California Electricity Deregulation:

Fool me once, shame on you. Fool me twice...

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California's power "deregulation" was of the biggest economic blunders in U.S. history. The State of California lost at least twelve billion dollars, while still failing to prevent massive rolling blackouts.[1] Why, then, is California governor-elect Arnold Schwarzenegger, according to an article from Forbes,[2] planning to reenact energy deregulation? The answer is that deregulation cannot be solely blamed for California's energy crisis. It was the awkward method of "deregulation" of California's power utilities that caused the problems. It created purely inelastic demand which, combined with extremely inelastic supply and oligopolistic forces, produced the incredibly inflated electricity prices.

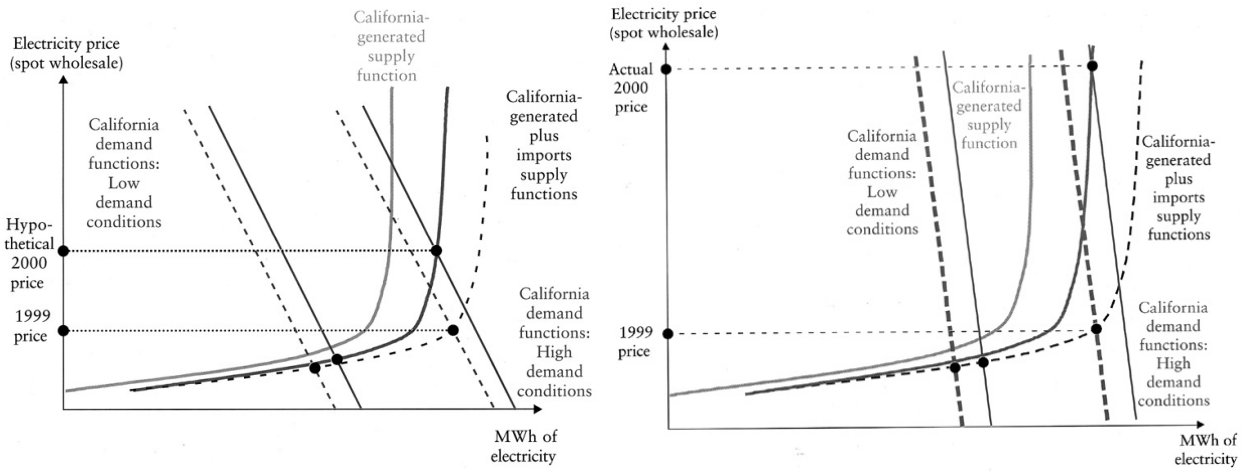
Before deregulation, California had a power system similar to most other states. Most electricity was served by vertically integrated companies that were completely responsible for generation, transmission, and distribution of power. These utilities were granted government-sanctioned monopolies, but were forced to operate under strict price ceilings. [3] To promote reliability, government agencies ensured that sufficient power was generated and distributed in a safe and organized manner.

Following deregulation, the vertically integrated utilities were split into three parts. First, independent firms bought and operated the large utilities' power plants. Second, the state of California operated both the state-wide power grid and the California Power Exchange (CPX) on which electricity was freely bought and sold. Finally, a collection of Municipal providers, along with the original three utilities, managed the sale and distribution of power

[1]James L. Sweeney, *The California Electricity Crisis* (Stanford:Hoover, 2002), 184.

[2]Leonard Anderson, *Schwarzenegger Aims to Repair Calif. Power Market*, Forbes.com. 2003. <http://www.forbes.com/business/energy/newswire/2003/10/07/rtr1102087.html> (13 October 2003).

[3]James Walsh, *The $10 Billion Jolt* (Los Angeles:Silver Lake, 2002), 220.



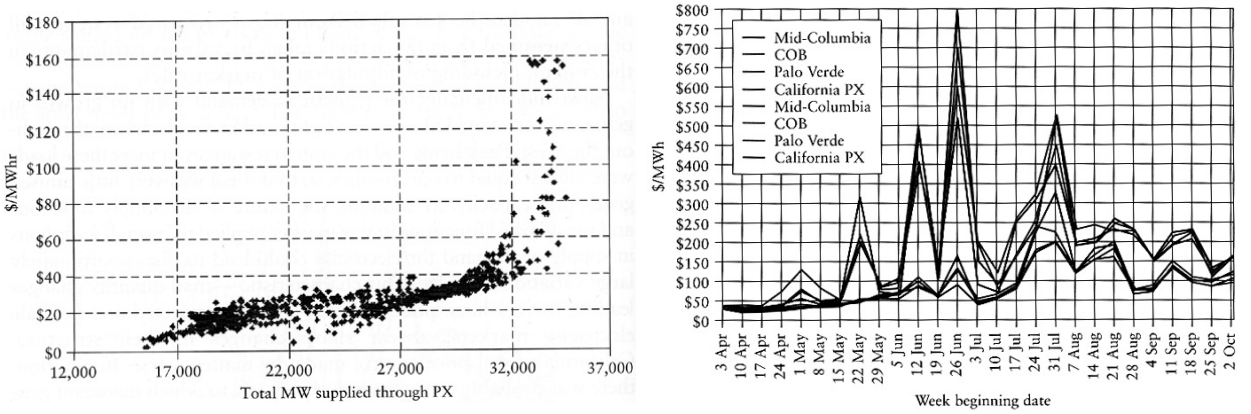
(a) Without price controls **(b) With price controls**

Figure 1: These two graphs show qualitatively the effect of price controls on the California wholesale electricity market. Notice how price controls decrease the consumer response to price changes. Also, notice the remarkably steep slope of the supply curve near the right of the graph, and how acute the price change is between the two graphs. SOURCE: JAMES WALSH, *The $10 Billion Jolt* (LOS ANGELES:SILVER LAKE, 2002), 117 AND 118.

to individual customers. The supply-side of the market was thus largely deregulated; the generators were like producers in any free market, maximizing profit and minimizing costs, and selling their product to the distributors.

