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# The Future of Electricity Provision

**Matthew C. Hoffman**

**F**or better or for worse, California often has been the wave of the future. In one recent case, California public officials fortunately got it right.

The California Public Utilities Commission (CPUC) sent a shockwave through the electricity industry this April, when it proposed to phase out the state's system of regulated electricity monopolies in favor of a competitive generation system. Suddenly, a simmering dispute between industrial power consumers and electric utilities had disappeared in what the *Electricity Journal* called a "paradigm shift." For over a decade the question of competition and consumer choice in electricity had been an issue of contention; now the question was how quickly, and in what form, a market for electricity would be ushered in?

What had also disappeared was the myth of the "natural monopoly" in electricity generation. For decades, that myth—which flourished in an environment of slowly falling electricity rates—had sustained the comfortable monopoly system maintained and regulated by state Public Utility Commissions (PUCs) and the electric utilities they presided over. It seemed

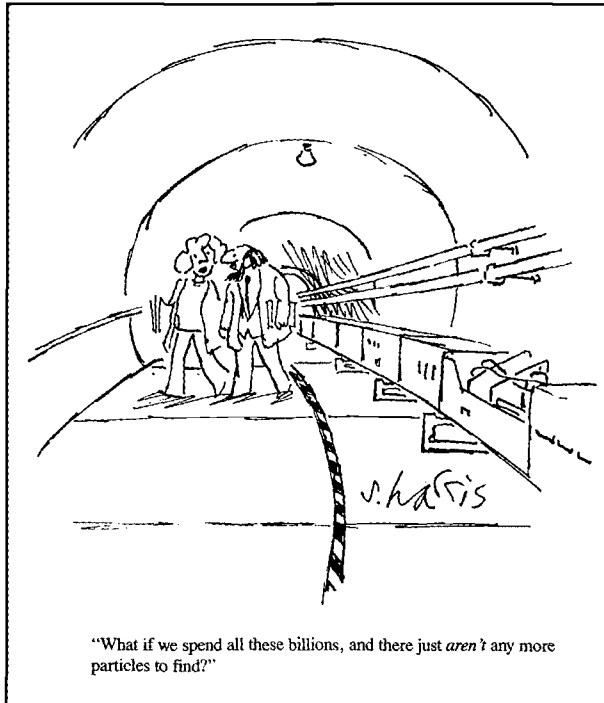
that electricity generation could profit endlessly from economies of scale, with one large single provider under the watchful eye of state officials. As demand for electricity rose steadily, scale economies were exploited with larger and larger generating facilities, and rates fell.

But 20 years ago the myth began to crumble as the benefits from economies of scale dissipated, and fuel prices rose. Utilities began to raise rates to compensate for increasing costs, but encountered surprisingly elastic long-run demand. Electricity consumption, instead of increasing steadily as it had in decades past, began to level off. In addition, many investments in nuclear power plants suffered staggering cost-overruns. Angry electricity consumers, accustomed to falling prices, frequently balked at attempts by utilities to raise rates, and state PUCs accommodated their concerns by denying over 20 percent of requested increases. Industrial power buyers, which pay substantial portions of their operating costs in electricity bills, began actively to search for alternatives to the local power company.

The quest by industrial consumers of electricity for cheaper power culminated in the CPUC's sweeping reform proposal. Now, the alternatives sought by industries confront all California consumers as a panoply of generating entities, including investor-owned utilities,

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be confronted with a DSM Maginot line, defended by influential environmental activists and foundations.

The 1992 EPAct tried to incorporate these opposing approaches. While requiring utilities to provide wheeling services for Non-Utility Generators in their territories, the Act also mandated “Integrated Resource Planning,” in which DSM is incorporated into the utility’s planning process on a “level playing field” with electricity generation. With the EPAct, competition and monopoly cross-subsidization began to face off.

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**The planned reforms in California will provide a case by which to test the arguments of proponents of consumer choice in electricity and those who favor political management.**

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### Competition vs. Status Quo: The Arguments

The planned reforms in California will provide a case by which to test the arguments of propo-

nents of consumer choice in electricity and those who favor political management.

**Retail Electricity Wheeling: Fact or Fiction?** The Edison Electric Institute, which represents most of the nation’s investor-owned utilities, has joined environmentalists to argue that electricity wheeling is impossible at the retail level, and that so-called “retail wheeling” is in fact an unfair mandate to utilities to purchase electricity on behalf of their customers.

