



**Testimony Before the
Pennsylvania Public Utility Commission**

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Regarding

En Banc Hearing

On

Current and Future Wholesale Electricity Markets

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Good afternoon Chairman Cawley, Vice Chairman Christy, and Commissioners Powelson, Pizzingrilli, and Gardner. I am Doug Biden, President of the Electric Power Generation Association.¹ Thank you for scheduling this hearing on these critically important issues and for inviting me to testify today.

The Commission convened these hearings to learn more about wholesale electricity markets, which are regulated by the Federal Energy Regulatory Commission (“FERC”). I will address what I believe are the most critical issues that have emerged in the previous hearings.

1. Statistical evidence clearly proves that wholesale prices are fair to consumers.

The most important question that has emerged in the previous hearings is this – are wholesale electricity markets fair to consumers? The answer to this question is a clear, unequivocal “yes.”

At the outset, it is important to remember that state and federal efforts to bring competition to the electric generation industry grew out of profound dissatisfaction with the performance of the industry under cost-of-service regulation, including massive cost overruns during construction of plants, extended outages and poor performance at certain plants, excess generating capacity, and frequent double digit rate increases. The movement to generation competition was also part of a larger trend to introduce competition to regulated industries such as transportation, telecommunications, and natural gas. The idea behind promoting competition in the generation industry, and

¹ The Electric Power Generation Association (EPGA) is a regional trade association of electric generating companies with headquarters in Harrisburg. Its members include AES Beaver Valley LLC, Allegheny Energy Supply, Cogentrix Energy Inc., Constellation Energy Commodities Group Inc., Dynegy Inc., Edison Mission Group, Exelon Generation, FirstEnergy Generation Corp., LS Power Associates LP, PPL Generation, Reliant Energy, Sunbury Generation LP, Tenaska Inc., and UGI Development Company.

replacing cost-based regulated prices with market prices, was that economic efficiency would be enhanced if investors, rather than captive customers, took the risks of building and operating plants.

Let me begin my defense of wholesale competitive markets with a concession – these markets are not perfect. (But I will quickly add the reminder that it is not wise to “set up the perfect as the enemy of the good.”) One difficulty with wholesale markets is their complexity, which in a rising cost environment makes them challenging to defend against populist attacks. Some amount of complexity is inevitable in wholesale markets because of the unique characteristics of electricity, such as the fact that it cannot be stored. Fortunately, there are two simple measures that don’t require delving into the complexities of locational marginal pricing (LMP) or PJM’s Reliability Pricing Model (RPM) and which demonstrate convincingly that wholesale markets are clearly fair to consumers.

The first is the “net revenue” analysis conducted by Dr. Bowring, PJM’s independent market monitor, which shows that since organized wholesale markets began operating generators have generally not earned sufficient revenue to recover the fixed costs of building new plants.² In fact, new peaking, mid-merit and baseload pulverized coal plants have covered only 43%, 61% and 71%, respectively, of their annualized fixed cost over the last 9 years, underscoring the need for market improvements to support new generation entry in the PJM market.

This is important because, again, one of the main reasons for bringing competition to electricity generation was to place the risks of building new plants on investors instead of captive customers. Surely, when the policy decision to rely on

² Testimony of Dr. Joseph E. Bowring, October 23, 2008, pp. 7-11.

markets was made, no one expected investors to take the risk of building new plants if they could not recover their costs, including a reasonable return. In light of Dr. Bowring's analysis showing that generation revenues have not been sufficient to cover the fixed costs of building new plants, how can it possibly be suggested that wholesale prices have been unfairly high to consumers?

While the perception is that wholesale electricity prices have been high, the hard reality is that the costs of building and operating new power plants have been even higher. From 2000 to the beginning of this year, the cost of building a new power plant in North America rose 130%. From 1999 to September 2008, the cost of coal rose by 200% and the cost of natural gas rose by 300%. Paying prices that reflect these underlying costs is difficult, but necessary to avoid even greater problems, such as shortages of electricity, in the future.

Some argue, however, that while it may be "fair" to pay higher prices to generators who actually build new power plants, it is "unfair" to pay such prices to owners of existing generation plants because in some cases it allows them to earn profits that are perceived as "too high." This is really just an argument for cost-of-service regulation, in which each generator's prices are based upon its costs, as opposed to a market in which market-clearing prices must reflect the "replacement value" of assets to provide the necessary incentive for continuing investment. If policymakers accept this argument, they will be stepping on a slippery slope leading inevitably back to the failed model of cost-of-service regulation, where the risks of building and operating power plants will once again be placed on customers.

The second simple measure showing that wholesale markets are working effectively and producing prices that benefit consumers is the statistical evidence showing that, when adjusted for changes in fuel costs, wholesale prices have actually dropped by 23% since the markets began operating as detailed in the testimony of Andrew Ott, Senior Vice President of Markets at PJM, at the October 23, 2008 hearing.