The demand side of the electricity market, however, actually became *more* regulated during "deregulation." In 1996 electricity rates were cut by ten percent and locked in for four years,[4] preventing any rises or drops in cost from reaching consumers, and effectively preventing consumers' demands from responding to supply. Second, utilities were required by law to buy, at whatever price necessary, as much electricity as customers would use.[5] As evident in Figure 1, these factors made demand in the California electricity market so

[4]Walsh, 3.
[5]Sweeney, 115.



(a) Approximate Supply Curve in 1999

(b) Prices of Electricity in 2000

Figure 2: The huge price spikes in graph (b) are caused by small changes in quantity of electricity consumed producing huge changes in price because of the steep slope of the supply curve (a). Notice that in (a), before the power crisis even really hit California, a 10% change in quantity could cause a 220% change in price. Also, notice that in (b) high prices for the week of June 26 are 1500% higher than for the week of April 10. SOURCE: JAMES WALSH, *The $10 Billion Jolt* (LOS ANGELES:SILVER LAKE, 2002), 111 AND 112.

inelastic that, if drawn on a supply and demand graph, the demand curve would be almost vertical.[6]

Unfortunately, while strict price controls made demand extremely inelastic, actual deregulation also made supply more inelastic by removing incentives for overproduction. Because it's inefficient to maintain the generators that create the last few percent of power, which is only used in moments of unusually high demand, and because free markets naturally gravitate toward the most efficient equilibrium, a free electricity generation market will intentionally run at least *some* risk of underproduction. To do otherwise would be inefficient. In addition, ineptness of the government-run organization charged with ensuring overpro-

[6]Sweeney, 116.

duction,[7] and extensive regulation and red tape in the generator-building process[8] increased the incentive to risk electricity underproduction. Consequently, California's average power demand inched dangerously close to the point where supply approached the asymptotic limit at which it could neither import nor generate enough power to meet demand.

Ultimately, the inelastic demand and inelastic supply came to bear on California when its demand curve inched too far to the right during the winter and summer of 2001. While the steepness of the demand curve due to the price controls is intuitively obvious, the steepness of the supply curve around the quantities that California was demanding can be seen in Figure 2a. Consider, then, that between 1996 and 1999 electricity supply grew by only 672 MW, while demand grew by 5500MW, enough to power 5 million homes.[9] This trend pushed the nearly vertical demand curve to the right, while the nearly vertical supply curve stayed put, resulting in unheard of price spikes (Figure 2b). Ultimately, the demand curve became elastic only through government-enforced blackouts.

In the face of these monstrous price fluctuations, many have speculated that collusion caused the supply shortages which in turn caused price spikes. The fact that more power plants were down for repair or maintenance during days of power crisis than on other days supports this argument. While this is a possibility, James Walsh claims that no real evidence of any illegal activity has been discovered, despite investigations by numerous agencies.[10] After all, one would expect there to be electricity shortages on days when unusually high

[7]Walsh, 222.
[8]Walsh, 33.
[9]Walsh, 224.
[10]Walsh, 283.

numbers of plants are not functioning. The decreases in supply could also be the result of the electricity market, which was small enough for oligopolistic forces to come into play.[11] In such a market, even without any collusion, every player will attempt to reach their Nash equilibrium, at which profit is maximized.[12] The smaller the market, the more supply is intentionally cut, and the more the price rises.[13] One can hardly expect companies in a free market to produce more than is profitable, and the blame in such a situation can only fall on the consumers and policy makers that make such tactics profitable.

Clearly, the California Power Crisis cannot be blamed solely on the free market. Indeed, free-market solutions to the problems faced in the California Power Crisis are easy to recognize. By providing incentives for slight overproduction, the supply curve could be shifted to the right, providing the effect of more elasticity. Moreover, the lifting of price ceilings on the demand side could cause greater demand elasticity, which would increase over the long term as consumers adjust to the time-variant prices and thereby minimize dead weight losses more completely than government ever could. Eventually, government controls could be removed almost completely. Of course, California's ill-fated idea of hampering the creation of new generation stations and then deregulating the supply side without deregulating the demand side is a bad idea. Deregulation itself is not a bad idea. If Schwarzenegger takes a slower, more careful, and more principled approach to deregulation, most of its imperfections could probably be worked out, and California may again have competitive energy prices.

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[11] Walsh, 33.
[12] N. Gregory Mankiw, *Principles of Microeconomics*, 3rd ed., (Harvard, 2004), 351.
[13] Mankiw, 352.

Bibliography

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