In what may be the most nuanced and convoluted argument advanced in the debate, opponents of retail wheeling argue that “true” wheeling involves the selling of electricity in a particular quantity and with “particular characteristics.” According to this argument, the “particular characteristics” of electricity that is absorbed by a utility from a private supplier and regenerated for retail customers are altered. Yet, the “particular characteristics” of displaced electricity in a third party’s transmission grid that is transferred in the wholesale wheeling transactions that currently take place, are said not to be altered. Wholesale wheeling, therefore, is the only possible manifestation of “true” wheeling, and “retail wheeling” is not wheeling at all; it is a transaction that forces the utility to purchase electricity on behalf of one of its customers, to reduce its own generation proportionately, and to transmit the avoided cost to the retail purchaser in the form of a discount. Properly understood, according to the argument, such transactions are a usurpation of the rights of the utility and its shareholders, a coercive regulatory scheme misconceived as a simple electricity purchase.

The physical characteristics of electrons, however, are qualitatively identical to one another, whether the buyer of electricity consumes electrons displaced in a wholesale or retail wheeling transaction.

There are, however, power contracts that differ qualitatively from one another in substantial ways. If designed improperly, a retail transaction can constitute a subsidization, from a utility to a retail customers. For example, a retail ratepayer might arrange for interruptible transmissions to be sent to his host utility from another generating facility. The generating facility could cut off power transmitted through the utility during times of peak load. However, the utility would be required to pick up the

slack. In this case, the risk associated with the possible interruption of service is foisted on the host utility while transferring the benefits of reduced costs to the retail customer. Such a "risk subsidy" would be as distortionary as DSM and other cross-subsidy mechanisms are, and inefficient in the economic sense. The distortions caused by such arrangements, however, could be mitigated through the application of a special rate for interruptible power, which would require the retail buyer to reimburse the utility for the incurred level of risk. California's plan has yet to address these issues.

Opponents of retail wheeling are on firmer ground in their contention that such transactions can only be executed through regulatory mandates governing the behavior of the retail purchaser's host utility. In essence, a retail wheeling system would replace one regulatory scheme with another, and most of the problems associated with the former system could manifest themselves in the latter. A retail wheeling regime, however, would reduce the scope of regulatory oversight significantly. Regulators who are currently charged with monitoring utility expenditures and second-guessing a range of utility investment decisions through "prudence reviews" would confine their focus to expenditures associated with the absorption and retransmission of power, and the maintenance of transmission capacity by the host utility in its capacity as transactor on behalf of retail buyers within its service territory. As sellers of electricity, utilities and independent power producers will be freed from the fetters of cost-of-service regulation by state commissions, except in those arrangements that, like the CPUC's proposed reforms, allow ratepayers to continue to receive regulated service from the local utility.

Although utilities have nominal ownership of transmission and generation capacity, those assets were obtained by utilities through a system of monopoly privilege protected by state and federal governments. Requiring utilities to facilitate any transactions of an open electricity market by wheeling power for customers in their service areas is hardly unreasonable.

**"Stranded Investments" and the Regulatory Compact.** Opponents of competition in electricity invoke the metaphor of the "regulatory compact." According to this conception of public utility regulation, ratepayers have a morally-binding contract with utility shareholders, in which ratepayers are obligated to

pay "nonconfiscatory" rates, affording the utility shareholders a "fair" rate of return on their investments. The utility, in turn, has a "duty to serve" all consumers within their service territories at a "reasonable" rate.

Utilities argue that allowing ratepayers to bypass their local utility in favor of cheaper power would leave local generation capacity "stranded," i.e. idle and unprofitable, negating the ratepayer's obligation to afford the utility a fair rate of return on its plant. Moreover, the utility would retain its duty to serve all potential customers, requiring it to maintain standby capacity indefinitely, should bypassing ratepayers opt to return to the local system.

The regulatory compact argument highlights the deficiencies in the existing structure

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of regulation. The current system is a construct of government, giving monopoly powers to single utilities and denying choice to consumers. This system can and should be eliminated in favor of a free electricity market. In a free market, no seller has a duty to serve any customer in the absence of a contract. Obligations without contracts should be abandoned, along with cost-of-service ratemaking. Rates should be set by the impersonal forces of supply and demand, rather than a government commission.

Utilities have argued that ratepayers who wish to bypass the system should pay the utility an exit fee for the generation and transmission capacity idled by the concomitant reduction in demand. This argument fails on two counts.