There were few, if any, complaints about wholesale prices when the wholesale markets began operating in 1999. But within a few years, natural gas prices increased more than anyone had projected at the time of restructuring, driving retail marketers out of business because they could no longer compete with the capped generation prices of utilities. This is the real source of discontent among the industrial customer groups who have criticized wholesale markets in this proceeding – they thought that energy from modern natural gas-fired generating plants would continue to be cheaper than energy from the older fleet of coal and nuclear plants built under regulation. Now they are disappointed because market conditions changed. But for the unanticipated run-up in natural gas prices, it is unlikely that there would be a controversy over whether wholesale competition is working.³ In fact, in an exchange with Commissioner Moeller at FERC, John Anderson of ELCON conceded he would not be complaining if natural gas prices were at five dollars.⁴

As Mr. Ott testified, the decrease in fuel-adjusted wholesale prices since the wholesale markets began operating reflects the increasing efficiency of the industry in

³ The increase in the demand for natural gas as a power plant fuel, and the corresponding increase in its price, has been driven primarily by increasingly stringent environmental standards. However, the recent discovery of massive gas reserves in the Marcellus Shale region is predicted to have a long-term moderating effect on natural gas prices in the PJM region.

⁴ Comments by Commissioner Moeller and John Anderson, before the Federal Energy Regulatory Commission, February 27, 2007

response to market incentives. Generators have an economic incentive to decrease operating costs and increase the availability of their plants in order to earn profits. The enhanced productivity of the plants serves the public interest in a number of ways, including reducing the need to build additional, expensive new plants. While “markets” may be unpopular to some because of abuses such as those in the financial sector, the performance of the generation industry under competition is an example of how free markets, still the foundation of our economic system, can work to benefit society as a whole.

2. The flip-flopping policy positions of the industrial customers show a short term focus that is inconsistent with the needs of the capital-intensive electric generation industry.

Industrial customers demanded competitive markets in the 1990s because prices then available in wholesale markets were below the level of regulated prices based upon embedded costs. But now that wholesale market prices have moved higher than the embedded cost of some existing units, the industrial customers are seeking a return to embedded prices. Although claiming that competitive markets are somehow now broken, their real complaint is that their multi-year below-market rates are ending. And as Mr. Ott and Dr. Bowring’s testimony underscored, the markets are functioning well and producing competitive, transparent prices.

This flip-flopping, driven by narrow short-term self-interest, is detrimental to the broader public interest. A return to cost-of-service regulation would bring back all the old problems of regulation along with a new one – greater regulatory uncertainty as to whether industrial customers would adhere to the regulatory bargain if market prices were to again slip below the level of regulated rates. In the meantime, the frequent

complaints of some industrial customers against wholesale markets contribute to market uncertainty which increases the risk (and therefore the costs) of building new power plants. It is difficult to attract investment in capital-intensive power plants, which will serve customers for decades, in a policy environment in which large customers with significant political clout attempt to change the policy paradigm every ten years.

3. As in other industries, the prices and profits of electric generators vary based upon market conditions.

In the political arena, some have criticized electric generators for prices and profits that are “too high.” This is just a rephrasing of the argument that it is unfair to allow owners of existing plants to be paid market-clearing prices set by higher cost generating units. However, as examples from other industries illustrate, the fact that prices rise and some industry participants earn healthy profits is consistent with the normal operation of competitive markets.

First, it must be recognized that since wholesale markets began, some generators have succeeded and others have struggled financially. Two former members of EPGA went bankrupt, as did at least two other generators operating within PJM. These mixed results show that wholesale market rules are not stacked in favor of generators.

Second, examples from other industries illustrate that price increases and healthy profit levels for some industry participants are consistent with the normal functioning of competitive markets. For example, over a number of years the steel and renewable energy industries benefited from increased demand for their products, which contributed to higher prices and profits, and rising stock values. From 2000 to 2007, the

price of steel increased by 70%. The stock of A.K. Steel rose by 174% in 2007 alone, and the stock of U.S. Steel almost doubled in value (from roughly \$100 to \$190 per share) during just the first half of 2008.⁵ In the renewable energy industry, Gamesa and Iberdrola saw their profits rise by 69% and 78%, respectively, in the first half of 2008.

No one is suggesting that these rising stock values and profits proved that these companies were gouging customers, or that the government should intervene to restrict their prices. The same should be true for the electric generation industry. At a time in our nation's history when some prominent companies are floundering and pleading for a taxpayer-funded bailout, it would be perverse to punish companies that have been successful in the marketplace and that require substantial capital to build critically needed infrastructure.

