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The California Electricity Crisis: Causes and Policy Options

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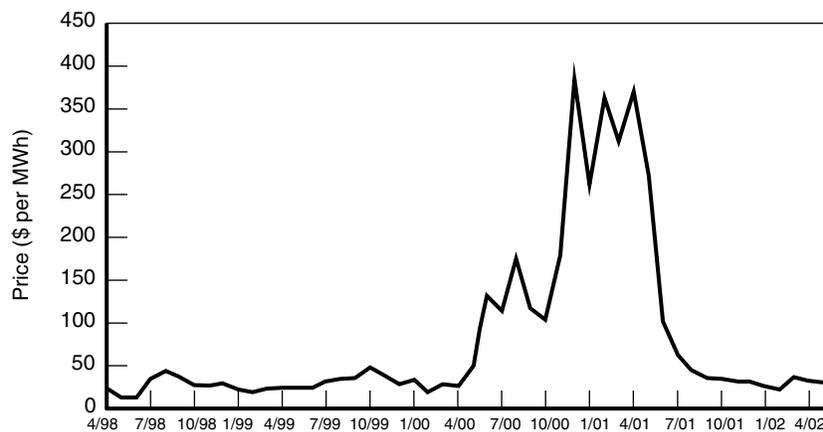
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1. Introduction

In 1996, California passed AB 1890, a bill calling for the radical restructuring of the state’s electricity sector. Competitive markets for wholesale power were inaugurated in April 1998, and in those early years, the markets appeared to function relatively well. As predicted, the wholesale price of electricity declined and average rates fluctuated moderately between \$20 and \$50 per megawatt hour (MWh) (see Figure 1.1). Customers benefited from a 10 percent rate reduction and were protected by a temporary rate freeze. The utilities benefited at the same time, as they were able to pay off the costs of transitioning to a competitive environment.

In the late spring of 2000, however, the electricity sector began to malfunction severely. In June, average prices suddenly rose precipitously, breaking the \$100 per MWh mark. They remained at extraordinarily high rates through the spring of 2001 before they moderated rapidly and



SOURCE: Joskow and Kahn (2001b).

Figure 1.1—Average Wholesale Electricity Prices in California, 1998–2002

unexpectedly in June 2001 (see Figure 1.1). Although total energy costs for wholesale power were \$7.4 billion in 1999, they were about \$27 billion per year from 2000 through 2001, burdening California consumers and businesses with almost \$40 billion in added costs.

The lights flickered throughout the crisis. On June 14, 2000, rolling blackouts in San Francisco caused by a Bay Area heat wave signaled the beginning of rough times. In 2000, electricity was turned off to customers with special interruptible contracts on 13 other days. During 2001, “load shedding” occurred on 31 days. On nine of these days customers experienced involuntary rolling blackouts for a total of 42 hours of outages. During these nine outages, California experienced an average shortfall of 600 MW of electricity, enough energy to power over 450,000 households. On the worst day, January 18, the equivalent of almost one million households lost electricity. The costs of these blackouts are difficult to enumerate, but they are undoubtedly significant.

The soaring prices on the wholesale market wreaked financial havoc on the electricity sector. The customers of San Diego Gas & Electric (SDG&E) felt the brunt of the cost increases immediately. The retail rate freeze imposed on the utilities had been lifted for SDG&E in July 1999. Thus, SDG&E customers were paying electricity rates based on wholesale prices and saw their bills double and triple during the summer of 2000. Customers of Pacific Gas & Electric (PG&E) and Southern California Edison (SCE), in contrast, were shielded from these increases by the retail rate freeze. These two utilities, however, were caught in a financial vise, forced to buy expensive power on the wholesale market and sell it cheaply to retail customers. Soon, SDG&E joined them in this predicament when the legislature passed AB 265, which reimposed a rate freeze for SDG&E customers retroactively.¹ The three major utilities racked up debt at a rapid pace. In January, as their credit worthiness evaporated, the state was forced to become the purchaser of last resort.

