting utilities discretion to contract forward as much of their load as they deemed necessary through the PX block forward contracts or bilateral forward contracts.<sup>19</sup> However, the PUC has yet to relax its restrictions on utilities' forward contracts.<sup>20</sup>

The resistance to allowing forward contracts has several rationales. The arguments against forward contracting, especially bilaterally, are the same as those in favor of a mandatory PX. First, since the PX was intended to offer the perfectly planned market for real-time exchanges, there was deemed to be no need for forward contracts. Restructuring anticipated plentiful supply and a competitive spot market that would drive prices down. Allowing utilities to forward contract would probably mean they would lock themselves into high prices and the state would wind up having to let them pass those higher prices on to customers. Second, bilateral forward contracts would not be transparent to consumers as are PX transactions, and thus would not feed into their choices.

But this is static thinking. As customers are given real choices of electricity suppliers, utilities have to factor those choices into their forward contracts as well as spot purchases. Utilities are obliged to accommodate the supplier choices of the customers in their distribution area. If they wind up with high-price contracts or too much load forward, there is no regulatory failure, just a mistake by the utility, for which their shareholders

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<sup>17</sup> After some transition period, it would make sense for the state to privatize the PX, selling it to its employees, or auctioning it off.

<sup>18</sup> Roughly 3,000 MW and 5,000 MW for PG&E and SCE respectively. Department of Market Analysis, California ISO, *Report of California Energy Market Issues and Performance: May-June, 2000*, August 10, 2000, p.22.

<sup>19</sup> Federal Energy Regulatory Commission, *Order Directing Remedies for California*, pp.4, 35ff.

<sup>20</sup> Gov. Davis' plan for dealing with the crisis calls for utilities to shift load to forward contracts, so it is likely that legislation or a new PUC ruling will soon move state rules the direction FERC has taken.

must pay. There is no need for a regulated pass through. And customers don't care about how the utilities manage their load; they will shop for price and ancillary services.

Severin Borenstein, director of the University of California Energy Institute and board member of the Power Exchange, argues that forward contracts are a crucial part of the solution to California's troubles.<sup>21</sup> They are no panacea. Average forward prices in the long run: a) are not lower than spot prices (except to the extent forwarding limits market power in the market), and b) do not solve mismatches between supply and demand. Rather, Borenstein points out, forward contracts prevent large fluctuations in customer bills as the spot market fluctuates and encourage standby capacity by giving utilities a mechanism to recover capital costs.

Borenstein goes on to argue that forward contracts will be far more effective if customers are using real time pricing (furnished with the knowledge of how much power they are using, and at what price at any given time), which lowers spot-market demand and thus lowers forward prices.<sup>22</sup> He points out that policy makers credibly committing to real-time pricing will drive down forward market prices. Others make similar suggestions, including the added twist of devising forward contracts where customers could sell back their contracts at the spot price if there is a shortage.<sup>23</sup>

Alas, once California policy makers saw that forward contracts exist to hedge against the kind of price spikes the state saw over the last year, it was too late. In September Pacific Gas & Electric (PG&E) and Southern California Edison (SCE) had forward contracts for only about three or four percent of their load.<sup>24</sup> Forging forward contracts had become a difficult task for a whole host of reasons.

First, the market was pumped up and forward prices were pumped up to very high levels. Market prices were so high that forward contract prices seemed likely to lock utilities into abnormally high prices. Spot prices were expected to fall as the weather cooled and as state officials sought federal price caps on the wholesale market. Even if utilities expect high spot prices over the next few summers, they have to worry about what the regulators will say. The PUC deems a forward contract to be unreasonable (and thus illegal) if the spot market price falls more than five percent below the contract price, which gives utilities little incentive to favor forward contracts over spot purchases.<sup>25</sup>

Second, power generators are hesitant to forward contract with California's utilities—they are very risky partners right now. For one thing, the utilities are going bankrupt and may not pay their debts next month, let alone five years from now. In addition, there is a lot of regulatory uncertainty in the state. With proposals for additional restructuring, and additional regulations, power generators risk regulatory termination of their contract. With no sign that regulatory restrictions on adding additional supply will change, power generators risk locking themselves today into contracts when prices might go even higher in the future.

Third, utilities might have second thoughts about contracting forward with generators threatened with having their plants expropriated by the state.<sup>26</sup> Again, regulatory risk pushes up forward contract prices.

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<sup>21</sup> Severin Borenstein, "The Trouble with Electricity Markets (and Some Solutions)," Program on Workable Energy Regulation Working Paper PWP-081, January 2001, pp.7ff.

<sup>22</sup> Ibid, p.14.

<sup>23</sup> Sally Hunt, "Restructuring the Electric Industry in the USA," National Economic Research Associates, January, 2001, p.8.

<sup>24</sup> Department of Market Analysis, *Report of California Energy Market Issues*, p.22.

<sup>25</sup> Federal Energy Regulatory Commission, *Order Directing Remedies for California*, p.37.

<sup>26</sup> As Gov. Davis threatened in his January 9, 2001 state-of-the-state speech.

Fourth, while California utilities were prevented from entering into forward contracts, utilities in other Western states, and non-utilities in California were not. Power generators have already forwarded much of their load—Duke Energy forwarded 90 percent of its load to a non-utility,<sup>27</sup> and Reliant Energy has forwarded about half of its load to out-of-state customers.<sup>28</sup> California utilities are left to choose from the power generators' less efficient generation.

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## Utilities might have second thoughts about contracting forward with generators threatened with having their plants expropriated by the state.

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Policy makers have a few options to help break this logjam and allow some progress in forward contracts in spite of unfavorable market conditions. To begin with, state leaders can do much to alleviate the regulatory risk that is driving up forward prices. A well-articulated and committed plan to phase out the most interventionist aspects of restructuring and redirect the state in the direction of competitive markets could reassure credit market and power generators that utilities will not go bankrupt and change power generators' incentives to contract forward. The policy recommendations contained in this report include specifics on the steps state leaders need to take to restore market confidence.

In addition, the state might consider putting its money where its mouth is by offering state-backed credit in support of some initial forward contracts. Normally, government credit for private purchases in a risky market is bad policy. But this is not a normal situation. In the first place, if the utilities go bankrupt, the state will wind up stepping in to avoid blackouts, and in such an emergency situation the costs to taxpayers would likely be extremely high. Also, the state does share responsibility with the utilities for the current crisis, so some state backing of solutions seems appropriate. Indeed, putting some of the state's budget surplus at risk may motivate state leaders to adhere to policies that will ensure a solvent and functioning market in the long run.

Finally, state leaders should explore the role that municipal utilities and state agencies might play in initial forward contracts. Munis and state agencies have made tremendous profits selling excess power to the PX over the last year. For the time being, munis do not compete with the state's private utilities, and neither do the non-utilities. Their mission of serving the public in some fashion, and their freedom from competition, means it will not harm them to ask that they contract forward with the private utilities to jump-start forward contracting in the market and create some competitive pressure on forward prices. In 1999 these government bodies resold over 40 million MWh, and nearly half came from non-utilities. A lot of that resold power is seasonal and cannot be offered year-round. But PG&E and SCE have forwarded only a small share of their load so far—1,800 MW and 3,500 MW respectively as of September.<sup>29</sup> If among the government generators in the state is 10,000 MW (from 40 million MWh for resale) or more that could be forwarded, the volume of the private utilities' forward loads would nearly triple—a good jump-start.

There are certainly incentives for government generators to resist forwarding—the spot market offers the opportunity to maximize their profits from resale of electricity, and they have no downside risk to hedge against by forwarding. State leaders will need to gather city and agency leaders with the private utilities and

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<sup>27</sup> Christina Cheddar, "Tales of the Tape: It's a Wild West for Power Traders," Dow Jones News Service, January 5, 2001.

<sup>28</sup> John Stout, vice president of the Southwest region for Reliant Energy, in "Energy Mess Will Get Worse—Why the Lights are Flickering All Over California," *Sacramento Bee*, December 24, 2000.

<sup>29</sup> Department of Market Analysis, *Report of California Energy Market Issues*, p.22.

urge them into a serious exploration of potential forward contracts, and pressure government generators to accept them at reasonable prices.

## B. Price Controls

Prices are perhaps the most fundamental building block of markets, the mechanism by which information is carried through the economy, encapsulating data about costs and tradeoffs so vast that even today's computers cannot predict price changes. Put simply, prices help tell consumers when it makes sense to consume more or less of a good, and tell suppliers when to invest more or less in production.

Unfortunately, cutting and capping rates is almost irresistible to politicians as they craft restructuring. It offers oft-illusory stability during the transition to competition, as well as an immediate "accomplishment" politicians can point to. "There is a case for protecting domestic households from price volatility until a genuinely competitive retail market emerges. However, the zeal with which politicians have introduced arbitrary price 'rollbacks' suggests they may turn any exception into the rule."<sup>30</sup>

The architects of California's electricity restructuring were quick to jump on the bandwagon, severing prices from the market. The law mandated an across-the-board 10 percent rate cut, and created a Competitive Transition Charge (which came close to offsetting the cut) to finance paying down utility stranded costs.<sup>31</sup> The caps on retail rates were set to stay in place for each utility until it had paid off its stranded costs, or 2002, whichever came first.

These price controls are the cause of many of California's current problems. They: a) discouraged new firms from entering the California market so customers have never really been offered meaningful choices among electricity providers; b) reduced incentives to invest in new electricity generation plants in the state or new transmission lines to import electricity, either of which might have alleviated the current electricity shortage; c) blocked all signals about electricity shortages from reaching customers, leaving them no incentive for voluntary and gradual demand reductions that might have minimized the current crisis; and d) created a wedge between wholesale and retail prices that led to billions of dollars in losses by state electric utilities.

By cutting rates 10 percent from the start, the law set a barrier to entry by new firms. Most people will not switch to a new electricity provider unless they are offered a significant price reduction. With rates already cut 10 percent, entering companies would have to offer electricity for nearly 20 percent less than the pre-restructuring price to get many customers, and that is hard to do right off the bat. Even worse, the law required new companies selling electricity to customers to charge the Competitive Transition Charge to help pay down the stranded costs debt. That added to the new sellers' costs, making it even more difficult to find a way to offer customers dramatic enough rate reductions to persuade them to switch companies.

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<sup>30</sup> *The Economist*, August 26, 2000, p.16.

<sup>31</sup> Stranded costs are debt remaining on facilities for which the cost of producing electricity is higher than the allowable retail rate charge, and contracts with third-party generators where the price paid is higher than the allowable retail rate. Since decades of public policy had driven many power plant investment decisions, and mandated many of the third-party contracts, policy makers decided that the utilities should be allowed to recover those costs as part of the transition to competitive markets. The state then floated bonds to pay of a portion of the stranded costs, with the utilities paying back the state for their portion according to a set formula. For a discussion of the stranded cost issue, see Timothy Brennan, et al., *A Shock to the System: Restructuring America's Electricity Industry* (Washington, D.C: Resources for the Future, 1996), ch.6.

The result protected the incumbent utilities, as few new companies chose to enter California’s electricity market. Customers, expecting “deregulation” to bring a flood of marketing mailers and dinner-time solicitation calls to switch electricity providers, are rarely offered any choices, and today still get their electricity from the same company with the same service options as they always have. As of June 2000, only about 2 percent of customers in the state had switched providers, and many of them were industrial and large commercial sites.<sup>32</sup> But even large businesses had trouble finding electricity choices in California. Hewlett-Packard sought an alternative supplier for its buildings, a deal worth \$50 billion, and they got only two bids, both from companies HP had no experience with.<sup>33</sup>

Price caps also discouraged investment in new power plants in California. In a free market, as demand expands, prices will rise until supply expands as well. The rising prices tell producers it is time to add capacity and give the ones who best estimate future demand better returns on their investments. But with price controls in place, no such signals are sent to suppliers. Instead, they can invest the same money in building power plants elsewhere where there are no price caps to minimize their return on the investment. And electricity plants have unique risks—some plants will not run all year, only going online when demand reaches high levels. Those plants have to cover a whole year’s costs (fixed and variable) in those limited hours of operation, and prices must go up at such times of high demand to balance things out.<sup>34</sup> But that balance is knocked flat by controls that don’t allow prices to fluctuate with supply and demand.

