

ISSUE BRIEF

SENATE POLICY DEVELOPMENT AND RESEARCH OFFICE

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Electricity Rate Deregulation

Background

The electric industry comprises three primary and distinct functions: generation, transmission, and delivery. *Generation* of electricity occurs at power plants where electrical energy in the form of an alternating electrical current is produced. The first power plants were run on wood, while today they rely primarily on petroleum, natural gas, coal, moving water (hydropower), and nuclear fission and, to a lesser degree, on hydrogen, photons (solar energy), tides, wind, geothermal heat, and biomass. Electric power *transmission* refers to the bulk transfer of electricity between the power plant and electrical substations located near a populated area, typically over long distance high voltage overhead lines. At local substations, current voltage is reduced by a series of transformers. The term “*delivery*” refers to the transfer of electrical energy from a substation to consumers (individual residences, farms, businesses, factories, schools, offices, etc.) within a local community.

Historically, utilities performed all three functions and were granted monopolies to deliver electricity within a particular geographical area. Because of their monopoly status and lack of competitors, utilities had little to no incentive to maintain reasonable prices and service. Therefore, public utility agencies such as the Pennsylvania Public Utility Commission were created to regulate utilities to ensure that electric companies did not overcharge for their product and delivered reasonable service to their customers.

Subsequently, a wave of deregulation occurred during the 1990s. Telephone, airline, trucking and other industries were all deregulated with a substantial degree of success. About half of the states, including Pennsylvania, moved to deregulate electric power generation within their borders while the other half maintained the status quo. (It should be noted that deregulation as applied to the electric industry meant the deregulation of electric power generation; it did not apply to electric power transmission and delivery. It would create chaos to permit an unlimited number of electric companies to each construct and maintain its own individual power lines along city streets and highways. Therefore, transmission is still regulated by the federal government which has jurisdiction over the national electric grid, while states fully regulate the local delivery of electricity.)

In the states that deregulated, electric companies were permitted to sell their generating plants and purchase electricity on the wholesale market. In some cases, they were even encouraged to do so in order to increase the number of firms involved in electrical generation. In the alternative, many states, including Pennsylvania, permitted a utility to sell its generating plants to a wholly-owned unregulated subsidiary. Simultaneously, as a concession to ratepayers, those states typically placed caps on the rates that electric companies could charge for the retail sale of electricity – for a period – to allow competition to develop within the electrical generating industry. States envisioned more firms generating electricity, construction of additional power plants, and more electrical products (packages of electrical consumption) offered at retail. Rate caps were temporarily utilized in order to allow all of the foregoing to develop. Now, a decade or more later, many of the rate caps are scheduled to expire.

Impact of Deregulation

Deregulation of the electric industry, whose purpose was to introduce competition into the marketplace thereby allowing the economic laws of supply and demand to drive down rates, was implemented in the interest of ratepayers and was intended to introduce cost efficiencies and price benefits for consumers. For whatever reasons, deregulation has not accomplished its intended purpose, at least as envisioned by early proponents. Many analysts believe that competition has developed in the industrial arena for heavy users of electricity in those

states that coupled the choice of a provider with deregulation. In states that did not provide choice, there has been a less observable effect on marketplace pricing.

There has been less benefit to residential consumers, and analysts are at a loss to explain why. Common sense dictates that competition would be fostered in a deregulated state by permitting consumers to choose their electrical generating utility. However, some states, unlike Pennsylvania, did not permit this choice as they deregulated. In addition, there is less economic incentive for a residential customer to make choices solely because his or her electric bill is smaller. One might take the time and trouble necessary to switch electric utilities if it resulted in a \$700 or \$7,000 monthly reduction, but perhaps not to save \$7. Further, electricity is not a “sexy” product. The choice of electric providers is simply a matter of dollars and cents unlike telecommunications companies that have linked status and novelty to the purchase of their products and services. Also, some economists blame the caps themselves for limiting the number of firms generating electricity, maintaining that caps kept prices artificially low and left rivals no room to undercut competing utilities.