First, as Dr. Robert Michaels at California State University at Fullerton points out, the "regulatory compact" is in truth nothing more than a metaphor. Ratepayers and utility shareholders never at any point in history converged to arrive at such an agreement, and neither party is morally or legally bound by it. Second, the regulatory compact requires the utility to

provide service at *reasonable* rates, and it is hardly reasonable to charge more than other available power suppliers for a perfectly homogeneous commodity like electricity. If utilities are entitled to a "fair" rate of return on their investments, they should receive no more than the rate dictated by supply and demand forces—which is precisely the rate they would receive in a free electricity market.

Michaels has also observed that the concept of "stranded investments" is arbitrarily applied only in the context of competition and bypass. For example, an industrial ratepayer that decides to generate its own power, or move to another service territory, or shut down its operations, also may "strand" various utility investments. Utilities have never before demanded reimbursement for these forms of bypass; why should they receive compensation in the case of competition?

### The Revolution in California

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**Attempts by local ratepayers to bypass their utilities, and indeed the regulatory process itself, are inevitable. The availability of cheaper power on the electricity superhighway will draw them to bypass.**

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On April 20, 1994, the California Public Utilities Commission (CPUC) issued a long-awaited proposal for reforming the state electricity system. To the surprise of observers on both sides of the deregulation debate, the proposal advocated the most sweeping reforms in the history of electric utility regulation. If the CPUC proposal, which is now subject to a public comment period, is implemented in its original form, the old system of cost-of-service regulation in California will be phased out from 1996 to 2002, to be replaced by a competitive system of electricity generation.

The California plan begins the reform process in 1996, when ratepayers consuming at least 50,000 kilowatts of electricity annually, i.e. large industrial customers, will have the right to become "direct access" consumers, and contract with

power producers other than the public utility for their power. From 1996 to 2002, successively smaller purchasers of electric power will gain that right, until all ratepayers are eligible for direct access. During and after the transition, ratepayers may also opt to remain in the local utility system as "utility service" customers, purchasing power from generating facilities regulated by the state. For utility service functions, the CPUC plans to implement "performance-based regulation," providing incentives for California utilities to improve their efficiency and lower their rates.

Unfortunately, the CPUC also intends to charge exit fees to customers who wish to switch to direct access, in order to partially reimburse state utilities for any "stranded costs" they might incur. Stranded-cost reimbursement is unnecessary, and will only hinder the process of market liberalization in electricity. If the CPUC's exit fees are high enough, a free retail electricity market may never form.

As of this writing, the CPUC has accepted two rounds of comments from interested parties on its reform proposal. Although environmental groups initially expressed opposition to the plan, many appear resigned to the inevitability of deregulation. As a fallback position, some have joined Southern California Edison, a major state electric utility, to advocate the creation of a "power pool" by the CPUC that would coordinate buying and selling operations' within a spot market.

The creation of such a pool is likely to be the subject of much contention and even litigation between interested parties. Further, FERC, which has regulatory authority over power pools, may be drawn into a dispute with California regulators over jurisdictional issues. This could substantially slow the process of reform.

Power pools indeed are powerful tools of coordination. But many long-lived pools already exist within the wholesale market among power supplies and should be sufficient to handle retail transactions as well. Moreover, the existing wholesale power pools are tested by decades of experience, and formed in a spontaneous, decentralized process of coordination between utilities; a CPUC-designed pool is likely to be of a politicized and centralized planning process, resulting in an inferior product that may slow efforts to streamline wheeling transactions.

Attempts by local ratepayers to bypass their utilities, and indeed the regulatory process itself, are inevitable. The availability of cheaper power on the electricity superhighway will draw them to bypass. As such attempts proliferate throughout the United States, the question facing regulators will be what kind of competition should prevail, rather than whether or not it should prevail.

### Issues to Resolve

Reforms in the United States will necessitate the resolution of several pressing issues that are unique to the institutional framework of electricity provision in this country.

#### ***Separating Generation from Transmission.***

A first problem that will face California and other states that allow free markets for electricity is how are electricity generation and transmission to be "unbundled"? Local utilities own their transmission and distribution systems, and often collectively own the grid interconnections that comprise the "electricity superhighway." A competitive market in generation requires roughly equal or "nondiscriminatory" access to transmission capacity. That is, the local utilities that own the transmission grid cannot have the power to pick and chose the modes of its use. Advocates of the free market might sympathize with such concerns. But it must be noted that the existing transmission system was constructed and arranged by utilities that derived their resources from state-supported monopoly franchises. It is questionable whether a company protected from competition by government has a right to the infrastructure it has constructed with funds generated within that system.

