An Autopsy of California's Effort to Deregulate the Electric Utilities (1996-2001)

by Byron Washom
Spencer Management Associates

California was one of the first states to legislatively move to deregulate its traditional electric utility monopolies by opening the market to competition among independent power generators in order to give customers a choice of power providers and to drive down retail prices. In January 2001, regulators and politicians declared that the CA deregulation was flawed, had failed and was now dead. While many speculated what to do with the cadaver, what was known was the state's energy crisis had left its two largest investor owned utilities (IOUs), Southern California Edison and Pacific Gas and Electric Co., $12 billion in debt and unable to buy any more power on credit. The CA Legislature's $400 million emergency measure to stop the utilities' financial hemorrhaging was exhausted in just 12 days of brokering wholesale energy for the near bankrupt utilities. California's estimated $10 billion bond sale to finance future power purchases under the state's new emergency rescue package will be the largest municipal issue in history, but it does not address the accumulated debt of the utilities. The next few weeks will witness major events by the courts, legislature, government agencies and creditors that will determine if the utilities seek bankruptcy protection.

During this 1996-2001 period, a number of other states and countries have enacted or contemplated variations to the CA model, but the unpredicted economic trauma on the world's sixth largest economy has rightfully caused serious reexamination of deregulation. While the long-term solutions are conservation, generation and price stabilization, it is becoming apparent that the most significant alteration will be the operating characteristics and sizes of gas turbine generation required in future restructured and deregulated markets. It is not possible to pinpoint a single cause of death to California's deregulation policy and implementation, but there certainly can be a forensic-like assessment of the fatal flaws.

Supply of In-State Generation:

1. Electricity consumption in California rose 18% last year alone, more than triple the national average[1], but it's been a decade since a power plant was built in California. The state has a cumbersome seven-year process for developing new capacity, and CA now imports approximately 25% of its electricity. Sen. Gordon Smith of Oregon complained recently that his state is "in jeopardy of becoming an energy farm to California."
2. California did not establish an effective transition from the regulated to the unregulated market since the energy pricing was tied to a successful recovery of the IOUs' stranded costs rather than the encouragement of significant competition.[2] Two independent audits indicated that the IOUs had paid their parent corporations $9.5B in dividends in the five years leading up to the electricity crisis[3] and that the stranded asset recovery was ahead of schedule. There was insufficient competition afterwards as witnessed by the fact that CA currently is at its 28th consecutive day of a Stage 3 Alert, i.e., supply reserves are less than 1.5% of forecasted demand.
3. California's aging transmission grid was designed and built under the generation-transmission-distribution monopoly model and thereby archaic for transmitting greater amounts of marketed electricity to areas with insufficient local generating capacity.

4. IPPs competitively bid for aging in-state generating assets, but some of these assets became unavailable during last year's "super summer peak periods" and this unusually cold, dry winter due to unscheduled maintenance, scheduled major overhaul or repowering.

Fuel Pricing and Availability:

5. The Independent Power Producers' (IPPs') "dash for gas" in new generating capacity, pipeline capacity constraints and an unseasonably cold winter have caused natural gas prices to quadruple in a year.
6. The financial insolvency of PG&E resulted in the California Public Utility Commission (CPUC) approving a plan on January 31 to keep natural gas flowing to millions of PG&E customers by letting the natural gas suppliers draw directly on the revenues PG&E collects from monthly gas bills from its customers.

Policy Framework:

7. California set up a highly restrictive power exchange system (CalPX) where most of the power used in the state was bought and sold on day-ahead trading. The IOUs were required to buy their power from CalPX, prohibited from hedging into future markets, and encouraged to sell off the majority of their generating assets. CalPX has now ceased operations.
8. Taking the highest successful bid submitted by wholesalers set the CalPX price. Initially generators kept their bids low to ensure their plants were utilized while knowing they would receive the higher market-clearing price. When demand began to exceed supply, the wholesalers tested the elasticity of demand and found the opportunity for price spikes up to ten fold over the previous year.

Policy Framework, continued:

9. There was an insufficient supply of contracted "spinning reserve"; therefore, the state's other pooled electricity market, the Independent System Operator (ISO), had to bear even higher prices when tight electricity supplies occurred through unscheduled outages or a shortage of generation capacity. This forced them to buy power on the hourly spot market to prevent blackouts. The largely out-of-state energy wholesalers have exacerbated the crisis by taking advantage of the tight supplies for their own profit.
10. Even though the wholesale rates were deregulated, CA instituted a retail rate freeze that blocked utilities from passing on higher wholesale costs to their customers. As a consequence, PG&E and SCE accumulated $12B of debt within a six month period due to the inability to bill customers for inflated wholesale prices.
11. The California-only price "soft cap" exacerbated the state's energy shortage because suppliers stepped up their sales to other Western states willing to pay above the CA price caps, leaving less energy for California.
12. The Federal Energy Regulatory Commission (FERC) declined to impose immediate wholesale price controls, but it did urge the state on Dec. 15, 2000 to sign long-term supply contracts instead of relying on the volatile short-term spot market to buy wholesale electricity.[4] President Bush extended by two weeks, until Feb. 7, directives put in place by the Clinton administration to force power suppliers to continue shipping electricity to

California, but Bush made it clear he did so reluctantly and would not (and did not) issue further extensions.