Others argue that electricity is a fundamentally different product. Neither the consumer nor the electric utilities purchasing electricity at wholesale can walk away from the market. Unlike other commodities, electricity cannot be stored and, in cases of unusual demand, must be purchased at the highest possible prices. Some economists have suggested that the markets themselves are structured to encourage intended or unintended collusion through the established bidding process. For example, some utilities have decided to buy electricity not from the cheapest supplier but from one owned by a related utility company, even if that electricity is more expensive. Such has been the case in Ohio. Finally, no one expected the exorbitant rise in the costs of fuel necessary to fire electric generating plants.

Even the “experts” fail to agree as to how much, if any, deregulation has benefited the average consumer. Professor John Kwoka of Northeastern University has published [*Restructuring the U.S. Electric Power Sector: A Review of Recent Studies*](#), a comprehensive evaluation of existing research on the subject. More specifically, he analyzed twelve major studies that he states “represent the most prominent, comprehensive, and often cited assessments of the effects of electricity restructuring.” These studies are divided in their conclusions as to the economic benefit of restructuring, but it should come as no surprise that the conclusions of the studies appear to be significantly influenced by who is funding them. Studies conducted by independent academic scholars are much more evenly divided in their conclusions than the conclusions of studies financed by the electric industry itself. Even more disturbing, Professor Kwoka concludes:

After close analysis of these studies, however, this report finds that their methodologies contain numerous deficiencies that undermine confidence in their conclusions. In particular, despite much advocacy to the contrary, there is no convincing evidence that consumers are better off as a result of electricity restructuring.

As the caps come off, electric utilities are demanding that they be reimbursed for past costs. They maintain that they have built new transmission and delivery lines and have paid exorbitant prices to generate or purchase electricity at wholesale because of the rise in the cost of petroleum and natural gas but have not been permitted to recoup those costs because of rate caps which have kept the price of electricity at artificially reduced levels. Utilities maintain that not only should the price of electricity reflect market prices which would in itself result in a dramatic increase in rates but also that the price should be high enough to permit them to recover costs incurred for the past decade in which they were unable to do so. Taken together, these factors combine to contribute to large increases in the price of electricity as the rate caps are lifted, much to the consternation of the rate paying and voting public. As a result, some states, including our bordering state of Maryland, have experienced a political revolt.

Other States

The bottom line is that by artificially depressing prices below market costs for a decade, the states have unwittingly created an economic and political nightmare to which no one has been able to formulate an acceptable or painless answer. Some states have moved towards reinstating some form of electricity regulation. Virginia re-regulated its power industry in July 2007; and according to the National Conference of State Legislatures, Arkansas, Montana, Nevada, New Mexico and Oklahoma have also withdrawn or delayed their deregulation plans

while a California 2005 ballot initiative repealed provisions of that state's 1996 electricity restructuring law while returning rate-setting authority to the California Public Utilities Commission.

In the remaining sixteen states where the transition process has begun and the states are implementing a competitive electric utility market for investor-owned utilities, options are limited in what states can do to mitigate the pain of lifting caps. A state can, of course, forge ahead with its plan to lift the caps on schedule without regard to the consequences. An intermediate course would be to delay lifting caps – a process that probably only exacerbates the problem. A third option would be to regulate the industry as before.

Some advocates of introducing competition to the electric industry have soured on the idea. The Cato Institute, a leading promoter of libertarian thought favoring the least possible regulation, has concluded that government and electric utilities have made such hash of the new system that the whole effort should be scrapped. "We recommend total abandonment of restructuring," Cato said. If the public rejects a greater embrace of markets, Cato wrote, the next best choice would be a "return to an updated version of the old" system. Undoing deregulation is possible but not easy. If states want utilities back in the supply business, those utilities will have to buy power until they can reassemble their own power plant fleet. In the meantime, though, utilities will have found themselves paying high prices and passing them on to customers.

There is a limited amount that states can do when facing such rate increases. One option is to cap the annual amount by which rates can increase. This allows rates to remain steady while the state's utility commission tracks the amounts by which the rates would fluctuate if they were not capped. At some future point, the commission must "true-up" with the utilities and cover any net losses. This is called "booking and deferring." A cap like this can be extended, but there are many implications for the future as the "true-up" must happen at some point. Also, this is considered by some to conflict with the goal of restructuring – to have a "market" that sets prices. Others say that this market has not emerged as expected.