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In simple terms, the reason for the current electricity crisis in California is that demand grew while supply remained flat. As demand exceeded supply and prices were capped, limiting conservation, the state started to experience shortages. Prices that rise as demand rises not only signal suppliers to add production but also tell consumers they may want to consume less. Population and job growth drive up the total statewide demand for electricity, even if homes and businesses are each using about the same amount they always did. If that makes prices go up, consumers will look for ways to conserve until supply increases and brings prices back down.

Most people understand disjointed parts of this story—that rising demand drives up prices and that reducing demand will drive prices back down—but tend to ignore or dislike the consumer-response part of the story. Thus we have seen a profusion of news articles, media reports, and opinion pieces over the last year emphasizing the need to conserve power, but very rarely pointing out that customers who see their prices go up have the best incentive to conserve. Indeed, policy prescriptions aimed at conservation tend to emphasize subsidies, or bribes, to get consumers to conserve. State Sen. Debra Bowen, chair of the Senate Energy, Utilities and Communications Committee, proposes “loans or outright grants to residents and business owners so that they can purchase more energy-efficient appliances and systems.”<sup>35</sup> The idea that market

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<sup>32</sup> Malloy and Amer, *Retail Electricity Deregulation Index*, p.40.

<sup>33</sup> Mark Nelson, International Energy Manager, Hewlett-Packard, in “Energy Mess Will Get Worse.”

<sup>34</sup> Electric Power Supply Association, *California: The Real Story*, September 11, 2000, [www.epsa.org/documents/Updated\\_California\\_The\\_Real\\_Story\\_10-003.doc](http://www.epsa.org/documents/Updated_California_The_Real_Story_10-003.doc)

<sup>35</sup> Howard Fine, “Energy Panel Chief Grapples with Power Mess,” *Los Angeles Business Journal*, January 1, 2001, p. 3.

prices would more effectively and efficiently motivate consumers to purchase energy-efficient appliances and systems eludes her and many others.

The most absurd effect of price controls on electricity in California has been running the private utilities into debt. As retail price controls forced utilities to sell electricity for far less than they had to buy it for in the wholesale market, they steadily went into debt. PG&E and SCE ended 2000 with nearly \$10 billion in combined losses.

As if retail price caps and their unintended consequences are not folly enough, state regulators are equally enamored of wholesale price caps. As wholesale power prices rose rapidly in spring of 2000, the ISO was quick to impose a price cap. Unfortunately, the obvious effect (though apparently the ISO overlooked the possibility) of price controls quickly kicked in, and the amount of power supplied to the state dropped off. Since consumer prices were not affected, they did not reduce demand, and shortages became severe.<sup>36</sup> The situation rapidly grew untenable, with ISO staff spending more time trying to hustle up power than running the grid and supplies continuing to fall, leading the ISO to lift the caps to head off blackouts.<sup>37</sup> Contrast this with the now infamous story of price spikes in the Midwest over several recent summers, no price caps were put in place, and now new power plants are being built and the problem has not recurred.<sup>38</sup>

A year of price caps in a shortage market has run up the costs they have imposed on the state economy. State policy makers, unwilling to face the public backlash from raising electricity prices, continue to favor price caps as a solution. Gov. Davis has repeatedly called for FERC to re-impose wholesale price caps on the entire West, figuring that would be more effective than the state's caps, which let power generators choose to sell in uncapped neighboring states.

But moving to market pricing, wholesale and retail, is the only truly effective means to rebalance supply and demand of electricity in the state market and avoid blackouts. As FERC Chairman James Hoecker put it, "We cannot 'price cap' California out of a supply shortage."<sup>39</sup> The gap between market prices and the prices consumers are paying now has grown so large that simply eliminating the price caps likely would lead to consumer revolt. Instead a gradual shifting to market prices is required. State regulators granted a temporary (90 day) increase of the retail price cap 7 to 15 percent. The utilities have been seeking an initial increase 25 to 30 percent, which would raise the average residential power bill by \$13 to \$16.50.<sup>40</sup>

Gradually lifting price caps would have to be matched with other policy changes to prevent consumers from falling victim to market power and to move the market toward competitive prices. Barriers (aside from price caps) to entry by new electricity firms and to building new power plants have to be lifted. Exercise of market power must be regulated until customers have competitive choices. And abetting and encouraging a shift to real-time metering and pricing for customers will make it much easier for consumers to adjust to changing market prices. California Energy Institute director Severin Borenstein points out that real-time pricing for consumers allows them to experience the full range of price fluctuations but still have relatively stable monthly bills.<sup>41</sup> Thus real-time pricing can help achieve both demand response to changes in prices and shield consumers from price spikes.

<sup>36</sup> Federal Energy Regulatory Commission, *Order Directing Remedies for California*, p.32.

<sup>37</sup> Rebecca Smith, "California Energy Officials Discontinue Price-Cap System, in a Surprise Move," *Wall Street Journal*, December 13, 2000, p.A3; and Thorsten Fisher, "Powerless in California," *The Dismal Scientist*, December 18, 2000, [www.dismal.com/todays\\_econ/te\\_121800\\_2.asp](http://www.dismal.com/todays_econ/te_121800_2.asp).

<sup>38</sup> *The Economist*, August 26, 2000, p.50.

<sup>39</sup> Commissioner's Remarks on FERC Order issued December 15, 2000, [www.ferc.fed.us/electric/bulkpower/Chair-Final.PDF](http://www.ferc.fed.us/electric/bulkpower/Chair-Final.PDF).

<sup>40</sup> Karen Gaudette, "Calif. Fails to Solve Energy Dispute," Associated Press, December 28, 2000.

<sup>41</sup> Borenstein, "The Trouble with Electricity Markets," p. 11.

## C. Discouraging New Power Supplies

California is not an easy state in which to build a power plant. Licensing procedures and rules are expensive and time-consuming. Environmental regulations are among the most stringent in the nation, and power plants are unpopular neighbors, often sparking resistance from local residents. In California, plants often take three to five years from concept to operation, while in other Western states the process can be as short as one year.<sup>42</sup>

Thanks to these barriers, in 1996, as restructuring was debated, California had not seen a new power plant built in a decade. Yet the state still had excess energy generation capacity. Indeed, one reason for restructuring was to let market incentives determine capacity decisions. The architects of restructuring assumed that competition and profit opportunity would bring new power plants to keep electricity supply well ahead of demand in spite of the difficulties state regulations present. And, despite restructuring's failure to allow a competitive market, restructuring did stimulate new capacity—between March 1998 and the end of 2000 the California Energy Commission had licensed nine new power plants that will generate over 6,000 MW, about 16 percent of the state's average daily load.<sup>43</sup>

But these new plants are so slow in coming—the first won't be online until mid-2001—they won't help solve the current shortage. The long delays in adding capacity in California had set the state on the road to shortages long before restructuring. Since 1988, the state energy commission has been predicting that demand would catch up with and surpass supply. But state leaders did nothing to change the barriers that discouraged new companies from building new power plants. At first, discussions of deregulation may have discouraged new investment, since private companies did not know what kind of law the state would pass. But restructuring ended that uncertainty and companies saw an opportunity to make money from growing demand in California. The new plants they are now building will likely assure that the current shortage will not persist.

The current policy debate over what to do about the shortage has focused on providing more power plants as soon as possible. Gov. Davis created a “green team” to streamline regulatory review of some projects,<sup>44</sup> but the new process applies to only two of the 13 projects undergoing review. Davis has also proposed a state energy authority to build and operate new power plants, but state ownership and construction will only speed up projects if the state does not follow all permitting and environmental rules. The same result could be accomplished by waiving rules for private power generators and without consuming tax revenues to pay for the plants.

But waiving the rules is not likely to be politically acceptable and may not even be wise. A better approach would be to change the regulatory approach without changing standards. California regulators view their roles as ensuring that standards are not violated—they don't care if the power plant gets built. Thus they make themselves like the troll under the bridge—no one gets by without meeting their terms. State leaders could speed up the process of adding new power plants by changing the regulator's mission so his goal is to make sure that the power plant gets built without violating any standards—a subtle but important change in approach.

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<sup>42</sup> Electric Power Supply Association, *California: The Real Story*, p.3.

<sup>43</sup> See [www.energy.ca.gov/sitingcases](http://www.energy.ca.gov/sitingcases).

<sup>44</sup> See [www.cpuc.ca.gov/greenteam.asp](http://www.cpuc.ca.gov/greenteam.asp).

Indeed, speeding up the review process by taking a constructive approach to solving problems as they arise, rather than just kicking the problem back to the developer, could improve the environmental quality of the state's energy supply. New generation plants are cleaner and more efficient than older ones and will displace some of the dirtiest plants in a competitive market.<sup>45</sup> With the right approach, state policy makers can meld the incentives to invest that supply constraints and market prices create with a more positive approach to permitting and environmental reviews to speed up completion of new plants, shortening the span of the state's electricity shortage and helping prevent future shortages.

## D. Government-Owned Utilities: Protected from Competition, but Allowed to Profit from it.

Government agencies generate almost a quarter of the electricity in California (see Figure 2) and thus are an important part of the state electricity market. Restructuring allowed municipal utilities (munis) to choose whether or not to enter the competitive market.<sup>46</sup> So far they have not chosen to do so. Instead, munis and other government power generators took advantage of the PX and ISO to sell their excess power and earn considerable profits in the process.

In 2000, government generators made big money from the wholesale price spikes that caused the state so much pain. State agencies and local water authorities sold their excess power into the grid—the State Water Project, for example, made \$23.6 million in profit from selling power at high PX prices. Large munis followed suit—the granddaddy of them all, the Los Angeles DWP made close to \$200 million in profits.<sup>47</sup> Even small cities like Redding, which earned \$8 million in profits, took advantage of the situation.

Some of the power that munis sold came from the Bonneville Power Administration (BPA), federal hydropower that is some of the cheapest electricity in the nation and is offered first to government utilities before private utilities can buy any. California's munis bought all of this “preference power” they could and resold it into the PX and ISO for five to ten times what they bought it for. BPA itself sold power into the California market and in 2000 earned \$207 million in profits (a 116 percent increase over the previous year). Because they have made money during the crisis, while the private utilities have run up huge losses, munis argue both that deregulation is a bust and that government ownership of utilities is superior to private ownership.<sup>48</sup> But the munis' sunny days are an artifact of restructuring's rules. Unlike the state's private utilities, munis were not required to sell off their generation plants, were not forbidden to use forward contracts to hedge against price increases, and they had the option of buying from and selling into the PX. Ironically, restructuring wound up shackling the state private utilities while leaving the munis free from any state restrictions.

In fact, evidence indicates that munis are less efficient than private utilities and could benefit from competition. Munis' average charges for residential customers are slightly lower than the average for private

<sup>45</sup> Department of Market Analysis, *Report of California Energy Market Issues*, p.ii.

<sup>46</sup> See Adrian T. Moore, *Integrating Municipal Utilities into a Competitive Electricity Market*, Reason Public Policy Institute Policy Study No. 270 (Los Angeles: Reason Public Policy Institute, 2000), [www.rppi.org/ps270central.html](http://www.rppi.org/ps270central.html).

<sup>47</sup> DWP made \$140 million in profit in its fiscal year ending June 30<sup>th</sup> (a 40 percent increase over the previous year). Rebecca Smith, “Los Angeles Utility is Surprise Beneficiary of Deregulation,” *Wall Street Journal*, September 6, 2000, p. CA3. Given the pattern in wholesale prices over that span, most of that was made in 2000, and likely even more made in the latter half of the year.

