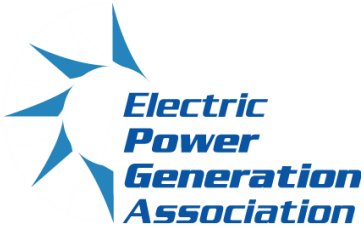
The Benefits of Electric Restructuring to Pennsylvania Consumers

Jonathan A. Lesser, Ph.D.*

November 2007

ON BEHALF OF THE
ELECTRIC POWER GENERATION ASSOCIATION (EPGA)
AND THE
ELECTRIC POWER SUPPLY ASSOCIATION (EPSA)



---

* Jonathan Lesser is a Partner with Bates White, LLC, an economic and litigation consulting firm with offices in Washington, DC and San Diego, CA. Previously, he was Director of Regulated Planning with the Vermont Department of Public Service, and also held positions with the Green Mountain Power, Idaho Power, and the Washington State Energy Office. Dr. Lesser has addressed critical economic and regulatory issues affecting the energy industry, including industry restructuring and environmental regulation and testified before many state utility commissions and legislative committees, as well as before FERC and international energy regulators. He is the co-author of *Fundamentals of Energy Regulation*, published in 2007 by Public Utilities Reports, Inc.

EXECUTIVE SUMMARY

Electric industry restructuring has provided real and measurable benefits to Pennsylvania consumers and businesses. Spurred by competition over the past decade, Pennsylvania power plants have reached unprecedented levels of efficiency. For example, the state's nuclear plants alone generate almost two million megawatt-hours more electricity than they did in 1996, enough to power almost 170,000 homes. Improved nuclear operating efficiencies alone are saving consumers many millions of dollars each year. Best of all, Pennsylvania consumers paid nothing for these improvements and no longer bear the financial risks of failed generating plants or cost overruns, as they did under the old regulatory system. Furthermore, under competition, innovative providers of energy conservation and consumer demand response resources are growing rapidly.

There are no "silver bullets" policymakers can use to prevent an increase in electric prices. Neither regulation nor competition can prevent a future Hurricane Katrina from wrecking natural gas infrastructure and causing natural gas prices to soar. Neither can they prevent the tremendous increases in worldwide demand for fossil fuels that have driven electric prices higher. But, unlike regulation, strong market forces exist under competition that, when allowed to function properly, can provide the lowest available cost to consumers.

The move to competitive markets did not, and will not, eliminate the necessary role of policymakers. Government policies can establish a framework that fosters competition, addresses environmental realities, and encourages more efficient use of resources. Government policies can promote new resource investments by reducing regulatory uncertainty and the financial risks that arise when market rules suddenly change. Government policies can also encourage resource diversity by moving toward value-based prices, which will facilitate development of new generation and transmission infrastructure and will promote consumer demand response by sending appropriate market signals.

The reality is that no amount of government intervention, however well-intentioned, can change the basic principles of supply and demand. Rather than rejecting market forces, a better approach is to embrace and apply those market forces to create an even more robust, competitive market for electricity consumers in Pennsylvania.

- Prior to electric competition in Pennsylvania, retail customers in Pennsylvania absorbed significant and steady rate increases resulting from a number of factors, including inefficient operations, construction cost overruns and higher fuel prices.
- In response, in 1996 Pennsylvania passed the "Electricity Generation Customer Choice and Competition Act" which shifted generation construction and operation risk from consumers, provided market incentives to improve plant efficiency and promoted competition and innovation in retail electric markets.
- Pennsylvanians have benefited by millions of dollars each year from more efficient generation with increased output and lower operating costs and new market entrants providing both innovative generation and demand side response programs.
- The expiration of multi-year capped rates, which have provided consumers billions of dollars in benefits, presents a transitional challenge for consumers. But enacting new legislation that attempts to counter competitive market forces is not the answer.
- In the end, it is the market itself that provides a self-correcting mechanism to resolve transient price increases. Unlike more regulation, competition will provide the lowest available cost. Therefore, the better answer is to apply competitive procurement principles, while at the same time pursuing rate mitigation strategies such as energy efficiency and demand response programs and rate phase in and budget plans to ease the transition to market prices for all consumers.