Portfolio management, where electric providers must obtain their power from a variety of sources, is another strategy that states have considered. Ideally, these sources would provide power on different long-term contract schedules as well, so that not all of the contracts expire at the same time. Maine has such a program, with three separate power contracts composing the supply on which rates are based, but long-term contracts can be hard to obtain from generators if it appears that rates will go up soon.

Another option is to increase efficiency and conservation. There are many ways of encouraging consumers to buy efficient appliances or to weatherize their homes. There was an urgent energy conservation program in California a few years ago called 20/20 that encouraged consumers to decrease their electricity demand by 20 percent. If they did so, they, in turn, would receive a 20 percent reduction on their electric bills compared to the same month the previous year.

Some states are considering allowing exceptions to rate caps for very limited purposes such as to recover just the increased price of fuel. Utilities would be required to present a full rate case to justify such an increase. Other states are considering allowing the consumer to choose when to pay higher rates – either all at once or spread out over a specified time. This is analogous to the current practice employed by electric utilities when a customer is on an annual budget plan. When at the end of the accounting cycle it has been determined that a customer has a negative balance, he or she must continue to pay his or her regular bill plus pay the negative balance for the previous year either all at once or over several months.

Pennsylvania

Pennsylvania, too, is caught in the rate cap dilemma. The Commonwealth enacted the [Electricity Generation Customer Choice and Competition Act](#) in 1996 with an effective date of January 1, 1997. In defense of Governor Ridge and the General Assembly, when Pennsylvania first enacted a restructuring statute, the Commonwealth's electric rates were the highest in the nation and varied greatly throughout the Commonwealth. Businesses were leaving Pennsylvania because of energy costs while today Pennsylvania rates are lower than the national average.

It is also noteworthy that everyone's projections of commodity generation costs proved wrong. Every consulted expert thought rates would be lower than the statutorily prescribed rate caps, but they were wrong. At the time,

both members of the General Assembly and analysts from the electric generation industry thought developing competition would keep rates down. It has not worked as planned – wholesale fuel prices are currently above what providers are charging for retail costs.

Not including rural electric cooperatives or municipally owned utilities, there are eleven investor owned electric company distributors in Pennsylvania. Three of them are quite small: Citizens Electric Company of Lewisburg, Wellsboro Electric Company, and Pike County Light and Power Company. Eight additional companies supply electricity to 99 percent of Pennsylvania customers. Rate caps have already expired for customers of all of the three smaller companies in addition to customers of UGI Utilities—Electric Division, Duquesne Light Company, and Pennsylvania Power Company. Rates will expire for customers of PPL Electric Utilities Corporation at the end of 2009 and at the end of 2010 for customers of West Penn Power Company, Pennsylvania Electric Company, Metropolitan Edison Company and PECO Energy Company.

When Pennsylvania deregulated electric generation, utilities could divest their generating plants or sell them to a wholly-owned subsidiary unregulated by the Public Utility Commission. Some of the state's largest generators including Allegheny Power, PECO and PP&L did neither. One of the particularly irksome phenomena of re-regulating the electric industry has occurred in other states. Utilities sold their generating plants to wholly-owned subsidiaries unregulated by the states. Then, as the states reversed restructuring, those generating plants were brought back under control of the regulated parent firm, which sought reimbursement for past losses from the state's regulating agency, resulting in ratepayers subsidizing the company for a bad managerial decision.

According to an article in *State Legislatures* magazine, Pennsylvania has been more successful than many states in deregulating the electric industry:

Pennsylvania has had much success with residential customers switching to new electricity providers after restructuring. The credit goes to a state marketing program that gave consumers the information they needed to make decisions about staying with their present company or switching to another electricity provider.

Pennsylvania has adequate generation, transmission, and distribution capability to serve both present and projected needs for the next five years, and, currently, the Commonwealth is an exporter of generated electricity. This means that electric prices will not rise even further for this state's customers due to a lack of supply.

Nevertheless, Pennsylvania electric customers have benefited from paying 1996 prices and most will continue to benefit from paying capped generation rates through 2009-2010. But, as rate caps expire, consumers will experience the real cost of electricity for the first time in a decade and prices likely will jump to record levels. When rate caps of smaller utilities expired in this state, customers of Pike County Light and Power saw electric rates increase 130 percent while Duquesne Light Company customers experienced 60 percent increases in electric bills. Some maintain lifting the caps will enable alternative energy technologies to be more cost-competitive.