<sup>48</sup> For example, see Terence Monmaney, “L.A.'s Latest Luminary,” *Los Angeles Times*, December 23, 2000.

utilities but a bit higher for industrial customers. But munis' average total cost for electricity generation is 10 percent lower than for private utilities, thanks to a batch of subsidies.<sup>49</sup> Since munis' rates are not 10 percent lower, the difference is waste and bloat. A number of studies have shown that private electric utilities are more efficient than munis.<sup>50</sup>

As California, and other states, continue to move toward competitive electricity markets, the distortions caused by government utilities' exceptions and subsidies have to be rectified. Federal preference power is owned by all U.S. taxpayers, but since it is offered with preference to munis, it serves to transfer wealth from customers of private utilities to customers of munis. The fight to make federal hydropower equally serve all U.S. taxpayers has been long and contentious, but recent events in California once again highlight the need for such reforms.

Also, a state's electricity market cannot be truly competitive if customers in many of its largest cities are not allowed to choose their electricity provider, and when tax policies and regulations give government generators advantages over private ones. As restructuring moves forward, munis should be integrated into the competitive market.<sup>51</sup>

## E. Divestiture—Determining Industry Structure from the Top Down

Before restructuring, the state's electric utilities were vertically integrated, meaning they owned all elements of the system—generation, transmission lines, and distribution systems. Fearful that incumbent utilities would give their own power plants favorable access to the grid and thus stifle competing power generators, restructuring's architects created strong incentives for utilities to sell off (divest) their power generation plants.<sup>52</sup> The utilities responded by quickly selling their natural gas power plants, though, due to resistance in court by environmental groups, their hydropower plants have not been sold.

Today, many state leaders have changed their mind about utilities selling the rest of their power plants—Gov. Davis has proposed forbidding the utilities to sell any more power plants, and a bill to restrict utility asset sales was introduced in the state Assembly.<sup>53</sup> These proposals make the same underlying mistake as the original decision to get utilities to sell their generators, assuming the future of the market is known and there is a “correct” industry structure for that known future market.

Deciding what assets an industry should or should not own requires knowledge about the future, knowledge public officials don't have. Regulators find it easy to theorize about possible bad behavior by vertically integrated utilities in a competitive market but are less able to predict possible harm to the market from disintegrating utilities.<sup>54</sup> The policy flip-flop of California's leaders on divestiture, as market conditions have changed, brings home the consequences of dictating market structure. There are many advantages to vertical

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<sup>49</sup> Moore, *Integrating Municipal Utilities*, figure 4 and accompanying text.

<sup>50</sup> See John Hilke, *Cost Savings from Privatization: A Compilation of Study Findings*, Reason Foundation How-to Guide #6, (Los Angeles: Reason Foundation, 1993), p.6.

<sup>51</sup> For a comprehensive look at the policy and management challenges of including munis in the market, see Moore, *Integrating Municipal Utilities into a Competitive Electricity Market*, [www.rppi.org/ps270central.html](http://www.rppi.org/ps270central.html).

<sup>52</sup> Utilities could accelerate their recovery of stranded costs by selling their power plants.

<sup>53</sup> ABX1 6, January 11, 2000, available at [www.assembly.ca.gov](http://www.assembly.ca.gov).

<sup>54</sup> Brennan et al., *A Shock to the System*, Ch. 5, discusses the pros and cons of vertical integration, arguing that the potential harms are apparent and dismissing the benefits.

integration—reducing transaction costs, economies of scope (more cheaply producing multiple goods), improved coordination, and hedging against risks, to name a few.<sup>55</sup>

Public policy should not dictate industry structure. Utilities can best make their own decisions about what assets they need to own to be competitive. When deregulation aims only to make electricity generation competitive, regulators overseeing utilities’ distribution operations will have to guard against utilities favoring their own power plants over those chosen by electricity consumers. Effective rules linking customer supplier choices with requirements into the grid will make such oversight easier.

An even better option is to move toward deregulation of the grid itself and allow distribution companies to compete directly. A study of cities that have two or more electric utilities competing head-to-head for customers over parallel systems found that competing utilities don’t underutilize capacity or have higher rates, as natural monopoly theory (and regulators) would have it.<sup>56</sup> The advent of distributed generation—micro-turbines, fuel cells, and other technologies—that can provide cost-effective power on-site is further undermining the view that electric utilities are natural monopolies by giving customers new alternatives to utilities that don’t offer competitive prices and choices.<sup>57</sup>

## F. What Caused the Electricity Price Increases in California?

The simplistic story of why California’s electricity prices skyrocketed over the past year is that demand for electricity had grown equal to, and even beyond, the supplies of electricity available in the state. Between 1996 and 1999, California’s electricity demand grew by 5,500 MW (14 percent), eight times the 672 MW (2 percent) increase in electricity generation capacity added over the same period.<sup>58</sup> Of course, these numbers do not explain *why* new electricity capacity was not added as demand grew, or why demand did not shrink as supplies ran short.

Even detailed studies of the California electricity market oversimplify the problem—usually highlighting about a half-dozen factors that influence prices.<sup>59</sup> In fact, as Figure 2 shows, a tangled web of factors led to price increase. The key lesson of this diagram is that simple solutions are not possible—many different facets have to change for prices to return to normal levels.

Many of the price influences in Figure 2 (the un-shaded ones) came about due to factors in other markets or natural changes in the economy, and there is little that policy makers can do to influence them. But many other price influences (the shaded ones) are shaped, and even created, by state policy decisions, most of them part of the restructuring plan. Policy alternatives open-ended enough to accommodate the interconnections between factors and resilient enough to accommodate changes in some or all factors may be able to bring electricity prices back to more normal levels.

<sup>55</sup> Ibid.

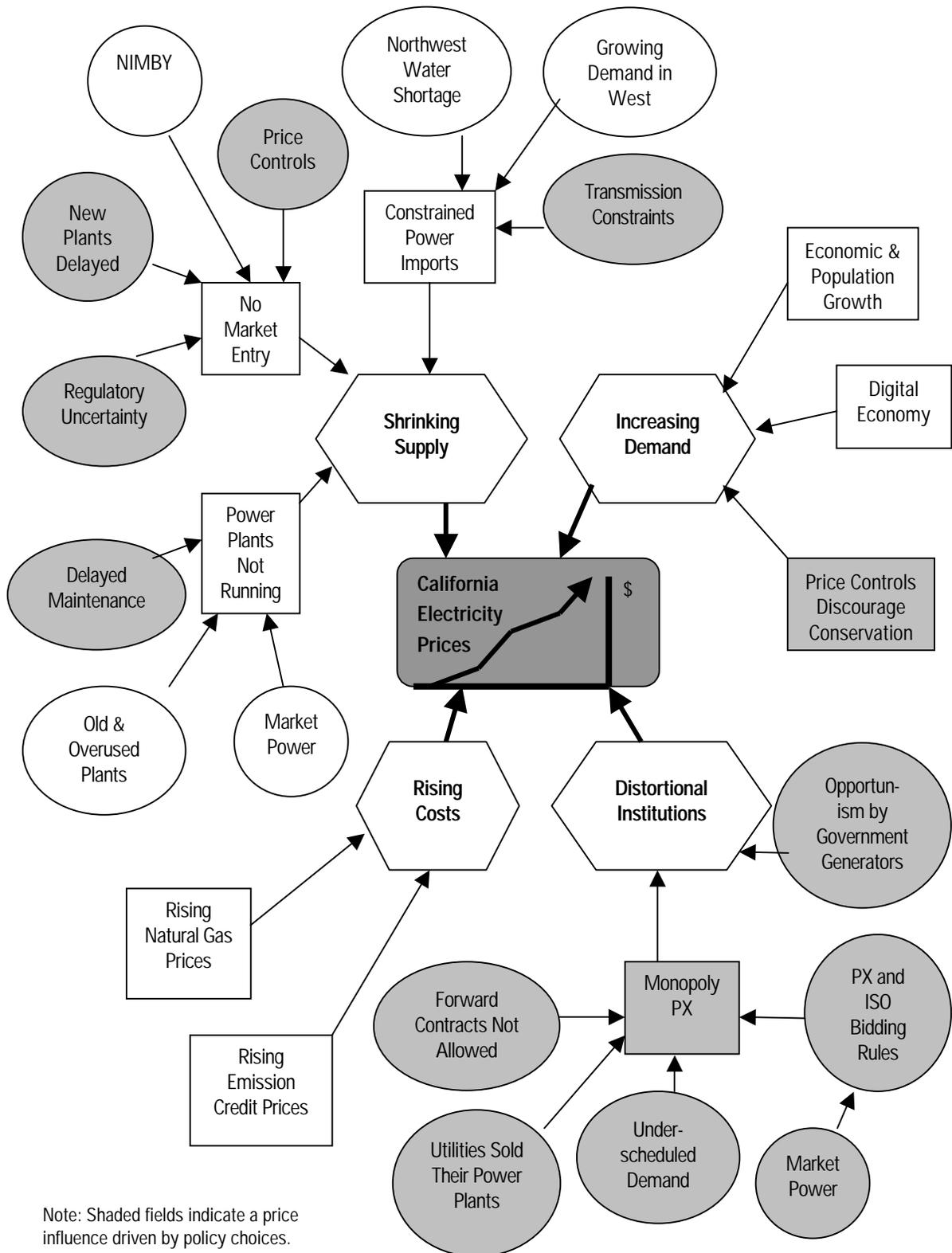
<sup>56</sup> Walter J. Primeaux, Jr., *Direct Electric Utility Competition: The Natural Monopoly Myth*, (New York: Praeger, 1986), pp.71ff and 98ff.

<sup>57</sup> Clyde Wayne Crews, Jr., “Rethinking Electricity Deregulation: Does Open Access Have it Wired—Or Tangled?,” testimony before the House Subcommittee on Water and Power Resources, July 24, 1999; and “The Dawn of Micropower,” *The Economist*, August 5<sup>th</sup>, 2000, pp. 19, 75-77.

<sup>58</sup> California Public Utilities Commission, *California’s Electricity Options and Challenges*, pp.36, 38, [www.cpuc.ca.gov/published/report/gov\\_report.htm](http://www.cpuc.ca.gov/published/report/gov_report.htm).

<sup>59</sup> Ibid, pp.35-46 provides the most thorough discussion. Also, see Electric Power Supply Association, *California: The Real Story*, pp.1-2, and Department of Market Analysis, *Report of California Energy Market Issues*, pp.1-5.

### What Caused California's Electricity Prices to Rise?



## Part 4

# Electricity Deregulation Success Stories: California in Perspective

The problems in California’s electricity market are generating doubts about the benefits of electricity reform and deregulation. However, California’s experience is not representative of the recent deregulation efforts in the United States or abroad. In many jurisdictions that have initiated electricity reform, consumers are finding that deregulation has given them more bang for their buck, while some other jurisdictions straggle along. Comparing their methods of reform shows why.

Inspired by the United Kingdom’s successful regulatory reform, California, Pennsylvania, Rhode Island, and Massachusetts were the earliest states to initiate electricity deregulation, and they all did so differently. Pennsylvania stands out as the most successful effort in the United States to date, but California can learn valuable lessons from other states and even from deregulation successes in the United Kingdom and Australia.

Successful electricity deregulation efforts offer stark contrast to California. In Pennsylvania (as well as the United Kingdom and Australia):

- Prices fell dramatically—in Pennsylvania rates fell three percent in one year, saving customers \$3 billion, in the United Kingdom prices fell 10-15 percent, in Australia 24 percent;
- Many new companies entered the market to serve consumers—130 power supply companies now operate in Pennsylvania, and nearly 600,000 customers have switched providers (that is nearly three times as many as switched in California in twice as long a period);
- Customers have more options for electricity services—20 percent of Pennsylvania customers who have switched chose a “green” (renewable) power option even though they had to pay more for it; and
- Customers are more satisfied with their electricity service—Pennsylvania customers are nearly 25 percent more likely to report they are satisfied with their electricity service than the national average.

