

You might think that deregulation means sweeping away regulations, which ought to make the law much simpler. But the opposite is true in the electricity sphere. The regulatory system in states taking the traditional fixed-price approach is actually much easier to understand than the so-called deregulation method. Instead of saying “deregulation” it would be better to use the term “floating-price regulation.”

The basic of fixed-price regulation is actually pretty easy to understand. Providing electricity was long considered a natural monopoly because a single company could more efficiently operate the generation and distribution system. For instance, having two sets of power lines serving the same neighborhoods would clearly be a waste of money. But monopolies have a tendency to price gouge, so the government steps in to set a price ceiling. The ceiling is set to compensate the utility for its reasonable expenses and provide a normal rate of return to investors. Obviously, this can get to be a complex undertaking, but the basic idea is simple enough.

One reason for this simplicity is that the hard parts of operating an electrical system are left to the utility, with the regulator only keeping an eye out for abuses. And operating an electricity system is an inherently difficult problem. Although the situation is changing, electricity storage has traditionally been very limited. As a matter of physics, the amount of electricity coming into the system has to exactly equal the amount being used, or the system breaks. Thus, generation has to be exactly in tune with energy use — not just on average but *all the time*. There is a constant juggling act, because energy use fluctuates a lot, generators can break down, and both can happen unexpectedly. But the government doesn't have to worry too much about this in the traditional regulatory model, because the utility companies run the whole system so that management of the grid is privatized.

Despite its simplicity, this traditional system has an Achilles heel. Monopolies tend to be expensive and resistant to innovation. The effectiveness of government oversight is limited both by lack of information and political influence by utilities. So electricity is more expensive than it needs to be, and new technologies have a hard time getting a foothold.

The Federal Energy Regulatory Commission has moved to a floating price for wholesale electricity markets rather than setting the price itself. A number of states have followed suit by requiring utilities to shed their generation units and buy their power in the marketplace. But the result of this is that control of the grid is no longer centralized within a single company, which not only does daily grid management but also planned generation to ensure that supply and demand will balance in the future. Instead, the regulator, FERC in this example, has to worry about making sure there is enough generation on tap when needed, without having the power to directly control investment decisions.

In most markets, the way we deal with that is simply to allow prices to go as high as they want during times of scarcity, letting the high price push demand down until it balances with price, and letting unmet demand provide suppliers the incentive to invest in new production capacity. There are several reasons this approach is problematic in power markets. First, many users like residential consumers haven't been in a position to track hourly prices and immediately reduce power use, although smart meters may move them in that direction. Second, it may not be politically feasible to hit consumers with electricity prices that may be orders of magnitude higher than what they're used to. And third, there are a lot of opportunities for market participants to game the system. On the "sell" side of the market, the 2000-2001 California energy crisis was sparked by Enron's market manipulations, withholding power at key times to drive up the price. On the "buy" side, big utility companies may be in a position to push the price of electricity it buys artificially low because they are such a big part of market. Finally, coordinating the development of transmission facilities with both demand and the planning for future generation facilities is not easy and may be hard to accomplish without the government helping the process along.

The upshot is that there are good reasons for not letting prices fluctuate completely at will and not relying on electricity prices alone to guide investment. Even in Texas, which has gone further in deregulation than anyone else, the Electricity Reliability Council of Texas (ERCOT), a non-profit which the state utility commission carefully supervises, was needed to keep the system running well. And the utility commission still has an impressive 508 electricity regulations on its website. And that's in Texas, where fervor for free markets is second only to fervor about football.

One of the problems facing "deregulated" systems is ensuring that incentives exist to add new generation while maintaining system reliability. Capacity markets are an approach that many regulators have adopted. In these markets, besides the real markets and contracts that govern electricity itself, there is a kind of shadow market in capacity. Local utilities report their peak power use and how much of it is already covered in other ways, and then the regulator holds an auction in which generators bid on the amount of system capacity they will commit to supplying. When the market clearing price (where supply balances demand) is determined, all the generators with bids at or below that price get paid the market clearing price. This is a weirdly artificial market since it's disconnected from the actual market for electricity or even from electricity futures markets and also because a lot of generators benefit in one way or another from state subsidies. Not surprisingly, the rules governing this market are very esoteric and hard for outsiders to understand. So it's hard to tell whether capacity markets actually provide the right incentives to generators. For instance, one of the biggest regional electricity grid operators, PJM, has been proposing

changes in its capacity market that might improve incentives for generators or might just be a way of propping up coal and nuclear plants. From the outside, it seems to be almost impossible to figure that out.

If it's working right, floating-price regulation should produce a more economically efficient and innovative power system than fixed-price regulation. But one of the downsides is the complexity of the system, which reduces transparency and accountability. If energy storage, demand management, and the smart grid get big enough, they may reduce opportunities for gaming the system and make electricity markets more like commodity markets we're more used to. That wouldn't eliminate all the complexities of electricity regulation, but it would reduce their scope.