The Pennsylvania Public Utility Commission intends to mitigate price shock with a program designed to increase conservation and decrease consumer consumption. The Commission remains hopeful that as the generating industry continues to evolve, the number of electric packages (products) from which consumers can choose will increase. One needed product is the ability to purchase and somehow efficiently utilize off-peak electricity. Base load electricity generation, as produced by coal-fired, nuclear, and hydroelectric power plants, typically does not vary in output. Base load power plants are expensive to build but cheap to operate. On the other hand, peak electricity output occurs when every available plant must be put on line quickly for short periods. Unlike base load units, peaking units are cheap to build but expensive to operate. Because the electricity is both more costly to produce and because bidding wars often develop during peak hours such as summer afternoons, reducing peak power consumption would be beneficial to reducing electricity costs to consumers. The PUC hopes to develop regulations that would require electric distribution companies to make available off peak produced electricity packages. In May 2007, the PUC also told utilities that they should allow customers to defer or prepay their bill if it increases more than 25 percent.

Electricity Prices

The price of electricity in Pennsylvania was generally about 8.0 cents per kilowatt-hour between 1990 and 2006. More pointedly, in 1990, the cost was 7.7 cents, reached a minimum of 6.7 cents in 1999 (due to weather-reduced consumption), and was 8.7 cents in 2006. The national price exceeded the Pennsylvania price only in 2006, when it was 8.9 cents. In constant dollars, the Pennsylvania price declined from a maximum of 12.2 cents in 1991 to 8.9 cents in 2006, 25 percent less than in 1991. Overall, the price of electricity declined during the period under study, in Pennsylvania and across the country.

Utility Fuel Prices

Between 1990 and 2006, the price of coal for Pennsylvania utilities remained even compared to petroleum and natural gas. **While coal prices increased 13 percent, petroleum and natural gas rose 137 percent and 162 percent, respectively.** Petroleum prices climbed steadily, while natural gas prices were volatile. For example, natural gas prices skyrocketed 130 percent between 2000 and 2001, followed by a plunge of -54 percent in 2002.

Generation Rate Cap Removal Mitigation Proposals

Generation rate cap removal mitigation proposals introduced in the General Assembly last session would have variously affected the average retail price of electricity in Pennsylvania.

[House Bill 1984](#) (George) would have extended the current rate caps for five years. For this proposal, the modeled assumption was prices would escalate in accord with the average increase for the period under study. Accordingly, the price would be 9.1 cents per kilowatt-hour in 2012, 0.4 cents or 4.6 percent more than the 2006 price. The 2012 price, 9.1 cents, would be 1.4 cents or 18 percent more than consumers paid in 1990, equating to an annual increase of 0.8 percent over 22 years. This bill was referred to the House Consumer Affairs Committee on October 29, 2007.

[Senate Bill 1134](#) (Tomlinson) would have phased-in greater rates for residential and small business customers over five years. Rates could increase annually on a fixed base (the rates in effect at time of implementation), in increments of 9 percent maximum; thus, rates could be no more than 45 percent greater in the fifth year. Hence, the price would be 12.6 cents per kilowatt-hour in 2011, 3.9 cents more than the rate in 2006. This bill was re-committed to the Senate Consumer Protection and Professional Licensure Committee on July 2, 2008.

[Senate Bill 1352](#) (Browne) would have phased-in greater rates for residential and small commercial customers over three years. Rates could increase annually on a fixed base (the rates in effect at time of implementation), in increments of no more than 15 percent; consequently, rates could be no more than 45 percent greater in the third year. The final price would be 12.6 cents per kilowatt-hour, the same value under Senate Bill 1134, but in 2009 rather than 2011. This bill was referred to the Senate Consumer Protection and Professional Licensure Committee on April 9, 2008.

[House Bill 2201](#) (McCall) would have phased-in rate caps in identical fashion to Senate Bill 1352; however, phase-in plans would apply to all customers, not just select ratepayer classes. This bill was referred to the House Consumer Affairs Committee on January 15, 2008.