## A. Pennsylvania’s Electricity Deregulation Success

Gov. Tom Ridge signed electricity deregulation legislation in Pennsylvania in December 1996.<sup>60</sup> Under this legislation, consumers could choose an electricity generator to provide them with power, but transmission

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<sup>60</sup> Electricity Generation Customer Choice & Competition Act, at [puc.paonline.com/electric/elect\\_comp.asp](http://puc.paonline.com/electric/elect_comp.asp).

and distribution would still occur through regulated utility companies. Importantly, the legislation did not mandate that incumbent utilities divest their generating capacity: “Electric utilities are permitted to divest themselves of facilities or to reorganize their corporate structures, but unbundling of services [separating services, such as generation from distribution] is required.”<sup>61</sup> Pennsylvania also used market models and forecasts to set the standard offer price, instead of setting a low standard offer price that would benefit incumbents. Pennsylvania rolled out deregulation in January 1999; by January 2000 all consumers in Pennsylvania could choose their electricity generator. This two-phase process brought all of the state’s consumers competitive choices more quickly than in other states.

### 1. Market Changes

The legislation provided for retail price caps that vary by utility, depending on Public Utility Commission (PUC) approval. For the total power bill and the non-generation portion of the bill, the rate cap will remain in place for 54 months or until the utility in question has paid off its stranded costs. An additional rate cap stipulation states that for nine years or until stranded-cost recovery, the generation portion of the bill cannot exceed a PUC-approved rate for the generation.<sup>62</sup> The rate caps are embodied in the mandated rate reductions of four to 12 percent in 1999, depending on the utility.<sup>63</sup>

Although the legislation did not mandate that utilities sell their generation capacity, many did so as part of restructuring. For example, in December 2000 Duquesne Energy (DQE) completed its first phase of restructuring by selling its generation plants for \$1.7 billion. This sale accelerated its recovery of stranded costs well beyond expectations and helped DQE cut residential rates 21 percent by 2002.<sup>64</sup>

Most of Pennsylvania’s utilities also participate in the regional market that the Independent System Operator (ISO) PJM Interconnection operates.<sup>65</sup> PJM’s market, in operation since 1927, acts as a clearinghouse for generator supply and wholesale demand. PJM members can enter bilateral contracts and can purchase or sell power to meet unanticipated changes in demand through a spot market. These transactions enable the participants in electricity markets in the mid-Atlantic to manage price volatility and provide reliable service. By late 2001, all of Pennsylvania’s utilities will be members of PJM, once DQE’s and Allegheny Energy’s memberships become final.

The PUC has continued to refine the deregulation framework, maintaining benefits for consumers but still creating an environment that was sufficiently attractive to potential entrants to generate true competition. For example, in July 2000 the PUC increased the default service rate that incumbents could charge, removing the incentive for customers to switch from entrants to incumbents for the summer months when rates typically rise.<sup>66</sup> Pennsylvania also allows competitive third-party metering service, which fosters competition.<sup>67</sup>

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<sup>61</sup> DOE Energy Information Administration, “The Changing Structure of the Electric Power Industry 2000: An Update,” October 2000, Chapter 8, [www.eia.doe.gov/cneaf/electricity/chg\\_stru\\_update/chapter8.html](http://www.eia.doe.gov/cneaf/electricity/chg_stru_update/chapter8.html).

<sup>62</sup> General Assembly of Pennsylvania, Electricity Generation Customer Choice and Competition Act, House Bill 1509, 1995, [puc.paonline.com/electric/elect\\_comp\\_act.asp](http://puc.paonline.com/electric/elect_comp_act.asp).

<sup>63</sup> DOE, Energy Information Administration, [www.eia.doe.gov/cneaf/electricity/chg\\_str/retail.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/retail.html).

<sup>64</sup> DOE, Energy Information Administration, [www.eia.doe.gov/cneaf/electricity/chg\\_str/retail.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/retail.html).

<sup>65</sup> [www.pjm.com](http://www.pjm.com)

<sup>66</sup> DOE, Energy Information Administration, [www.eia.doe.gov/cneaf/electricity/chg\\_str/tab5rev.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html).

<sup>67</sup> Malloy and Amer, *Retail Electricity Deregulation Index*, p.40.

## 2. Results of Changes

Pennsylvania Public Utility Commission Chairman John Quain told the *Wall Street Journal*, “We’re pretty proud of what we’ve done, and it’s worked out terrifically.”<sup>68</sup> In the *Retail Electricity Deregulation (RED) Index* released in July 2000, Pennsylvania ranked the highest by far in progress toward customer choice.<sup>69</sup> The report ranks the states’ deregulation success based on 18 attributes, and Pennsylvania ranked first in both their February and July 2000 studies. Only New York and Maine, which have recently made great strides in their deregulation, achieved scores close to Pennsylvania’s.<sup>70</sup>

A good indicator of how well Pennsylvania has done in providing for electricity customer choice is the number of companies offering to serve state residents. Pennsylvania’s deregulation plan was aggressive in allowing all state residents and businesses to choose electricity providers, and now 130 power suppliers compete for customers in the state.<sup>71</sup> In California, few power suppliers entered the market, and most of them soon left after failing to win many customers. Pennsylvania did not have the stringent retail price caps and competitive transition charge that protected incumbents and discouraged entry in California.

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More Pennsylvanians said they were satisfied or extremely satisfied with their electricity service than the national average.

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In April 1999 more Pennsylvania customers were shopping for electricity than in other states, but the percentages were still small. By September 1999 though, 450,000 customers had switched, mostly around Philadelphia (PECO’s service territory), and by July 2000 the number of consumers who switched providers had increased to 528,000. PECO, the eastern Pennsylvania incumbent, stated that 45 percent of its industrial load, 44 percent of commercial load, and 18 percent of residential load had switched to non-incumbent providers. Other incumbent utilities in the state reported somewhat smaller numbers, but the magnitude of the change was still substantial.

As of September 1999, Pennsylvania’s electricity consumers were already starting to see benefits from generation deregulation:

*In Hershey, Pennsylvania, total spending on electricity has fallen by more than \$18,000 a month. Although Rhode Island was the first state to open its market to electricity competition, Pennsylvania seems to be doing it the best. Roughly 450,000 Pennsylvania customers, more than three times the number in California, have already switched to a different supplier. . . Supporters of competition claim it is not about lowering prices, but rather it provides a number of other benefits including better service, new technology, and unexpected innovations.*<sup>72</sup>

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<sup>68</sup> Vogel, “Deregulation Foes,” *Wall Street Journal*, August 15, 2000, p. A3.

<sup>69</sup> Center for the Advancement of Energy Markets, July 2000, p. 20; [www.caem.org](http://www.caem.org).

<sup>70</sup> In the July 2000 Index, Pennsylvania scored, 65 points, New York scored 64 points, and Maine scored 61 points.

<sup>71</sup> Chris Kraul, “Charges of Gouging as Power Costs Skyrocket,” *Los Angeles Times*, August 28, 2000. In Ohio, where retail competition began just this January 1, 2001, nearly 40 energy suppliers have applied to serve customers in the state. *Marketing Electricity Today*, November/December 2000, p.5.

<sup>72</sup> DOE Weekly Summary, [www.eren.doe.gov/electricity\\_restructuring/weekly/sep17\\_99.html](http://www.eren.doe.gov/electricity_restructuring/weekly/sep17_99.html).

The proof that customers are reaping benefits beyond cost savings is seen in the popular “green power” option, which has won 20 percent of the customers who have switched suppliers, though they pay a small premium for that option.<sup>73</sup>

*For example, the largest wind farm in the eastern United States is now in Pennsylvania. GreenMountain.com, which completed the eight-turbine project in April 2000, is betting that customers will pay a slight premium to switch to power that is cleaner than the traditional source of Pennsylvania's electricity—coal.<sup>74</sup>*

Only with deregulation did this “green power” option become available to customers.

The Pennsylvania Department of Revenue has suggested benefits from deregulation beyond consumer choice and rate savings, predicting that electricity competition would generate 36,000 new jobs by 2004.<sup>75</sup>

*Pennsylvania Secretary of Revenue Robert Judge, Sr., said the job creation is a result of a multiplier effect. That is, consumers and businesses have more money; therefore, they can buy more products and create more jobs, respectively. The report also suggests there will be greater sales tax and personal income tax collections as a result of restructuring. Secretary Judge said, “Our research confirms that while consumers of electricity will realize rate reductions, there are many other benefits to Pennsylvania through electric competition.”<sup>76</sup>*

The political momentum for electricity deregulation comes from reducing prices, though, and not from the broader benefits of consumer choice, however high in value those might be. As Table 2 shows, Pennsylvania's 1998 deregulation dramatically accelerated the downward trend of prices as measured by revenue per kilowatt-hour.

**Table 1: Revenue per Kilowatt hour of Retail Electricity Sales, All Sectors and Suppliers (Cents per Kilowatt hour)**

	1999	1998	1993	1988
Pennsylvania	6.5	7.9	8.7	9.0

*Source: 1988-1998 data: Energy Information Administration, Annual Electricity Overview 2000 State Profiles, [http://www.eia.doe.gov/cneaf/electricity/st\\_profiles](http://www.eia.doe.gov/cneaf/electricity/st_profiles); 1999 data: Energy Information Administration, Electric Power Annual 1999, <http://www.eia.doe.gov/cneaf/electricity/epav1/fig15.html>.*

**Table 2: Average Annual Percent Change, Revenue per Kilowatt hour**

	1998-1999	1993-1998	1988-1993
Pennsylvania	-17.7%	-1.8%	-0.7%

*Source: Table 1.*

In the one year since deregulation for which there are data, prices fell almost ten times faster than in the five years before deregulation and by far more than the price caps in the deregulation plan required. While this large percentage decline is unlikely to persist, it does provide a measure of the immediate benefits that consumers have seen in the form of lower electricity prices.

<sup>73</sup> DOE Energy Information Administration, “The Changing Structure of the Electric Power Industry 2000: An Update,” October 2000, Chapter 8, [www.eia.doe.gov/cneaf/electricity/chg\\_stru\\_update/chapter8.html](http://www.eia.doe.gov/cneaf/electricity/chg_stru_update/chapter8.html).

<sup>74</sup> Ibid.

<sup>75</sup> [db.state.pa.us/ctc/data/20000804.002.htm](http://db.state.pa.us/ctc/data/20000804.002.htm).

<sup>76</sup> PR Newswire, August 4, 2000.

Two years after reform's initiation, electricity customers in Pennsylvania express satisfaction with electricity competition, according to a poll of 2,068 residential electricity consumers conducted in August 2000 by Power Perceptions, a market research firm specializing in electricity consumer research.

*"If the name of the game is customer satisfaction, then Pennsylvania is winning," said Stephen K. Carter, Executive Director of Power Perceptions and the principal investigator of the study. "Pennsylvanians expressed high levels of satisfaction in almost every aspect of their electric service," said Carter.<sup>77</sup>*

More Pennsylvanians said they were satisfied or extremely satisfied with their electricity service than the national average (31 vs. 24 percent).

Carter attributes most of Pennsylvania's success to its choice of default price. While California, Rhode Island, and Massachusetts stifled competition with low caps on retail rates or low default prices,

*Pennsylvania has set higher default prices, allowing alternative companies to offer competitive prices, which has resulted in more competition. With the price hurdle cleared, alternative electric suppliers can try to attract customers with different pricing packages and billing options, a variety of incentives, like frequent flyer miles, and better customer service, all of which affect customer satisfaction.<sup>78</sup>*

Thus the combination of market-based default prices, non-mandatory divestiture of generation, accelerated phase-in of all consumers, and the use of regional markets encouraged entry and diversity of service offerings that have benefited Pennsylvania's consumers.

## B. Other Early Adopters in the U.S. Have Had More Limited Success<sup>79</sup>

Other states also initiated electricity deregulation around the same time as Pennsylvania and California but have had different experiences.