INTRODUCTION[†]

As the Pennsylvania Legislature considers a number of bills affecting the energy industry, it is important to consider the benefits derived from restructuring the state's electric industry. Although expiring multi-year capped rates present transitional challenges for consumers, enacting new legislation that attempts to counter market forces is not the answer, nor is it feasible. Governments cannot legislate away basic economic principles of supply and demand. Most significantly, post rate cap price increases are not caused by electric restructuring and wholesale competition, but primarily by substantial increases in fossil fuel prices; increases that were not anticipated in the late 1990s. On the contrary, restructuring and wholesale competition have helped mitigate larger price increases that likely would have occurred under the traditional regulatory framework.

Electric restructuring was never intended to guarantee that electricity prices would forever decline. No market, either competitive or regulated, can provide such a guarantee. Ultimately, electricity prices must reflect the actual costs of power, costs that have risen substantially in the last ten years. All competitive markets are subject to price increases when demand outstrips supply. It is the market itself that provides a self-correcting mechanism to resolve such transient price increases.

[†] This report was sponsored by the Electric Power Generation Association (EPGA) and the Electric Power Supply Association (EPSA).

As policymakers in Pennsylvania consider various energy legislative proposals this Fall, they can benefit from a few key facts. First, the underlying rationale for electric industry restructuring was to address long-term problems within the historic "command-and-control" regulatory framework. Second, despite some pronouncements to the contrary, the benefits of electric restructuring are both real and substantial. Third, there are effective transition mechanisms that can be used to ease the burden of any sudden price increases, while preserving the benefits of market competition.

WHY RESTRUCTURING? A BRIEF HISTORY

Electric restructuring occurred in large part because the existing regulatory system had failed. Although there has been much emphasis on electric price increases that follow the expiration of multi-year price caps, prior to competition under the regulated system, retail consumers in Pennsylvania absorbed significant and steady rate increases. Those increases resulted from a number of factors, including construction cost overruns, higher fuel prices, and investments in pollution control measures. Moreover, under the regulated model, generation plant owners lacked economic incentives to operate their plants more efficiently.

To address these real, recurring issues, federal and state regulators across the nation took a number of different approaches. Some state regulators required utilities to prepare so-called "least-cost" plans, in which utilities detailed how they would meet anticipated future growth in electricity demand over the next 10 to 20 years, including how much of the anticipated growth could be met cost-effectively with energy conservation measures based on complex "avoided cost" calculations. These conservation measures included everything from compact fluorescent light bulbs, to more efficient industrial motors, water heater

insulation, and utility-paid fuel switching to natural gas for electric space heating and water heaters.

At the federal level, wholesale electric competition was first introduced in 1978, with passage of the Public Utility Regulatory Policies Act (PURPA),[1] which created a new class of independently-owned, small (80 mw or less) generators, called "qualifying facilities" (QFs). The goal was to encourage renewable generating resources, such as small hydroelectric plants, geothermal facilities, and wind power, and reduce the demand for natural gas. Under PURPA, individual utilities were required to purchase all of the output from QFs at a price equal to the utility's avoided cost.

The next major federal action was the Energy Policy Act of 1992, which created a second new class of independently-owned generators, called "exempt wholesale generators". To help ensure independently owned generating plants could transmit their power to users, pursuant to the Act of 1992, the Federal Energy Regulatory Commission began enacting rules allowing "open-access" to utilities' transmission lines by independent wholesale generators.

Nonetheless in the 1990s, electric rates continued to rise nationally for several reasons. First, despite conservation measures, the demand for electricity steadily increased. Second, avoided cost forecasts were frequently wrong, and locked utilities into paying above market prices under PURPA's mandatory power purchase requirements. Not for the first time, well-intentioned government mandates designed to solve certain problems had inadvertently created others.

---

[1] For a more detailed summary of the history of the electric industry, see J. Lesser and L. Giacchino, *Fundamentals of Energy Regulation* (Vienna, VA: Public Utilities Reports, Inc. 2007), Chapter 1.