#### ***Spot Markets vs Bilateral Arrangements.***

Another question is how will retail electricity trading be incorporated into the superhighway system? Will retail wheeling transactions, arranged on an ad hoc basis analogous to wholesale wheeling, be grafted onto the prevailing system, or should the United States adopt a power pool system?

A national power pool or series of power pools have several advantages over bilateral trading. Bilateral trades are arranged on an ad hoc basis, requiring individual and special arrangements for each transmission, while pool trading consolidates the process under a single coordination system. Moreover, pools offer a simple, standardized process of bidding and

asking for power in the market, bringing buyers and sellers of every variety together on a nondiscriminatory basis.

Further, a patchwork of power pools in varying degrees of integration already functions in the wholesale market. Such pools were not designed by regulators, but arose spontaneously in response to the needs of utilities, evolving from sporadic trading arrangements into elabo-

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rate systems of rules and technologically sophisticated coordination systems. In any case, the best way to determine which approach, ad hoc arrangements, power pools or a combination of the two, would be most efficient is to allow all arrangements and allow buyers and sellers to determine the best means.

***Competition in Transmission.*** Ultimately, it is desirable to extend competition to transmission and distribution of electricity, freeing the system from the vestiges of inefficient and meddlesome command-and-control regulation. This is impossible in the short run, because the prevailing system was created to serve monopoly suppliers purchasing on a wholesale market rather than retail customers. Consequently, the system is owned by companies that control all transmission and distribution of electricity at the local level. New, parallel transmission systems could need to be built to compete with existing grids. Only time and the market will ultimately tell whether duplication of transmission systems is cost-effective.

The history of electricity provision, however, suggests that competing transmission systems will be economically viable. Until state governments trumped systems of local regulation in the 1920s, electric utilities often competed vigorously with one another with parallel transmission and distribution systems. Regulators should allow electricity buyers and sellers to set up their own lines, to see if the efficiency of a rivalrous competition will supersede the economies of scale generated by

consolidation and monopoly. It is also important to keep in mind that the revolution in high technology could produce, through market experiments, new ways of distributing energy undreamt of today.

### Implications for Other Regulated Industries

The reforms currently proceeding in the electricity industry should also indicate the possibility of analogous changes in other utility systems, especially natural gas, heating oil, and water provision. All of those systems have an infrastructure similar to the electricity system; they each deliver a commodity through a system of "pipes" to retail customers.

This should raise questions about "natural monopoly" arguments used to justify command-and-control regulation in water, heating oil, and natural gas. If multiple electricity generators can compete through a common transmission system, why can't water, oil, and natural gas suppliers compete within common piping systems?

Indeed, natural gas transmission has already been separated from wellhead supply at the wholesale level. During the 1980s, transmission companies were allowed to abandon the practice of buying and reselling natural gas in favor of simply allowing the distributors to buy the gas directly and pay a transmission fee. This process could be extended to the retail level in natural gas, allowing consumers to purchase directly from the wellhead and reimbursing the middlemen, the pipelines, and distributors, for transmission costs. Similar reforms could conceivably occur in water and heating oil provision.

### Conclusion and Summary

A convergence of trends has resulted in the growth of a competitive wholesale electricity market. The passage of PURPA created a new market of wholesale power generating companies, selling directly to utilities. The growth and increasing sophistication of the national "electricity superhighway," connecting utilities to one another, made a variety of short and long-term power transactions between more and more people possible.

Such developments have generated growing demands for free markets in electricity from

industrial ratepayers, and have enticed some communities to seek to bypass their utilities in favor of purchases from various competitors. The need for reform in electricity regulation is driven by these trends; government must adjust to the new reality in power markets, rather than remaining a hindrance to positive change.

The California Public Utilities Commission has made great strides toward a competitive electricity system in California. The CPUC's plan will allow successively smaller consumers of electric power to become "direct access" customers, bypassing their local utility and purchasing power from a competitor on the state transmission grid. The CPUC's plan, however, has an unfortunate provision for reimbursing utilities for their "stranded costs," rather than requiring the utilities to pay the price for their own inefficiencies.

Despite attempts by utilities to slow the reform process and escape the consequences of their own inefficient practices, it seems that the drive for competitive electricity has taken on a life of its own. State regulators are impelled to make cheaper electricity available on an open market to retain investments within the state, and industrial and commercial ratepayers have a strong incentive to push for access to competitive systems. The outlook for competition is good. Other states would do well to follow the path of California.

### Selected Readings

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