### 1. Rhode Island

Rhode Island's legislation allowed all consumers to choose electricity providers by January 1998. The Department of Energy reports that "[b]y January 1998, retail access was implemented with 25 registered generation suppliers, but the standard offer interim rates (3.2 cents/KWh) offered by Rhode Island's investor-owned utilities are low enough that no real competition has occurred."<sup>80</sup> By June 1999, only 2,000 of Rhode Island's 456,000 customers (0.4 percent) had chosen alternative generation suppliers. Because of limited competition, Rhode Island's Public Service Commission approved default rate increases to 7.1 cents per kilowatt-hour by 2009.<sup>81</sup> In the *RED Index*, Rhode Island ranked 17<sup>th</sup> in February 2000, but moved to 8<sup>th</sup> by July 2000. The dramatic recent improvement of its competitive environment derives from several factors (or attributes, in the terminology of the study). In addition to changing legislation to require divestiture of

<sup>77</sup> [www.powerperceptions.com](http://www.powerperceptions.com).

<sup>78</sup> Ibid. See also Susan B. Kaplan "Restructuring: The Story Continues," *Forum for Applied Research and Public Policy* 15(2), 2000, pp. 6-11, at [forum.ra.utk.edu/kaplan.htm](http://forum.ra.utk.edu/kaplan.htm).

<sup>79</sup> While this summary focuses on Rhode Island and Massachusetts, Maine (another early adopter) has had a similar deregulation experience.

<sup>80</sup> DOE, Energy Information Administration, [www.eia.doe.gov/cneaf/electricity/chg\\_str/tab5rev.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html).

<sup>81</sup> Energy Guide, [www.energyguide.com/finder](http://www.energyguide.com/finder).

generation, Rhode Island has recently implemented some functional safeguards to ensure that utilities cannot use the market power associated with their distribution function to enhance any of their other services. Within the past year they have also instituted uniform business practices, including standardized electronic protocols, for all utilities. Other contributors to the large increase in Rhode Island's *RED Index* ranking include using both pools and bilateral contracts for wholesale transactions, and the use of performance-based adjustments to price caps to adjust for productivity and other improvements.<sup>82</sup>

## 2. Massachusetts

After passing restructuring legislation in late 1997, Massachusetts opened generator choice to consumers in March 1998. Customers that received power from investor-owned utilities were free to choose their supplier, but by March 1999, only 1.3 percent of retail sales were by non-incumbent suppliers, almost entirely to large industrial consumers. Even as recently as September 2000, Massachusetts's deregulation had not generated much movement to competitive suppliers:

*Customer migration statistics show that real retail competition has yet to take hold in Massachusetts. The Massachusetts Division of Energy Resources (DOER) reports that 5,176 customers bought power from competitive generators in July 2000 as compared to 2.5 million customers who received power from their incumbent utility. This low switching rate was expected in the State since competitive generators cannot offer better deals than the incumbent utilities until the standard offer price rises over a seven-year transition period.<sup>83</sup>*

Reform in Massachusetts has proceeded more slowly due to an anti-deregulation ballot initiative to reverse the legislation (this initiative was defeated in November 1998, with 71 percent of voters voting "no" on the proposition). Massachusetts, like other New England states, also faces relatively stringent sulfur dioxide emissions constraints, which increase the cost of generating electricity for all suppliers and could slow entry to the generation market.

To accelerate the benefits of reform, in July 2000 Massachusetts revised its legislation to tie the standard offer price more closely to wholesale prices, which should decrease the incumbency advantage. The utilities can also enter six-month to one-year bilateral contracts with generators, which should shift some market risk to generators and decrease retail price volatility. These changes took effect in January 2001. In the *RED Index* Massachusetts ranked 7<sup>th</sup> in February 2000 and 4<sup>th</sup> in July 2000, based largely on its changing default-provider price risk to being constant, the introduction of some interconnection of distributed resources, and some reengineering activity by the regulatory commission.<sup>84</sup>

## C. Comparing Price Changes—Pennsylvania versus Rhode Island and Massachusetts

Comparing price changes across time yields some indication of the consequences of these deregulation and reform differences among the three states. In both Massachusetts and Rhode Island, rates increased to 1993 and have declined since then, although they remained above the U.S. average in 1999. Table 4 shows the striking declines in prices that accompanied deregulation from 1998 to 1999, particularly in Pennsylvania.

<sup>82</sup> *Retail Electricity Deregulation Index*, July 2000, p. 75.

<sup>83</sup> DOE, Energy Information Administration, [www.eia.doe.gov/cneaf/electricity/chg\\_str/tab5rev.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html).

<sup>84</sup> *Retail Electricity Deregulation Index*, July 2000, p. 57.

**Table 3: Revenue per Kilowatt hour of Retail Electricity Sales, All Sectors and Suppliers (Cents per Kilowatt hour)**

	1999	1998	1993	1988
Pennsylvania	6.5	7.9	8.7	9.0
Rhode Island	8.8	9.6	11.5	10.0
Massachusetts	8.9	9.6	11.0	9.9

*Source:* 1988-1998 data: Energy Information Administration, Annual Electricity Overview 2000 State Profiles, [http://www.eia.doe.gov/cneaf/electricity/st\\_profiles/](http://www.eia.doe.gov/cneaf/electricity/st_profiles/); 1999 data: Energy Information Administration, Electric Power Annual 1999, <http://www.eia.doe.gov/cneaf/electricity/epav1/fig15.html>.

**Table 4: Average Annual Percent Change, Revenue per Kilowatt hour**

	1998-1999	1993-1998	1988-1993
Pennsylvania	-17.7%	-1.8%	-0.7%
Rhode Island	-8.3%	-3.3%	3.0%
Massachusetts	-7.3%	-2.5%	2.2%

*Source:* Table 3.

The dramatic difference in the price declines associated with deregulation highlight Pennsylvania's success. Although this is only one measure of benefit, it indicates that electricity reform has decreased prices in all three states, with the largest decline occurring in Pennsylvania. Other measures of benefit, like the increasing innovation and variety of service offerings that Pennsylvania's consumers enjoy (such as green power and real-time monitoring) reinforce the evidence of deregulation's success, particularly in Pennsylvania.

## D. Foreign Electricity Deregulation Successes<sup>85</sup>

### 1. The United Kingdom

The United Kingdom was one of the first countries to start widespread electric utility deregulation, initiating the process in 1989 with the passage of the Electricity Act.<sup>86</sup> This act broke up the vertically integrated Central Electricity Generating Board and spun off the national grid into a publicly traded company (National Grid Company, or NGC) that would continue to be regulated because of its monopoly position. Generation was deregulated and opened to potential entrants and incumbents were required to divest some (but not all) of their generating capacity. Power generators face market-based prices determined by the interplay of supply and wholesale demand. Marketing, another part of the electricity supply chain that does not appear to have economies of scale, was to be deregulated gradually up to April 1998, at which point all British consumers were supposed to be able to choose their supplier. Distribution would continue to be regulated and would occur through the 12 regional electricity companies (RECs).

<sup>85</sup> Much of the information in this section is from DOE, Energy Information Administration, "Electricity Reform Abroad and U.S. Investments," October 1997, [www.eia.doe.gov/emeu/pgem/electric/](http://www.eia.doe.gov/emeu/pgem/electric/). Although not covered in this summary, the DOE report includes extensive information on the deregulation and reform experience in Argentina over the past decade. New Zealand has also reformed its electricity regulation with great success; for a summary through 1998 see the Ministry of Economic Development, Chronology of New Zealand Electricity Reform, [www.med.govt.nz/ers/electric/chronology](http://www.med.govt.nz/ers/electric/chronology).

<sup>86</sup> DOE, Energy Information Administration, "Electricity Reform Abroad and U.S. Investments," October 1997, chapter 2, [www.eia.doe.gov/emeu/pgem/electric/ch2.html](http://www.eia.doe.gov/emeu/pgem/electric/ch2.html). The Electricity Act followed the Electricity Act of 1983, which allowed entry into the power generation market by private producers for the first time since before World War II.

The NGC also includes one of the elements that some credit with a substantial share of the United Kingdom's deregulation success: the "pool," which is the mechanism that coordinates supply and demand across England and Wales. The pool acts as a clearinghouse between electricity suppliers and wholesale consumers (the RECs).

*Those electric power generators whose capacity exceeds 100 megawatts are required to submit their generation units to dispatch by the National Grid Company (NGC). The NGC manages and operates the pool with an independent facility that attempts to balance supply and demand with an auction that roughly operates in the following manner. In the power pool, every day is broken up into forty-eight half-hour segments. The system manager forecasts demand for each half-hour segment. Twenty-four hours in advance, generators submit bids for the various levels of power they are willing to supply at various prices and for various periods, for each half-hour period of the following day. The system manager then ranks these bids from least to most expensive. The system manager also calculates the minimum amount of generating capacity needed to meet demand projections. A merit order dispatch schedule is created whereby the cheapest generation units are selected first and supply is capped when enough generation units are selected into the system to cause generation capacity to be sufficient to supply one unit of energy over and above the forecasted demand. The pool purchase price for all suppliers becomes the highest price bid by the last generation facility needed to accommodate the last unit of demand. This balancing activity is an attempt to arrive at the electricity generation industry's marginal cost, or the system marginal price (SMP).<sup>87</sup>*

As the electricity market in the United Kingdom has evolved, mechanisms have been devised to address the potential market power of large incumbent utilities, such as National Power and PowerGen, and to smooth out the consequences of price volatility in the electricity market. For example, one new mechanism is the "contract for differences market," or CfD, which is a hedging market allowing suppliers and wholesale consumers to enter bilateral contracts.<sup>88</sup> Even more recently, U.K. regulators are shifting the system from a single, centralized pool in which all transactions occur, to a system with multiple markets, separating spot trading from futures trading in long-term contracts.<sup>89</sup>

Rates to consumers had decreased by 26 percent in real terms over the previous nine years.

Although it had been a slow process, by mid-1999 all British consumers could choose their electricity provider. In 1999, Mike Hughes, President of the Electricity Association, said that rates to consumers had decreased by 26 percent in real terms over the previous nine years, which he expected to continue. He also argued that deregulation's "success should be measured in the creation of a lasting market which, over the longer term, is more effective in delivering better service, greater choice and lower prices to the customer than would be achieved by regulation alone."<sup>90</sup> Prices in the futures market are already seen as much as 10 to 15 percent below current prices.<sup>91</sup> Other estimates put the reduction in total costs of electricity for British consumers at 10 percent by early 2000.<sup>92</sup>

<sup>87</sup> Ibid. The report provides further detail on the operations of the pool and the full remuneration of the suppliers, including transition payments to allow utilities to recoup stranded costs.

<sup>88</sup> Ibid.

<sup>89</sup> See Office for the Regulation of Electricity and Gas, *Tackling The High Cost Of Generation*, United Kingdom, [ofreg.nics.gov.uk/pubs/execsum.htm](http://ofreg.nics.gov.uk/pubs/execsum.htm); and Marc Champion, "As Britain Recasts its Power Market, Others Take Note," *Wall Street Journal*, August 21, 2000, p. A13.

<sup>90</sup> [www.poweronline.com/content/news/article.asp?DocID={E36115ED-285E-11D3-B645-00C04F481017}](http://www.poweronline.com/content/news/article.asp?DocID={E36115ED-285E-11D3-B645-00C04F481017}).

<sup>91</sup> Champion, "As Britain Recasts," p. A13.

<sup>92</sup> Energy Markets, February 2000, [www.energy-markets.com/previous/0200/dereg.htm](http://www.energy-markets.com/previous/0200/dereg.htm).

By February 2000, 14 percent of all British consumers had switched suppliers, with approximately 92,000 making a choice each week. According to the market analysis firm Datamonitor, about 80 percent of industrial consumers were expected to switch by late 2000, and 90 percent to switch by 2005.<sup>93</sup> While some observers are concerned about the distribution of the benefits from reform (industrial and commercial consumers probably benefited more than residential consumers), few would argue that deregulation in the United Kingdom has been anything but a success. A recent report ranked the European Union (EU) nations based on their deregulation and reform efforts and outcomes; this report gave the United Kingdom (and the Netherlands) full marks for their reform.<sup>94</sup>

The European Union, inspired by the United Kingdom's success, has initiated an electricity deregulation initiative. In Germany, 71 percent of its industrial users, 45 percent of commercial users and 32 percent of residential consumers are expected to switch providers by 2005, and in the Netherlands 65 percent of industrial users are expected to switch as well.<sup>95</sup> The European Union has already implemented several regional power markets and is working toward complete deregulation.<sup>96</sup>

## 2. Australia

Australia's national electricity deregulation was inspired by the positive experience in the United Kingdom. Unlike the United Kingdom, Australia's electricity reform has occurred at both national and state levels, so the Australian experience may be more relevant to the U.S. states and their reform efforts.