ADDRESSING THE PROBLEMS OF ELECTRIC REGULATION

All of these impacts were evidence of an outdated regulatory system. Many customers, especially large industrial customers that faced stiff competition both in the United States and abroad, complained that rising rates were driving them out of business. They wanted access to electricity generated by natural gas because deregulation of natural gas prices had led to huge investments in exploration and development making natural gas more plentiful and cheaper. Moreover, generation developers were designing new, highly efficient gas-fired generators, called combined-cycle plants. State and national industrial lobbying groups advocated for restructuring and direct retail competition to enable their members to bypass their local utilities and purchase electricity directly from new, low-cost suppliers who were building these gas-fired combined cycle plants.

In other words, industrial consumers in Pennsylvania and nationwide wanted to rely on market competition, rather than regulation, to obtain their electricity. In all other industries, competitive markets had provided producers with the incentives to invest and innovate, while competition among producers promoted disciplined prices. Consumers benefited from the resulting increases in operating efficiency, output and, ultimately, lower market prices. Efficient producers benefited by reducing their costs below others.

Pennsylvania's "Electricity Generation Customer Choice and Competition Act" ("Competition Act) passed in 1996, enabled competitive forces to address several key economic objectives:

(1) Shift the financial risks of construction, operation, and ownership of generation from captive ratepayers to investors, who are positioned to manage those risks far more effectively.

(2) Provide market incentives for investors to build new generating plants, and operate existing plants more efficiently.

(3) Promote competition and innovation in retail electric markets, including innovative demand-side management and demand response programs.

In large part, these economic objectives have been realized. First, Pennsylvania electric consumers no longer bear the risks of uneconomic generating plant investments as they did under the old regulated model. Nor do Pennsylvanians bear the financial risks of construction cost overruns or forced outages caused by major equipment failures. Instead, those risks are borne by those who can best manage and diversify them: competitive generating companies and their investors.

Second, many studies have confirmed that competition spurred generating plants to become markedly more efficient by increasing their output and reducing their operating costs. For example, in a previous study,[2] we conservatively estimated that improved nuclear plant performance annually benefits Pennsylvania consumers by over $120 million. Moreover, that estimate does not even include the substantial benefits to Pennsylvania consumers of improved performance at nuclear plants in neighboring deregulated PJM states, such as Maryland and New Jersey.

Pennsylvania has also benefited from being a member of the PJM power pool. Competition in wholesale markets, administered by independent entities such as PJM, has been found by federal regulators to be robust.[3] Power pools like PJM

[2] C. Cain and J. Lesser, "The Pennsylvania Restructuring Act: Economic Benefits and Regional Comparisons," February 2007.

[3] See, 2006 State of the Market Report, Vol. 1, March 8, 2007 ("2006 SOM"), at 11, available at:

exist because they capture the benefits of supply and demand. PJM diversifies supplies, thus improving overall reliability. It creates a much larger regional market, which provides Pennsylvania consumers access to the capacity of over 1,200 generators and 165,000 MW of generating capacity in 13 states.[4] By coordinating the operations of all of these generating plants, the likelihood of an outage is far less than if utilities operate separately. For example, if a plant needs routine maintenance or suddenly breaks down, other generating plants are available to meet customer demand. Power pools like PJM still need to have reserve generating capacity, but such resources can be used far more efficiently than if individual utilities separately operate their power plants.

Third, new market entrants provide innovative services such as consumer demand-side management programs. Just recently, on October 12, 2007, PJM reported that its most recent forward capacity market auction, which helps ensure reliability by providing capacity resources when they are most needed, netted 963 MW of consumer demand response, the equivalent size of a large power plant.[5] And in one of the hottest weeks in August 2006, PJM estimated that demand response resources provided $650 million in reduced costs.[6] Notably, these savings were realized when they were most valuable: during times of peak demand. Such robust demand response is a direct result of wholesale markets beginning to express true market price signals and supporting

---

http://www2.pjm.com/markets/market-monitor/downloads/mmu-reports/2006-som-volume-i.pdf

[4] A brief overview of PJM is available on the PJM website: http://www.pjm.com/about/overview.html.

[5] See, "PJM RELIABILITY PRICING MODEL ATTRACTS MORE GENERATION, DEMAND RESPONSE, Press Release, October 16, 2007, http://www.pjm.com/contributions/news-releases/2007/20071012-RPM-auction-results1.pdf.

