

# **CATO HANDBOOK FOR CONGRESS**

**POLICY RECOMMENDATIONS FOR THE 108TH CONGRESS**

**CATO**  
INSTITUTE

Washington, D.C.

## **42. Electricity Policy**

### ***Congress should***

- repeal the Federal Power Act of 1935 and abolish the Federal Energy Regulatory Commission (FERC);
- repeal the 1935 Public Utility Holding Company Act (PUHCA) and the 1978 Public Utility Regulatory Policy Act (PURPA);
- privatize federal power marketing authorities, the Tennessee Valley Authority, and all federal power generation facilities;
- eliminate all tax preferences applicable to municipal power companies and electricity cooperatives;
- eliminate all federal price subsidies, tax incentives, and regulatory preferences for renewable energy;
- declare that any state or municipal regulation of the generation, transmission, distribution, or retail sale of electricity interferes with interstate trade and is a violation of the U.S. Constitution's Commerce Clause; and
- require open, nondiscriminatory access to all federal public rights-of-way for electricity transmission and distribution services, except when such services present a public safety hazard.

The electricity regulatory system in the United States produced large discrepancies in costs between states in the 1970s and 1980s. By the early 1990s many states with a large nuclear or independent power component had high retail prices, and those that stuck with traditional coal-based facilities (and hydropower) had low-cost electricity.

Even though the regulatory system did not protect consumers from high-cost electricity, no one has proposed eliminating regulation. The response to the cost discrepancy has been initiation of a policy of mandatory open access to “restructure” regulation instead of eliminating it.

Under mandatory open access, competition is introduced into the generation sector, but transmission and distribution systems remain regulated monopolies to which generators have access at nondiscriminatory prices.

### ***Transmission and Distribution: The Intellectual Discussion***

The case for a competitive market in generation was accepted long ago by academics. Academic discussion now is about how large a role decentralized markets can play in the operation of the transmission system.

Some observers argue that, with the assistance of computer models, decentralized trade between buyers and sellers of electricity can occur and reach an efficient equilibrium without central direction as long as every sale is accompanied by transmission rights that reflect the physical ability of the transmission system to carry the flow.

Other observers believe the decentralized solution would entail enormous transaction costs because of the many agents required to facilitate the development and trading of transmission rights. Those people argue that the inability of transmission rights to reflect the true effects of generator output on the system would require central intervention anyway.

Another important issue in transmission policy is the identification and funding of new transmission investment. Again, there are two sides to the debate: one advocates centralized solutions and the other advocates decentralized solutions. According to the latter view, consortia of generators would fund new investment and, in turn, get rights (that reflect the physical ability of the transmission system to carry the flow according to computer simulations) to inject power into or take power from the system in proportion to their financial contributions.

Economist Paul Joskow offers the more traditional centralized view of transmission investment:

Transmission investment decisions do not immediately strike me as being ideally suited to relying entirely on the invisible hand. Transmission investments are lumpy, characterized by economies of scale and can have physical impacts throughout the network. The combination of imperfectly defined property rights, economies of scale and long-lived sunk costs for transmission investments, and imperfect competition in the supply of generating services can lead to either underinvestment or overinvestment at particular points on the network if we rely entirely on market forces [Chao and Huntington, p. 24].

Even if the decentralized solution is imperfect, mandatory open access is probably worse. The experience we have had with mandatory open

access in telecommunications since 1996 should make us very wary about going down the same road in electricity policy. Mandatory open access eliminates the incentive for new infrastructure. Under the regime that seems to be in place in the states that have restructured their electricity regulations, large commercial users and independent generators are going to demand that the transmission system serve their needs at rates determined by public service commissions. As economist Robert Crandall says:

There is no limit to the ideas that I may have for using your property at prices that are as low as I could obtain by building the facilities myself. . . . Unfortunately, this [open access policy] is based in large part on assuming that sharing the infrastructure built under all of the distorted incentives created by regulation will somehow lead to efficient competition.

Thus the right question to ask is, not whether decentralized transmission investment would be optimal, but whether it would be good enough to work.

### ***Transmission and Distribution: The Political Discussion***

The political discussion at the state and federal levels has not reflected the intellectual discussion. Instead, it reflects conflicts that arise within the mandatory-open-access paradigm.