*Although the Australian and U.S. electricity industries are in many ways very different, Australia's dual path to electricity reform bears some similarities to current developments in U.S. electricity markets. One result of Australia's dual state/national approach to electricity reform is that each state has pursued different reforms with reform efforts at the national level providing more guidance than direction. Reform at the state level differs from U.K. reform, which was entirely a central government effort.<sup>97</sup>*

As in the United Kingdom, Australia has divided the vertically integrated industry into functional areas; the state of Victoria, which has been the most aggressive in reform, has adopted the U.K. model of four divisions within the electricity supply chain. Australia's national government has overseen the construction of a national pool to act as a market clearinghouse, and they are in the final stages of creating a national power grid linking the pre-existing regional grids. The operation of the pool and the role of the national regulator vary from the U.K. model, reflecting Australian efforts to customize the model to their specific circumstances.

Although scheduled for a 1995 kickoff, Phase I of the National Electricity Market commenced in May 1997. In this initial phase, New South Wales, Victoria, and the Australian Capital Territory operated a wholesale electricity market, which was the precursor to a national generation pool.

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<sup>93</sup> Ibid.

<sup>94</sup> "Energy Liberalisation Indicators in Europe," at [www.oxera.co.uk/oxera/newoxera.nsf/files/oxerareport.pdf/\\$FILE/oxerareport.pdf](http://www.oxera.co.uk/oxera/newoxera.nsf/files/oxerareport.pdf/$FILE/oxerareport.pdf); also cited in *Retail Energy Deregulation Index 2000*.

<sup>95</sup> Energy Markets, February 2000.

<sup>96</sup> See, for example, [www.commodities-now.com/cnonline/dec98/elecdereg.shtml](http://www.commodities-now.com/cnonline/dec98/elecdereg.shtml), which summarizes the EU initiative as of December 1998.

<sup>97</sup> Department of Energy, "Electricity Reform Abroad and U.S. Investments," October 1997, chapter 3, [www.eia.doe.gov/emeu/pgem/electric/ch3.html](http://www.eia.doe.gov/emeu/pgem/electric/ch3.html). See this report for more details about the construction of the Australian system.

*When less expensive electricity is available in one state (e.g., Victoria), the pool allows another state (e.g., New South Wales) to import this cheaper electricity. The new power pool is intended to create a national electricity market in Australia.<sup>98</sup>*

By December 1998 the Southern and Eastern states had established an electricity market, and by early 2001 the national electricity grid will be in place.<sup>99</sup>

Australia's Productivity Commission estimates that since 1991, market reforms and deregulation have resulted in average real price declines of 24 percent. The Industry Commission believes that the benefits to the Australian economy are equivalent to an annual GDP increase of 1.25 percent.<sup>100</sup>

## E. Lessons for California from Other Electricity Deregulation Experiences

Deregulatory success in Pennsylvania, the United Kingdom, Australia, and other places, and the limitations on success in Rhode Island and Massachusetts highlight some general lessons that we can learn about implementing successful electricity reform.

### 1. *Set high enough default prices to encourage real competition.*

The standard offer price is the price customers pay if they do not choose an alternate supplier, and the default price (or "price to compare") is the price at which a utility will sell electricity in the absence of competition.<sup>101</sup> In Rhode Island and Massachusetts (the first two U.S. states to pass reform legislation) the standard offer price and the default price differed, while in Pennsylvania the legislation referred to standard offer price as "the default price" and the default price as the "shopping credit." Setting the standard offer price or the default price too low can discourage potential competitors from entering a market, because it leaves consumers with little incentive to shop for competing service.

The striking contrast between real benefits in Pennsylvania and small benefits in California, Rhode Island, and Massachusetts shows how important the default price and price caps can be. As Susan Kaplan noted:

*If the standard offer is set too low, new suppliers entering the market will be unable to compete. This was the case in Massachusetts, where new suppliers have been unable to enter the market and, as a result, residential customers do not yet have real choice. Indeed, new market entrants in several states have pulled out after concluding that the environment was not ripe for competition.<sup>102</sup>*

Pennsylvania's default price, which is higher and more attuned to market prices than either Rhode Island's or Massachusetts's, presented potential competitors with real profit potential. Without that foundation, competitors could not enter the market extensively and offer the variety of services seen in Pennsylvania,

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<sup>98</sup> Ibid.

<sup>99</sup> Ibid; see also the Australian government's Electric Industry Reform site ([www.isr.gov.au/resources/electricity\\_reform/reform/index.html](http://www.isr.gov.au/resources/electricity_reform/reform/index.html)), and specifically, "Reform of the Australian Electric Supply Industry," May 23, 2000, [www.isr.gov.au/resources/electricity\\_reform/reform/Reform\\_of\\_Aust\\_elec\\_ind\\_\\_23-5-00\\_.htm](http://www.isr.gov.au/resources/electricity_reform/reform/Reform_of_Aust_elec_ind__23-5-00_.htm).

<sup>100</sup> [www.isr.gov.au/resources/electricity\\_reform/reform/aus\\_esi.pdf](http://www.isr.gov.au/resources/electricity_reform/reform/aus_esi.pdf).

<sup>101</sup> Kaplan "Restructuring: The Story Continues," pp. 6-11.

<sup>102</sup> Ibid.

such as green power. More important, without vigorous entry, the market may fail to add supply of electricity to keep pace with demand, as happened in California.

## **2. Do not mandate divestiture of generating capacity.**

Many, but not all, reform legislation mandates that incumbent utilities divest their generation capacity. Some see the generation sector as the part of the electricity supply chain with the highest competitive potential, while others argue that mandated divestiture eliminates the benefits that can accompany vertical integration in an industry.

Instead of mandated divestiture, the encouragement of restructuring of utilities created substantial flexibility in Pennsylvania's electricity market. Divestiture is likely to occur to some extent as a part of restructuring, as utilities refine their "core competencies." Allowing retention of at least some generation capacity enables companies and consumers to reap the benefits of vertical integration where they exist.<sup>103</sup>

## **3. Accelerate the phase-in period for all customers to be allowed choice.**

Although industrial consumers enjoy much of the benefit of deregulation, opening industrial, commercial, and residential markets to competition more quickly can enable more customers to make their own choices of electricity providers and services, and thus see more appreciable benefits.

## **4. Encourage the use of voluntary regional exchanges and clearinghouses and the development of associated financial instruments.**

PJM and other ISOs in the United States, as well as the use of NYMEX to trade electricity futures, enable utilities and wholesale generation companies to plan and price their services. Markets and clearinghouses serve a crucial role by allowing utilities and generators to mix, enter bilateral contracts, and make spot purchases to manage price volatility and balance reliability and cost.

## **F. Conclusion**

Reform and restructuring of the electric industry need not produce crisis. Electricity deregulation and reform can bring substantial benefits to consumers, as several worldwide examples of successful reform demonstrate. Careful consideration of factors such as default price, flexible industry restructuring, phase-in period, and membership in regional markets can make the difference between success and failure. As Stephen Carter at Power Perceptions noted, "If what happened in California shows what can [go] wrong with deregulation, what's happening in Pennsylvania shows that competition can succeed."<sup>104</sup>

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<sup>103</sup> Another alternative was used in New York, where the state required utilities sell off their generation plants, but also allowed so-called "vesting contract" under which the utilities could sign long-term power delivery contracts with new owners of the plants as a condition of the sale. Federal Energy Regulatory Commission, *Order Directing Remedies for California*, p.37.

<sup>104</sup> [www.powerperceptions.com](http://www.powerperceptions.com).

## Part 5

# A Missed Opportunity: Responding to Governor Davis's Plan to Address the Electricity Crisis

After months of hoping California's electricity crisis would go away, interspersed with frequent plaintive appeals to federal regulators to re-regulate the state system, Gov. Davis opened his State of the State address with a bang, hammering home point after point on the issue. Unfortunately, while he did make a few sound proposals, the plan he proposed was for the most part another spate of finger-pointing, half-steps, and missed opportunities.<sup>105</sup>

The focus of state policymakers should be on moving forward toward a competitive electricity market with reasonable prices and reliable service driven by consumer choices. Alas, this is not the direction that Davis is steering the ship of state.

## A. Our Power?

Davis prefaced his plan by claiming he was not going to place blame and then devoted much of his plan to blaming the current crisis on the power-generating companies. Indeed, five of his eight short-term action proposals were aimed at controlling or punishing power generators. Several times in his address, the governor referred to "our power:" "we have lost control over our own power," "they're refusing to sell us our own power." He went on to say, "[w]e will regain control over the power that's generated in California and commit it to the public good," and then went one step further, threatening to use eminent domain to take power plants away from uncooperative power-generation companies.

This may make great populist rhetoric, but it is both wrong and wrongheaded. Davis is wrong because it is not *our* electricity until we buy it—just like the crops that farmers grow and the programs written by Silicon-valley programmers are not ours until we buy them. While electricity is a vital commodity, the same is true of food, water, healthcare, housing, and clothing—all goods most of us purchase in competitive markets. If the state restructuring of electricity had not created market rules that gave all bargaining power to the electricity generators, forbade utilities from bargaining for better prices, and left consumers with no choices,

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<sup>105</sup> For an idea of how little concern Davis has had for the electricity issue, for the last two years he has neglected to appoint someone to head the Office of Ratepayer Advocates, charged with guarding the rights of utility customers.

we would not be in our present fix. Blaming the power generators for playing by the rules the legislature created is unfair and unhelpful. Instead of posturing and chest-pounding about “our power,” Davis would better serve state taxpayers by building on his proposals to smooth the way to additional electricity supplies and looking at how to repair the market rules so that both sides can bargain for competitive deals.

## B. Point-by-Point: The Governor’s Proposed Actions

The governor began his specific proposals by stating that he would include in his budget proposal \$1 billion to spend on ensuring electricity supplies and stabilizing prices. He did not reveal any details of how those funds would be allocated and over what specific supply enhancements and forms of rate relief. But he showed foresight to include the funds in his plans—California cannot move from the current crisis to a competitive electricity market without investing in the transition. Used wisely, the \$1 billion could help make some of the governor’s wiser proposals possible as well as other, bolder steps such as those we recommend below.

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His proposals here are not very bold when one considers that the Federal Energy Regulatory Commission (FERC) has already enacted most of them.

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### 1. *The Governor’s Short-term Proposals*

Davis spoke of eight specific short-term measures he would like to take—three that would modify the rules of the current market, and five that would tighten controls on power generation plants.

#### a) Market Rules

Davis recognizes that the market rules put in place by the restructuring law are responsible for many of our current problems. As a fix, he called for steps to:

- Restructure the governing boards of the system operators so we can replace the current advocates for the energy companies with advocates for the public;
- Overhaul the crazy bidding process for electricity, which currently guarantees that every generator is paid according to the highest bid, rather than its own bid; and
- Streamline the process for utilities to enter into low-cost, long-term contracts for electricity and then apply pressure to the out-of-state generators to supply that power.

The governor is correct that there are problems with management of the Independent System Operator (ISO) and with the bidding rules in the Power Exchange and that utilities must be able to enter into long-term contracts. But his proposals here are not very bold when one considers that the Federal Energy Regulatory Commission (FERC) has already enacted most of them.

In its December 15<sup>th</sup> order, FERC ordered that the current board of the ISO be dissolved and replaced with a non-stakeholder board and allowed the utilities to enter into long-term contracts for electricity supply.<sup>106</sup> After all these months of complaining that FERC has not been doing its job, Davis has now included in his own recommendations steps *that FERC has already taken*.