[6] See, "EARLY AUG. DEMAND RESPONSE PRODUCES $650 MILLION SAVINGS IN PJM," Press Release, August 17, 2006 Available at: http://www.pjm.com/contributions/news-releases/2006/20060817-demand-response-savings.pdf

innovative approaches to facilitate customers' usage reduction when it is most valuable. PJM projects that still more consumer demand response resources will be bid into the capacity market auction, providing even greater savings for all electric customers.

Thus, despite some claims to the contrary, the 1996 Competition Act has provided, and will continue to provide, significant benefits. Of course, electric restructuring remains a work in progress, and more remains to be done. Moreover, there is no doubt that electricity has become substantially more expensive since the 1996 legislation passed. The expected price increases are a primary impetus for proposed changes impacting the Pennsylvania electric industry. Before embarking on any such reforms, however, it is critical to understand why electric prices increased.

WHY DID ELECTRIC PRICES INCREASE?

Increases in electric prices have been caused primarily by unprecedented increases in the prices of all fossil fuels. Natural gas prices, for example, more than tripled between 1999 and 2006, the result of significant increases in demand for natural gas.[7] Additionally, prices for coal burned in Pennsylvania's coal-fired plants increased by about 60 percent over that time period.[8] As coal sets the market price in PJM 70 percent of the time and natural gas 25 percent of the time, wholesale electricity market prices increased as well.[9]

---

[7] Hurricanes Katrina and Rita also affected natural gas prices in the latter part of 2005 and into 2006 because of the damage done to natural gas gathering infrastructure along the Gulf Coast.

[8] See, "PJM Wholesale Electricity Markets Again Found Competitive," available at: http://www.pjm.com/contributions/news-releases/2007/20070308stateothemarket.pdf.

[9] 2006 SOM, at 11.

The PJM 2006 State of the Market Report indicates that average real-time energy prices decreased by over 15 percent in 2006 from their 2005 levels.[10] Even adjusting for the decrease in fuel prices between 2005 and 2006 (especially the decrease in natural gas prices), average prices fell over 5 percent.[11] This confirms that generators became more efficient and reduced their non-fuel operating costs, exactly the positive type of behavior competitive markets promote.

Furthermore, at the same time that fossil fuel prices were rapidly increasing, so was the demand for electricity. Between 1999 and 2005, electric consumption in Pennsylvania increased by over 10 percent. Both the effects of these large increases in fossil fuel prices and increased electric consumption caused wholesale market prices to rise. If not for competition and the efficiency gains such as those discussed above, electric prices would likely have increased even more. The strong market incentives to improve operating efficiency and plant performance, which have substantially reduced generating costs, would not exist. Moreover, Pennsylvania consumers would still bear all of the financial risks of construction cost overruns, poor operating performance, and forced plant outages, just as they did prior to restructuring.[12]

---

[10] Id.

[11] Id.

[12] Critics of restructuring fail to consider the costs of utilities building new generating resources and passing along unexpected construction cost increases. For example, Duke Energy announced that the construction costs of a new baseload coal plant in North Carolina had increased by 50%. See, In the Matter of Application of Duke Energy Carolinas LLC for Approval for an Electric Generation Certificate of Public Conveyance and Necessity to Construct Two State of the Art Coal Units for Cliffside Project, Docket No. E-7, Sub 790, Supplemental Testimony of William McCollum, Jr., November 29. 2006. This estimate does not include capitalized interest payments, which are expected to add another $400 million in cost to the plant.

MOVING FORWARD

Electric prices increased as a result of two basic economic forces: supply and demand. This single fact – that electric prices will rise after below market price caps expire – lies at the heart of the debate about the future of Pennsylvania's electric industry. Yet, policymakers must appreciate that they cannot prevent the effects of these most basic of market principles.

The 1996 Competition Act provided real benefits to Pennsylvania's electric consumers, but it also contributed to the situations facing us today. Although the multi-year price caps "locked-in" billions of dollars of benefits for consumers and insulated them from the ups and downs of competitive market prices over more than a decade, like all other price controls, they now expose consumers to the increases that inevitably occur when below-market price caps end.