Half the states are not actively considering deregulation because their costs are low and stable because of extensive use of coal or hydropower sources. Such states have little interest in developing more extensive transmission systems to serve merchant power plants participating in the interstate market. People who advocate mandatory open access (merchant power producers and large industrial consumers) want an increased federal regulatory role in transmission service to prevent vertically integrated utilities from Balkanizing the national transmission market. But the mandatory-open-access lobby is not really on the side of the angels, despite their pro-competition rhetoric, because they want the costs of new transmission investment to be borne by all electricity ratepayers rather than by new merchant generators.

A central question under mandatory open access is, How can we prevent traditional utilities from favoring their own generators (to the extent they do not divest them) through manipulation of access to and pricing of transmission facilities that they also own? The predominant answer has been to hand the operation of the transmission network to nonprofit entities—-independent system operators—organized by the old utilities. But

those operators are political institutions whose structure invites inefficiency, inconsistency, and dominance by transmission owners.

An alternative organizational model for transmission is a for-profit transmission company regulated under “incentive regulation,” rather than traditional command-and-control regulation, to promote dynamic efficiency. Many people object to private for-profit transmission companies because, until they face genuine rivalry, either from competing wires systems or distributed generation from decentralized natural-gas generators, for-profit transmission companies would have an incentive to restrict use of their lines and raise prices, as would any monopolist. Incentive regulation overcomes such objections because it allows the company to make more money by increasing than by decreasing throughput in the transmission system.

After a transition period of incentive regulation, transmission and distribution should be deregulated. Evidence does not suggest that regulation by commission, which has given us excessively costly nuclear-power and cogeneration contracts, has protected consumers in the ways that populist rhetoric suggests.

There are several reasons to believe that the market power of unregulated transmission and distribution companies would be less than conventional wisdom suggests.

- Competition might well arise from small turbines using natural gas to generate electricity. Electricity transmission owners have nothing to gain from alienating customers to the point where they switch to the natural-gas alternative.
- Before exclusive franchises were granted by governments, multiple entrepreneurs were quite willing to generate and distribute electricity.
- Mandatory open access to state and federally created rights-of-way is a much less mischievous policy than is mandatory open access to the wires themselves. The threat of such access may be sufficient to induce incumbent electricity transmission companies to price their services competitively.

### ***Electricity Policy after California***

No discussion of electricity policy would be complete without a discussion of the events in California during 2000–01. Large supply reductions (hydro shortage and natural gas shortage) and large weather-related demand increases (hot summer and very cold winter) simultaneously hit the state.

None of those shocks was triggered by state policy. However, the price increases resulting from decreased supply and increased demand were made more severe by several characteristics of state policy.

First, California adopted regulations in 1994 (known as the RECLAIM program) to control emissions of nitrogen oxides (NO<sub>x</sub>) in southern California. In the winter of 1999, rights to emit NO<sub>x</sub> were selling for about \$2 per pound. The widespread use of old, polluting, natural-gas turbines to replace the lost hydropower rapidly depleted the fixed quota of NO<sub>x</sub> permits available. By the summer of 2000, they were selling for \$30 to \$40 per pound, a cost of 3 to 12 cents per kilowatt-hour, depending on the emissions of the generating unit. In January 2001, California regulators waived NO<sub>x</sub> permit requirements for power generators for the next three years, but the damage had been done.

Second, a characteristic of the California electricity auction market also created incentives for high rather than low market-clearing prices. The rules of the auction allowed generators to offer different amounts of electricity at different prices rather than all of their output at one price. Under those rules, generators had the incentive to offer a small amount of their output at very high prices because, if the high bid were accepted, they would receive that price for all their output. And if the bid were not accepted, the generators would lose only the sale of a small fraction of their possible output. Normally such bidding behavior would be unprofitable because the probability of the high bid's being accepted would be small, but, in a very tight supply situation, the probability of the bid's being accepted rises considerably, and the opportunity cost of the unsold power falls.

Third, the operators of the California transmission grid placed an "infinite" value on keeping the grid operational. But retail price controls prevented consumers from seeing the price of doing so. That, in turn, induced generators to price high because they knew there would be no reduction in demand as a consequence of their pricing behavior.