Davis failed to pick up on a crucial element of reforming the ISO board—it doesn't need a re-shuffling of the advocates on the board, it needs to be cleansed of advocates of all stripes. While stakeholder boards can often be effective, given the current crisis and politically charged situation, the ISO board needs to be depoliticized. As FERC said in its order, the ISO needs a non-stakeholder board independent of market participants. Loading up the board with the “advocates for the public,” as Davis suggests, risks further politicizing the board. Davis should work with existing stakeholders to agree to a board of neutral parties who understand the challenges of managing a far-flung transmission grid and the various approaches that can be taken, but who, most importantly, have no axe to grind on the issue. Such a board would find it far easier to develop ISO procedures and policies that support broader policy objectives than getting enmeshed in the policy debates themselves.

The governor's plan does not yet include details on reforming the bidding rules in the Power Exchange (PX). He was certainly correct that the old rules were ludicrous. Perhaps he plans to work with the legislature to develop specific proposals. There are several things they should consider in the process.

First, the PX must shift from a mandatory, all-encompassing wholesale market, and return to the proper use of a power pool—providing a transparent spot market where utilities and power generators can make real-time trades for unanticipated loads. We don't know the optimal mix of forward (long-term) contracts and spot market purchases a utility should adopt, nor how that mix will change as market conditions change. New supplies, additional competitors, changes in demand—all of these can change, indeed *have* changed, the predictability of loads over any given span of time, and therefore change the risks of forward versus real-time purchases. Market rules need to allow utilities to determine the right mix and adjust it as needed.

Second, pricing rules for the PX must change. There are several competing ideas as to how spot prices should be determined, from single prices determined each hour to pay-as-bid schemes. It might be sensible to use a pricing rule regime borrowed from another state's power exchange as an interim rule until utilities and generators have established enough forward contracts so that PX is mainly serving as a spot market (perhaps work with market participants to determine a percentage of the total load to use as a cut point). Then there may be freedom to experiment with alternative rules without undue risk and find one that works well and adapts to changing market conditions.

Though FERC has already allowed utilities to pursue forward contracts, Davis wisely suggests exploring whether the process can be streamlined and whether the state can use suasion to encourage contracting. There are a few key obstacles to overcome, however, before we are likely to see significant forward contracts.

First, utilities on the brink of bankruptcy are not attractive partners for long-term contracts. Davis will have to develop some positive steps to help alleviate the utilities' financial crisis before significant forward contracts will be feasible.

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<sup>106</sup> Federal Energy Regulatory Commission, *Order Directing Remedies For California*, pp. 62ff and 35ff.

Second, generators threatened with having their plants expropriated by the state are not attractive partners for long-term contracts. As long as Davis makes a policy of threatening power generators with eminent domain or other drastic state intervention, he exacerbates the regulatory uncertainty that already makes the electricity business in California exceptionally risky and erects barriers to the very long-term contracting he recognizes as crucial to solving the electricity crisis.

Third, power generators can get such high prices in the current market that their incentive to accept long-term contracts at lower prices is weak. Utilities, naturally, are not rushing to lock in high prices through forward contracts. But power generators do tend to want forward contracts to reduce their risk portfolio relative to over-reliance on spot-market sales. Already they are entering into forward contracts with non-utility buyers.<sup>107</sup> Also, there is an opportunity for city-owned utilities in the state to offer initial forward contracts to the private utilities to kick-start the process (see discussion below). Given mitigation of the utilities' default risks and generators' regulatory risk, we would expect to see a few initial forward contracts quickly build into reasonable portfolios that will dramatically reduce the market's exposure to wholesale price spikes.

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Power generators can only manipulate the market (legally or illegally) because the market rules allow them to.

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#### b) Cracking Down on Power Companies

The governor's other short-term recommendations reflected his decision that the power generators are the villains of the current crisis who must be controlled and even punished. Specifically, he called for steps to:

- Provide state regulatory agencies with authority to order any functioning generating facility down for "unscheduled maintenance" to go back on line;
- Give the Public Utilities Commission 50 new inspectors to monitor—and stand guard if necessary—at any facility suspected of deliberately withholding power from the grid;
- Make it a criminal act to deliberately withhold power from the grid—if it results in imminent threat to public health or safety;
- Expand the authority available to the governor under a state of emergency in the event of imminent power outages; and
- Provide \$4 million to the attorney general to investigate and prosecute possible racketeering, market manipulation, price fixing, and other potential violations by merchant generators.

Imagine if you were not allowed to purchase food anywhere else (and not even to have your own garden or farm animals) but had to buy your groceries from a "grocery exchange" where the food growers and manufacturers set whatever prices they wanted each day. As long as there is more food than people want to buy, prices would be competitive and people would get food—though they might not be happy with having their grocery options so tightly controlled. But if more people moved into the area, or everyone just got hungrier, and demand began to clear the shelves every day, the food producers could begin to charge whatever they wanted, and people would have to pay. The rules of this game give consumers no other place to go for food and forbid them to bargain directly with food producers for a better deal.

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<sup>107</sup> Duke Energy announced on 4 January that it has sold about 90 percent of its available generation in California forward to non-utility buyers. Cheddar, "Tales of the Tape."

Power generators can only manipulate the market (legally or illegally) because the market rules allow them to. Current PX bidding rules give generators tremendous market power. Once demand for electricity reached roughly the same level as supply, generators knew they could ask any price and get it. Since all transactions had to be in the PX, the utilities were never allowed any option but to accept whatever price the generators asked.

The rules that the state established in its restructuring plan allow, even encourage, power generators to charge very high prices. They don't need to manipulate the market. The most widely heard accusation of market manipulation is that they withhold electricity from the grid to drive up prices, and accusers offer the current high level of power plants shut down for unscheduled maintenance as evidence. But the state's system for approving scheduled maintenance is unwieldy and fraught with delays. Delaying scheduled maintenance always increases the risk of breakdowns, even more so when power plants are running near capacity nearly all of the time, as they have this year. Indeed, some plant breakdowns may be the result of delays in scheduled maintenance caused by waiting for state approval.

Making the PX the mandatory and sole market and imposing bidding rules that ensure the highest bid price is paid by all gives the generators free rein to set prices and utilities no options. The key to turning things around is making the PX an optional spot market and fixing its bidding rules. Unfortunately, Davis instead chose to pursue another investigation into "possible racketeering, market manipulation, price fixing and other potential violations by merchant generators." Never mind that five other investigations into this issue are already underway, with no illegalities yet coming to light. More important, the generators *don't need to do anything illegal*. The market rules give them all the freedom they need to manipulate prices and rake in the money.

## 2. *The Governor's Long-term Proposals*

As his short-term proposals are being put in place, the governor calls for a series of longer-term actions to resolve some of the market's structural problems.

### a) Have Utilities Keep the Generation Plants They Still Own

"Repeal the law that allows the three major utilities to sell their remaining generating facilities. Instead, we must require them to hold on to those facilities and sell their power to California consumers."

Before restructuring, California utilities owned more than enough generation plants to meet their customers' demand. But restructuring forbade "vertical integration" and ordered utilities to sell their power plants. The utilities quickly sold their natural gas power plants, which account for most of the power generated in the state, though the sale of hydropower plants has been tied up in environmental concerns.

Imagine telling Paramount studios that they can make as many movies as they want but must not own any movie lots or animation studios. Forced divestiture of assets is not an act of deregulation. If producers are expected to deliver lower prices and compete for business, they must be free to determine what goods and services they will offer, what assets they require, and be able to expand those resources as needed. Ironically, a key reason why municipally owned utilities have suffered much less, and even done well in some ways, under the current crisis is that they were not required to sell of their generation plants. What is good for government-run utilities should also be good for private enterprise.

Davis is half right with his recommendation—the law should not require divestiture. But he repeats the mistake of the original law, albeit in a different form, by seeking to dictate how the utilities can use those assets. Suppose in a few years market conditions change and California has ample electricity while some other state experiences a shortage. Yet Davis would create rules restricting utilities’ ability to export electricity, no matter how much sense it might make to do so.

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The governor should explore the possibility of the municipal utilities offering moderate-term forward contracts to the private utilities to kick-start the process of getting more of the market on long-term contracts.

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But one scenario that Davis’s rules will not accommodate is already playing out. PG&E’s hydroelectric generating assets may be worth as much as \$4.5 billion on the market, and one potential solution to the utility’s current financial crunch might be to sell those assets. Davis has made it a priority to keep the utilities solvent but has not proposed any concrete measures for doing so. Meanwhile he has foreclosed one viable option.

Dictating industry structure with such rules inevitably results in supply and demand problems as markets change; our current situation is very precisely an example of this dictum. Policies that allow and encourage real competition will both ensure sufficient supplies of electricity for California and allow utilities and power generators to make decisions and investments to meet needs policy makers cannot anticipate today. If Davis is convinced that we must restrict where utilities can sell their electricity, he should consider sunseting the restriction or setting a threshold—for example, when in-state generation capacity exceeds demand by 10 percent—for removing the restriction.

#### b) Require Municipal Utilities to Sell Excess Power at Reasonable Rates

“We must also require our municipal utilities to sell their excess power to California consumers at reasonable rates.”

Since municipal utilities are government bodies whose mission is to serve the public, not to serve customers alone or to correctly anticipate future market conditions, requiring them to sell at reasonable rates is appropriate. Last year saw the obscene spectacle of government agencies raking in hundreds of millions of dollars in profits earned by selling excess electricity at the highest market prices. It appears that in 2000:

- The Los Angeles DWP made close to \$200 million in profits selling power into the PX;<sup>108</sup>
- State agencies did not hesitate to take advantage—one, the State Water Project, made \$23.6 million in profit from selling power at high PX prices; and
- Small cities made big money, too. Last summer the city of Redding’s municipal utility made \$8 million in profits selling to the PX.

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<sup>108</sup> DWP made \$140 million in profit in its fiscal year ending June 30<sup>th</sup> (a 40 percent increase over the previous year). Rebecca Smith, “Los Angeles Utility is Surprise Beneficiary of Deregulation,” *Wall Street Journal*, September 6, 2000, p. CA3. Given the pattern in wholesale prices over that span, most of that was made in 2000, and likely even more made in the latter half of the year.

An even greater travesty is that the municipal utilities are able to make these profits by *literally selling us our own power*. The munis spent last year buying electricity from federal power marketing administrations and reselling it to the PX for five times what they bought it for. Though all federal taxpayers own the electricity generated by federal hydropower plants, munis get first chance to buy it, and private utilities only get what remains. During last summer's crisis, munis sucked up all of the taxpayer-owned electricity they could get and sold it back to taxpayers at a huge markup.

And the federal agencies who sell the taxpayer-owned electricity didn't fare too poorly either. Bonneville Power Administration (BPA), in the Northwest, made \$208 million in profits (116 percent increase over the previous year), selling power in California for five to ten times what it charged in Washington state, despite Pres. Clinton's promise that federal agencies would try help alleviate California's supply woes. Now Congress is investigating BPA for profiteering.

Davis should appeal to the federal government to end this travesty and require that taxpayer-owned electricity be provided at cost and equally accessible to all taxpayers, not preferentially granted to those who happen to live in an area served by a municipal utility.

Further, Davis should take steps to integrate the municipal utilities into the electricity market as it becomes competitive. Under current rules, munis can opt out or into the competitive market at their discretion, but a truly competitive statewide market should include all utilities in the state.<sup>109</sup>

Finally, the governor should explore the possibility of the municipal utilities offering moderate-term forward contracts to the private utilities to kick-start the process of getting more of the market on long-term contracts. He could gather city leaders, heads of municipal utilities, and the private utilities to explore whether this idea is practical and helpful. For the medium term at least, munis and the private utilities will not be competing for customers, so there is no competitive reason munis cannot contract to sell their excess power and perhaps even some of their share of federal hydropower, to the private utilities. The munis would lose nothing except the opportunity to make excessive profits (they are supposed to be not-for-profit), and the private utilities would get some initial forward contracts and some leverage to use on the generating companies to negotiate contracts as well.