But replacing a robust, competitive market with government regulation is not the solution to the challenge of increasing prices. Government mandated resource decisions, however well intentioned, have never worked. For example, California froze utilities' rates and did not allow them to recover their actual market costs. This drove one utility into bankruptcy, and another to the verge of bankruptcy, compelling the State to procure electricity on their behalf. The State signed numerous, long-term contracts, most at prices that turned out to be far above market, costing California consumers billions of dollars. In contrast, well-designed comprehensive transition plans that include staggered competitive procurements and budget and phase-in plans to smooth initial price increases will benefit consumers and are the far better solution.

COMPETITIVE PROCUREMENT PROGRAMS

Moving forward, a key issue will be how Pennsylvania consumers obtain their electric supplies. There has been much misinformation on this issue. For example, some advocates of a return to the previous regulatory system, have referenced a recent article by Marilyn Showalter that claims competition has cost Pennsylvania billions of dollars[13] and rates in restructured states such as Pennsylvania have risen much faster than in unrestructured states, such as Washington and Idaho. However, Showalter's simplistic rate "comparisons" and assertions are invalid.

As discussed previously, electric rates have increased substantially in both unrestructured and restructured states largely in response to increases in fuel costs. Thus, any meaningful comparison of rates in restructured vs. non-restructured states must control for the other important factors that drive price differences, as well as the rate of change of price differences. Differences among states' labor rates and in the fuel mix of their generation are among the most obvious and important factors that must be considered for any meaningful comparison.

Notably, a recently published study, which considered these critical factors and performed a similar comparative analysis as Showalter's came to the opposite conclusion.[14] The authors concluded that there was no significant difference in rate changes during 1997-2006 between restructured and non-restructured states with rates increasing by approximately 31% in both groups. Furthermore, those

[13] See, e.g., M. Showalter, "A Billion Here, A Billion There: Price Matters." Available at: http://ppiforum.wordpress.com/2007/08/06/a-billion-here-a-billion-there-price-matters.

[14] J.P. Pfeifenberger, G.N. Basheda, and A.C. Schumacher, "Restructuring Revisited," *Public Utilities Fortnightly*, June 2007.

authors concluded that the rate increases in the restructured states "lagged" the rate increases in the unrestructured states, resulting in a $24 billion *benefit* to customers in restructured states through 2006.

Competitive procurements have been successfully conducted in several states, including Maryland and New Jersey. Yes, prices increased; not, however, because of deregulation, but in response to underlying supply and demand conditions. Arguing that competitive market prices are "too high" implies that government-run, regulatory approaches can somehow "beat the market." A far better response is to rely on the power of a robust market, which, as PJM's October 12th announcement about demand response resources shows, will incent new and innovative offerings and programs.

Competitive procurement helps ensure reliable, reasonably priced electricity. Head-to-head competition through open, transparent procurement such as auctions and requests – for – proposals will produce the lowest available price. Furthermore, such procurements can be structured to smooth out any transitional price increase by establishing overlapping supply contracts and contracts of varying durations.

Finally, such workable competitive procurement programs can be linked with well-designed transition programs to mitigate the adverse impacts of sudden price increases. These transition programs can include phasing out rate cap increases over several years to smooth the transition to market-based rates.

CONCLUSIONS

Electric industry restructuring has provided real and measurable benefits to Pennsylvania consumers and businesses. Consumers no longer bear the financial risks of failed generating plants or cost overruns, as they did under the old regulatory system. And innovative providers of energy conservation and consumer demand response resources are growing rapidly.

There are no "silver bullets" policymakers can use to prevent an increase in electric prices. Neither regulation nor competition can prevent the tremendous increases in worldwide demand for fossil fuels that have driven electric prices higher. But, unlike more regulation, competition can provide the lowest available cost.

Government policies can establish a framework that fosters competition, addresses environmental realities, and encourages more efficient use of resources. Government policies can also provide resource diversity by ensuring that consumers are exposed to correct market signals, which will facilitate development of new generation and transmission infrastructure, and will promote consumer demand response. The reality is that no amount of government intervention, however well intentioned, can change the basic principles of supply and demand. The best approach is to apply those market forces to create an even more robust, competitive market for Pennsylvania's electricity consumers to ensure the lowest available price.