Some economists argue that market power (the withholding of output from a low-cost facility to induce use of output from a high-cost facility) explains some of the price increase. Their evidence is the large amount of capacity offline in California in the winter of 2000–01. Other economists argue that the natural-gas units that were offline had never been intended to run as continuously as they did in the summer of 2000 to replace the hydro, and thus the maintenance rationale offered by the operators was legitimate.

Other explanations of the California debacle are not consistent with the evidence. Environmentalists' resistance to new plants is not the cause of too little supply. Supply did not increase at a rate greater than population growth anywhere in the West (except Montana) including Nevada and Arizona, which do not have strong consumer or environmental movements.

Some people have claimed that the state's reluctance to permit long-term contracts with generators and the state requirement that electricity be sold in a single price auction in which the highest bid sets the market price are responsible for the high prices. Both claims are incorrect. Single prices set by the producer with the highest costs are a feature of all commodities markets. Long-term contracts would have simply altered who suffered losses of wealth as the result of unanticipated supply and demand shocks; such contracts could not have prevented the supply and demand shocks from causing price increases for someone in the supply chain. Long-term contracts are simply spot prices plus an insurance contract, which cannot be less than spot prices alone.

Other states have not adopted better deregulation designs. They have not had crises because they do not rely on hydro, nor do they use natural gas for electricity production in the winter. Many have retail price controls combined with wholesale markets and thus are vulnerable to a California-style imbalance between the two rates although many have fuel-cost pass-through provisions.

An important lesson from California is that price matters. Demand would have been dramatically lower if some customers had faced the actual market price for electricity rather than fixed retail prices. Industry consultant Eric Hirst argues that if only 20 percent of the total retail demand faced actual market hourly prices, and as a response to those prices reduced demand by 20 percent, the resulting 4 percent drop in aggregate demand would have cut hourly prices by almost 50 percent. In California 8,000 megawatts of commercial and industrial load have "real-time" meters, which would allow hourly pricing, but they are not billed on that basis. The public utility commission could solve the problem by instituting real-time pricing.

The important lesson from California is that electricity markets should be fully deregulated. Wholesale deregulation with retail price controls is a recipe for disaster.

### ***What Should Be Done?***

The entire existing federal apparatus for regulating electricity should be repealed because the market failure rationales for its existence do not

exist. The Federal Power Act, the Federal Energy Regulatory Commission (FERC), PURPA (a limited version of mandatory access, whose main function has been to force utilities to purchase power from third parties at nonmarket prices), and the archaic PUHCA (which strictly controls the ownership and management structures of electric utilities) all should go.

Congress should also ensure a level economic playing field by privatizing the federal power marketing authorities, the Tennessee Valley Authority, and all federal power generation facilities; and tax and fiscal preferences granted to municipal power companies and electricity cooperatives should be terminated.

All federal price subsidies, tax incentives, and regulatory preferences for renewable energy should also be eliminated. The environmental benefits of renewable energy are dramatically overstated. In fact, every single renewable energy source has drawn legitimate opposition from environmental organizations. If and when fossil fuels become more scarce, the electricity industry, without assistance, will turn to more abundant (i.e., cheaper) alternatives.

The price advantage currently enjoyed by fossil fuels cannot be attributed to present or past subsidies. Research suggests that, historically, the actions of government have kept petroleum prices above rather than below an unregulated market price. The only fuel that government has consistently subsidized is nuclear, but the effect of the subsidies has been to displace some coal and natural gas production of electricity and raise rather than lower the price of electricity.

The most damaging electricity regulations, however, emanate from state public utility commissions that restrict entry and set rates. Should states have the right to create restrictions on entry (franchises) in the electric utility market? May the federal government prevent states from harming consumers?

Investor-owned utilities and their trade association argue that the federal government may not prevent states from regulating utilities. But precedent exists for such intervention. Congress deregulated *interstate* trucking in 1980, but state regulation of *intrastate* trucking continued, and its main effect was to restrict entry by new firms and raise the price of shipping for consumers. In 1994 Congress prohibited states from regulating motor carriers, except household movers, and no constitutional questions have been raised.

While many legislators are (rightly) reluctant to interfere in state regulatory affairs, the Constitution's Commerce Clause gives Congress the power



to remove barriers to interstate trade erected by state lawmakers. Congress should therefore preempt all state or municipal regulations that control the generation, transmission, distribution, or retail sale of electricity.

***Suggested Readings***

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