#### c) Take Measures to Conserve Electricity Statewide

A centerpiece of Davis's long-term plans is a statewide effort to conserve electricity. He appealed to both state residents and businesses to cut electricity consumption by seven percent, pledged that state agencies would cut consumption by eight percent, and proposed to spend \$250 million on conservation efforts.

Curtailing demand is a crucial part of bringing sense and stability back to California's electricity market, but Davis's proposals are feeble. California has for years pursued a wide variety of conservation and demand-side management programs and is now one of the most energy-efficient states in the nation. To expect dramatic additional efficiencies from simple appeals is at best wishful thinking.

There is a very effective and widely used mechanism for encouraging customers to curtail demand in the face of shortages of supply—prices. Davis assiduously avoided mentioning price caps or changes to them in his plan (more on this below). Yet it is retail price caps that have blocked all signals about electricity shortages from reaching customers and thus failed to encourage voluntary and gradual demand reductions that might

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<sup>109</sup> See Moore, *Integrating Municipal Utilities*.

have minimized the current crisis. Now we can no longer simply remove price caps—the resulting price increases would be catastrophic—but if we want to reduce demand, we have to slowly loosen price controls until customers are paying prices close to true market prices. This will take time and careful measures, most importantly steps to ward against exercise of unreasonable market power by utilities and to encourage competition and entry to the same end. But achieving any meaningful additional conservation depends on customers paying market prices.

#### d) Take Measures to Expand the Supply of Electricity in the State

Another centerpiece of Davis’s long-term plans is expanding the supply of electricity in the state. To this end he proposes steps to encourage new generation plants in California, including low-interest loans for some plants and opening up state lands for siting new plants. He also suggested working with municipal utilities or creating a state power authority to build more government-owned power plants in the state.

His first two ideas are good ones, as far as they go. In the short run, low-interest loans might make some marginal power plant project viable. In the longer run, opening up some state lands to power plants could solve the sometimes severe problem of finding an acceptable site for a plant.

But Davis himself raises far greater barriers to getting new power plants built in the state. His plan was laced with bashing of power-generation companies and threats to expropriate their property. He proposed a wave of new restrictions and oversight of generation plants along with new criminal sanctions for not selling electricity when state inspectors think they should. He proposed using state money to build new government-owned power plants. All three measures dramatically increase the regulatory risk and direct-market risk a new power plant in California will face and thus discourage additional investment. Other Western states need power plants nearly as much as California, and Davis’s plan is almost certain to drive most power plant investment out of California.

Oddly, Davis’s plan admits that restructuring has stimulated a nearly unprecedented growth in new power plants in the state—after 12 years of no new plants at all, the last few years have seen nine new plants approved by the California Energy Commission. The problem is not that companies don’t want to build more plants, the problem is that it takes four to five years from initial application to starting operations—in other Western states it takes half as long.

California’s stringent permitting and environmental rules and review process make building a new power plant an expensive and lengthy process. The problem is that state regulators are like the troll under the bridge—you don’t cross if you can’t find some way to satisfy them. Regulators ought instead to be a constructive part of the process. Typically, they see themselves with a mission to make sure no standards are violated—they don’t care if the plant gets built or not. A better approach would be to adopt a mission of working to see that plants are built without violating standards.

Davis should direct his regulatory agencies to take a constructive approach, sitting down with utilities and working out ways to get plants built while complying with applicable regulations. Such an approach might speed up a few of the new plants in progress and help bring more electricity online quickly.

The idea of deregulation is to move to a competitive market, not government production of goods and services. The government need only intervene in such fashion in cases of overwhelming market failure. But there is no failure of markets here, just a failure of government rules and management. Moreover, there is a very good chance that government-owned and operated generation plants would be less

efficiently run, and thus higher cost, than private generation plants.<sup>110</sup> Davis would do better to ensure adequate new power generation by encouraging new private investment in power plants. If Davis were also to reassure power generators that as new market rules go into place and market manipulations cease he will back off on his more draconian recommendations, California might once again be an attractive place to invest in power plants.

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The governor's plan lacks a vision of what the plan sets out to achieve.

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### ***3. What is Missing From the Governor's Proposals?***

Two issues were noticeably absent from the governor's plan.

First, the governor emphasized that letting the state's private utilities go bankrupt is not an option but failed to give any indication of what he or the legislature would do about it. Given the extreme short-run immediacy of imminent bankruptcy, hesitation here could be fatal.

In working on immediate measures, state leaders should recognize that it is not the utilities' debt, per se, that is the problem—in 1998 and 1999 PG&E and SCE were able to pay down their debts by far more than they have run up during the last year.<sup>111</sup> The problem is that they have to buy electricity each day at a price much higher than they can charge for it. Solving this cash flow problem, and the credit and related problems that go along, is the immediate need.

Since the problem is disparity between wholesale and retail prices, solutions lie with prices as well. While policy makers work on proposals to rectify market rules and alleviate supply shortages, the prices customers pay have to move to reflect market conditions.

Davis left the issue of price controls out of his plan, and it is a politically charged issue. We cannot simply lift all price controls when there is not a competitive market. The immediate price increase would be unacceptably high. Instead, Davis should work out a plan to slowly raise rates, dovetailed with other market reforms that work to reduce the level to which prices need to rise. Davis's firm commitment would reassure the capital and credit markets that the utilities will eventually pay off their debts, alleviating the utilities' most extreme financial pain.

In addition, Davis might propose a deal with the utilities to split their current losses between their customers and their shareholders. Since state policy is really to blame for the current crisis, it is fair that customers (taxpayers) and the utilities share the costs, and utilities should not be allowed to take back all the losses from customers once rates are uncapped. To spread out the portion that will be passed on to customers, the state might back a securitization (as was done with the utilities' stranded costs).

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<sup>110</sup> A number of studies have found that government electric utilities have higher costs than private ones, indeed in most sectors private production is more efficient than government production. See Hilke, *Cost Savings from Privatization*, esp. p.6.

<sup>111</sup> The utilities debts were approaching \$12 billion in mid-January 2001, but they have also paid off \$17 billion in debts over the few years since restructuring.

One final lacuna in the governor's plan is a vision of what the plan sets out to achieve. The closest he comes is asserting that he will take back control of "our" electricity—but what does that mean? Is he simply concerned with weathering the current storm? Does he want to return to the way things were before restructuring? Or does he want to continue to move the state towards a truly competitive market for power generation? The internal contradictions that crop up at a few points in his plan—such as both calling for and scaring off additional private investment in power generation—arise from a lack of vision of a final set of conditions for the electricity market.

Davis risks expending his political capital and using up precious time on measures that don't all move towards a common objective. The recommendations we offer were created by applying economic analysis paired with an objective of moving the California electricity market towards competition and consumer choice. We hope they help Governor Davis and other state leaders to do the same.

## Part 6

# Recommendations

California’s electricity crisis requires policy alternatives that balance immediate approaches to ensuring sufficient supplies of electricity and solving the utilities’ financial crisis with longer-term approaches that will bring California to a competitive market with customer choices, lower prices, and a more reliable power supply.

There is no easy way out of the current crisis—the forces acting on the market are very complex, as is the electricity market itself. Policy makers must act quickly, but not in haste, avoiding interventionist policies that lock in yet another round of unintended consequences at some future date. With a little time to learn from the mistakes of the initial restructuring and from more successful deregulations elsewhere, the state’s leaders can craft policies open-ended enough to accommodate the complex interconnections in the market and resilient enough to accommodate changes in market conditions. To that end, we offer the following policy recommendations.

1. **Articulate a Vision of Moving toward Competition That Will Alleviate Concern of Regulatory Intervention.** Too many state leaders are offering isolated policy ideas, would-be silver bullets, and conflicting proposals that fail to tell the market what direction policy is moving and what endstate is sought. Inflammatory, populist rhetoric by state leaders replete with threats of police action and takings only exacerbates uncertainty about California’s electricity market. A clear and well-articulated endstate and set of goals will help policy makers formulate coherent and coordinated policy proposals and reassure the public and the market.
2. **Change the Law to Make the PX Voluntary.** A spot market is a necessary component of the overall electricity market. But centralized mandatory pools bring to the market perverse incentives and rigidities that create distortions and an inability to adapt to changing market conditions. As a voluntary spot market, the PX can become an independent competitive exchange and develop bidding rules that attract both buyers and sellers.
3. **Help Alleviate the Barriers to Long-term Power Contracts.** State leaders have acknowledged that the utilities need to add forward contracts to their portfolios to hedge against wholesale power price fluctuations but have not developed adequate policies to help make forward contracts happen.

*The governor’s 14 January proposal to have the state enter into forward power purchase contracts is not wise. The state would be taking on futures risks with no experience or skills in evaluating those risks, and putting taxpayers at risk for its mistakes. One unavoidable lesson of California’s electricity restructuring is that policy makers are ill-equipped to accurately predict how markets will evolve.*

*State leaders could achieve similar results by offering state guarantees to back utilities’ initial forward contracts. This would alleviate the credit risk that is driving up forward prices offered to utilities, but*

dilute the taxpayer's risk and let the utilities negotiate the contracts with their experience, expertise, and incentive to prognosticate correctly.

*State leaders should immediately convene a summit of leaders from state agencies and cities that generate electricity for resale to explore opportunities for cost-based forward contracts with the utilities.* Government agencies control about one-quarter of the state's power generation and resell about 40 million MWh each year. Though their loads are very seasonal, if even 10 to 20 percent of that load could be forwarded to the utilities at cost, it would help push forward prices down and lever additional contracts.

4. **Create a Plan for Phasing Out Price Caps.** A market cannot work without market prices—consumers don't know when to reduce consumption, and suppliers don't know when to increase production. In the short run, price caps only guarantee that utilities will continue to bleed red ink, suppliers will look for other markets in which to sell, and consumers will have no incentive to conserve electricity.

*Gradually, but predictably, raise the price caps.* Convene a working group to create an initial schedule and revise the schedule periodically as market conditions change.

*Tie rate cap increases to milestones in accomplishing other policy changes that increase competition and customer choice in the market and reduce utilities' market power.* If other policy changes are successful in allowing market entry and new competitive choices for consumers as well as increased electricity supply, the timetable to remove price caps can be moved up.

*Meanwhile, implement a system to guard against exercise of market power in utilities' customer charges.* Until consumers have options in the face of high prices or bad service from utilities, regulatory oversight is necessary.

*Encourage utilities to implement real-time pricing and metering so that consumers can adjust their use of electricity as prices change.* Implementing real-time pricing and metering can also justify accelerating the schedule for removing price caps.

5. **Accelerate Completion of New Power Plants with a Constructive Approach to Licensing and Enforcing Environmental Rules.** Restructuring spurred a level of investment in new power plants not seen in decades in California, but the permitting and construction process takes years longer than in other Western states. The problem is not as much the standards as how they are enforced. State regulators do not care if power plants get built, only that the standards are followed. State leaders must get state regulators on board with a new, constructive approach that works with developers to get power plants built without violating the standards.
6. **Integrate Municipal Utilities into the Market as the Market Becomes Competitive.** California's electricity market will not be truly competitive if customers in many of its largest cities are not allowed to choose their electricity provider. As restructuring moves forward, municipal utilities should be integrated into the competitive market. Over the long run, state leaders should challenge the federal government to end the inequities and wealth transfers that federal subsidies for municipal utilities and preference distribution of federal hydropower inflict on California residents.
7. **Do Not Dictate Utility Industry Structure.** Requiring the utilities to sell their power plants turned out to be a mistake when market conditions changed in ways policy makers did not predict. Forbidding utilities to sell power plants repeats the same error. Policy makers do not know the future of the electricity market and should not lock the utilities into any arbitrary structure based on the exigencies of the moment. Ensuring that utilities do not favor their own generation plants is better served by developing good rules to govern how customer choices are reflected in grid loads, by encouraging distributed generation, and ultimately competitive electricity distribution systems.

## About the Authors

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