Market Factors:

13. Once the utilities started to default on their bonds, miss contract payments and threaten bankruptcy, out-of-state power suppliers resisted selling needed electricity to California.[5] Unless forced by the FERC, wholesalers had little incentive to sell power to CA and potentially become unsecured creditors in a bankruptcy. Some wholesalers have filed with the SEC that as much as 25% of their uncollected CA operating income is being held as an accounting reserve.
14. The IPPs had additional incentives to cut back electrical supply to CA during the month of January, 2001 since the value of the natural gas therm was greater than if it were converted into a MWH; thus they sold the natural gas commodity to a credit worthy customer rather than produce and sell the MWH. Then, once they created a shortfall in MWH supply by their production cutbacks, they were able to quickly reenter the electrical supply market and sell limited quantities of MWH at inflated prices with substantial profits. By agile trading, they were able to sell at the elevated peak of both commodities' markets.[6]
15. Standard & Poor's, Moody's and Fitch lowered the credit ratings on the IOUs, ending any continued and inexpensive debt funding.
16. A hot summer and a cold and dry winter reduced the hydroelectric supply.
17. An academic group released an "Energy Manifesto" which proclaimed that retail rates would need to rise 30-40% to inspire the conservation that would concurrently create market stability and rebuild the financial solvency of the utilities.

Environmental:

18. There are strict environmental rules that make building plants in CA difficult. President Bush is considering letting the state roll back its air pollution controls for power plants.
19. On December 5, 2000, when operating reserves were forecasted to fall below seven percent, more than 11,000 megawatts of generation remained off line. The majority was categorized as forced outages including a substantial amount of power plant capacity shut down because of expired annual air emission credits. Governor Davis on February 8 used his emergency powers to order a streamlined, 21-day approval process for new power plants and easing emissions controls on older generating units that had exhausted their pollution credits. The Governor is also directing the California Air Resources Board (ARB) to establish a State Emissions Offset Bank to allow facilities to pay mitigation fees to compensate for increased operations. Mitigation fees will be used to maintain state and federal air quality standards by cleaning up facilities and mobile sources that pollute the air, such as older power plants and diesel machinery. This ensures the state's ability to increase generation while maintaining California's commitment to air quality.

On January 25, 2001, Federal Reserve Chairman Alan Greenspan warned that if the CA energy crisis isn't resolved soon, it could cause a ripple effect throughout the U.S. economy that could undermine the nation's decade-long expansion. "It's scarcely credible that you can have a major economic problem in California which does not feed to the rest of the 49 states." About a third of the states that have not yet opened their power markets to competition are slowing down the process or taking another look at deregulation. So far, twenty-four states and the District of

Columbia, which comprise 60 percent of the U.S. population, have moved to deregulate their retail power markets. The PJM (Pennsylvania / New Jersey / Maryland) and Texas deregulation models are now being hailed as the vanguards of deregulation that avoid the weaknesses legislated in California.

The California failure has been a hard $12 billion lesson to the utility shareholders, ratepayers and state taxpayers; however, it has strongly defined the operating characteristics needed in the next decade of generating capacity. It is undeniable that there will be a consolidation of the merchant plant players that will have three capabilities: generating capacity, natural gas resources and the ability for instantaneous commodity trading. There is a clear emergence of four highly valued operating characteristics for merchant plant generating assets: a) high variable output performance without significant efficiency penalties, b) fuel type versatility, c) fuel use efficiency, and d) ultra low environmental emissions. The current and future merchant plants built will acquire long term debt based upon the regional fit of the technology, the characteristics described above and the strength of the owner/operator's commodity trading ability. Commercial and industrial companies with demands for highly reliable power will gravitate to distributed generation with smaller gas turbines (and fuel cells in the future) since these companies now are more creditworthy than the IOUs and would therefore have a favorable ability to hedge the future price of their natural gas fuel. This prognosis was further validated on February 8 when Governor Davis expressed his support for legislation that would provide $20 million for 40 additional megawatts through the retrofitting of natural gas distributed generation owned by municipal water districts. More importantly, he supported the elimination of the standby charges for small renewable and other clean distributed generation.

The California Legislature has authorized $10B for the state to enter into contracts for as long as 10 years to buy wholesale electricity for about one third of the state's demand at a stable price and sell it to the IOUs. Future legislative efforts contemplate having the state issue revenue bonds to cover the utilities' debts and make their customers pay the money back over a decade through recently approved rate increases of 9 percent for residential customers and 7-15% for businesses. The quid pro quo may be the state's taking ownership of the two utilities' 26,000-mile network of high voltage transmission lines carrying power to about 24 million of the state's 34 million residents. Regardless of any actions taken by federal or state officials, California and the western U.S. will remain in a perilous energy and economic crisis at least through the summer of 2001, and the reappraisal of restructuring policies will be as intense as the drive to optimize the new individual and mix of generating technologies needed to serve the future markets.

Byron Washom *is a four-time Rockefeller Foundation grantee and a strategic advisor to a number of IPP developers, EPC contractors, energy wholesalers and multi-lateral lenders such as the World Bank and the International Finance Corporation. The analysis contained in this report was prepared as part of the Vision 21 Energy Project at the Advanced Power & Energy Program, UC-Irvine and sponsored by National Energy Technology Laboratory, US DOE.You may comment directly to him at spencermgt@aol.com.*

References:

1. Energy Information Administration, "California Power Use Soared Above US 2000 Average" Bloomberg News, January 30, 2001.

2. Mark Schroeder, a vice president of European government and regulatory affairs at U.S. energy group Enron. Reuters News Service, January 11, 2001.
3. Brian Melley, "Audit Confirms PG&E Near Broke", Associated Press, January 31, 2001.
4. Curtis Hebert, Chairman of FERC, FERC Commission hearing on January 22, 2001.
5. Jim Detmers, CA ISO managing director of operations, January 11, 2001.
6. San Francisco Chronicle, January 21, 2001.