¹AB 265 included provisions to enable SDG&E to recoup the uncompensated costs of buying wholesale power. Thus, it was not placed in the same financial peril as were PG&E and SCE.

A long list of debts is still being sorted out. Pacific Gas & Electric declared bankruptcy and is arranging in bankruptcy court how to pay creditors about \$13 billion. Southern California Edison accepted a deal with the California Public Utilities Commission (CPUC) in which it will pay off \$5 billion to \$6 billion in debt with a combination of ratepayer contributions, cash on hand, and decreased dividends. The state spent \$8.7 billion on wholesale power in the first half of 2001 and projected that it would spend \$17.2 billion by the end of the year. \$7 billion for these purchases came from the general fund, and the state is still struggling to float a \$12 billion bond to repay the fund. In addition, during the height of the crisis the state began signing long-term contracts for power to secure a source of supply, and it is now committed to purchase \$42 billion worth of electricity over the next ten years.

Beyond this financial turmoil, the crisis caused by the surge in wholesale prices devastated the institutional structures governing the California electricity sector. The private utilities are no longer the main purchasers of power. Instead, the state is more tightly entwined in the electricity market than it has ever been before. The Power Exchange (PX), the central market for trading wholesale power, went bankrupt and closed operations. The Independent System Operator (ISO), designed to manage the electricity grid, has become politicized and is under fire. The state has curtailed retail choice, putting competition on hold, and regulatory authority is now more fragmented, leading to overlaps and conflict. The destruction wrought by the financial crisis and system failure has been so complete that California must re-create the regulatory and market institutions of its electricity sector almost from scratch.

To gain some perspective on the damage inflicted on the California economy, one can compare it with other significant economic failures. This crisis has cost \$40 billion in added energy costs over the last two years. Increased costs will continue as long as the prices in the long-term contracts signed by the state exceed wholesale rates. On top of these costs, one must add the costs of blackouts and reductions in economic growth caused by the crisis.² Thus, conservatively, the total costs can be

²The national recession has complicated estimating the macroeconomic effects of the crisis, but in June UCLA projected that the crisis would slow the California economy

placed around \$40 billion to \$45 billion or around 3.5 percent of the yearly total economic output of California. Before this crisis, the preeminent example of failure of an electricity system was a default by the Washington Public Power Supply System. It overinvested in nuclear plants and defaulted on its bonds. This default cost the state about \$800 million or 1.5 percent of its total economic output. The Savings and Loan debacle was considered a staggering deregulatory failure, but its total costs of about \$100 billion amounted to only one-half of 1 percent of the total U.S. economy.

Repairing this damage poses a daunting task to California policymakers. Much of the debate and legislative action has focused on the financial dimensions of the crisis. In contrast, the manner in which the state is going to extricate itself from its role as the power purchaser of last resort, reorganize the electricity sector, and regulate it remains imprecise. This report seeks to focus attention on these important institutional questions.

After a brief overview of the regulatory reforms that led to this crisis, this report examines the root causes of the crisis. It finds that blame cannot be easily leveled at any single actor. A combination of unforeseen events, poor decisions, opportunistic behavior, and fragmented regulatory authority all conspired to aggravate the magnitude of the crisis.

Based on this analysis of the root causes of the crisis, Chapter 4 of the report examines a number of frameworks that may guide the reorganization of the electricity sector: increased public ownership, return to a regulated environment, continuing with competitive markets, and hybrids of these options. It concludes that some form of competition should be reinstated, at least for certain industry segments and customer classes. In the short run, however, policymakers may choose to curtail the role of competition for the sake of stability and

in 2002 by between 0.7 and 1.5 percent and would increase unemployment by 1.1 percent. See Cambridge Energy Research Associates (2001b).

administrative ease and to provide a smoother transition path back to a competitive environment. Chapter 5 then discusses specific policy options that are appropriate no matter which reform path is chosen.