4. It is critically important necessary to continue paying market prices to owners of existing generating plants to support the significant capital expenditures at these plants.

Alcoa and other market critics have argued that existing plants should not be compensated at the same level as new plants. In doing so, they are suggesting a price discrimination scheme that they would never accept for their own products. Would Alcoa's Lancaster mill, for example, accept a lower price for its aluminum products than a new plant in Iceland just because the Pennsylvania plant might be older? Would they agree to charge less for their aluminum products manufactured at a plant with a lower cost base? Of course not, they would charge the single market clearing price, just like the producers of all commodities do. Electricity is no different.

⁵ The stock of U.S. Steel has since dropped substantially due to the impact of the global recession. Almost all other stocks, including those of electric generators, have also fallen dramatically.

If existing power plant owners knew that they were going to receive lower revenues based on some discriminatory vintage criteria, much of the investment in existing plants that we have seen over the years, investment that has enabled coal plants to enhance operations so that this lower-cost fuel continues to set the market clearing price over 70% of the hours in PJM, would not have occurred. This is especially important in PJM and Pennsylvania due to the significant amount of aging, lower cost coal-fired generation located in the region.

In the years 1998 to 2007, EPGA members have invested more than \$12 billion in existing plants in Pennsylvania for environmental controls, capacity uprates, turbine upgrades and other miscellaneous capital expenditures to keep plants running. They have spent tens of billions more on wages, fuel and taxes at these plants. Although we do not have a complete data submission from all of our members, current plans from those reporting call for capital expenditures at existing Pennsylvania plants totaling more than \$14 billion for years 2008 - 2013.

Environmental expenditures alone have been challenging, include four rounds of nitrogen oxide emission reduction requirements and one of the most stringent state mercury emission regulations in the nation. Our members now expect to spend more than \$4 billion to comply with Phase I of the Clean Air Interstate Rule (CAIR) which was vacated by a federal court, but is sure to be replaced by more stringent regulatory requirements for sulfur dioxide, nitrogen oxide and particulates, if appeals are not successful.

In the future, many existing plants could also be required to construct water cooling towers, at costs ranging from tens of millions to a billion dollars, depending on the outcome of a case pending before the U.S. Supreme Court.

Finally, assuming that climate change legislation is adopted by Congress, hundreds of billions of dollars of investment will be needed for both new and existing plants. When that day arrives, the severe adverse effects of trying to discriminate against existing plants will be obvious.

5. Market critics have not shown that retail prices increased more in states covered by organized wholesale markets.

Some industrial customers contend that electricity prices are higher than would have prevailed if (contrary to their pleas at the time the change was made) traditional cost-of-service regulation had been retained. They base this argument upon a snapshot comparison of prices to industrial customers of Allegheny Power in a restructured (Maryland) and non-restructured (West Virginia) state at a specific point in time. These comparisons are misleading, and the conclusion that wholesale pricing rules and market design caused higher prices in Maryland has been refuted by other testimony in this proceeding.

First, the reply comments filed by the Electric Power Supply Association in this proceeding cite comprehensive reviews of price changes in restructured and non-restructured states, none of which support a conclusion that retail prices have increased more in restructured states. These comprehensive reviews are more reliable than the snapshot comparisons of prices paid by particular customers at particular points in time. In addition, numerous regulated states (e.g. Florida, North Carolina, Nevada and Wisconsin) have recently passed provisions allowing for the recovery of costs for

construction work in progress or CWIP. Customers and ratepayers in those jurisdictions would be responsible to pay hundreds of millions of dollars in construction costs for generating plants, even if those plants don't come on line.

A fair and thorough comparison of rates is far more complicated than the market critics of markets have presented to date, requiring the analyst to sort out numerous relevant factors that can affect price, including, among other things, fuel mix, fuel prices, transmission costs, distribution costs, environmental compliance costs, labor costs, congestion costs, the existence of PURPA or other non-market contracts, tax rates, degree of urbanization, cross-subsidies or the existence of special rate designs like declining block rates. There is no indication that any of the parties relying on this analysis, and claiming purported design flaws in the PJM market based on this analysis, even attempted such a thorough "apples-to-apples" rate comparison.

In addition, the rate schedules and customer classes are not the same in the two states. Also, rates for the Maryland utility are still affected by a costly above-market PURPA contract.⁶ Wages, taxes, land and environmental costs are higher in Maryland. On the latter point, Maryland resides in the Northeast Ozone Transport Region and is thereby subject to far more stringent environmental regulation. West Virginia rates reflect a much higher percentage of lower cost coal-fired generation than Maryland rates. Finally, Allegheny Power's utility affiliate in West Virginia currently has a fuel

⁶ In its December 7, 2007 filing to determine the Warrior Run rate surcharge for 2008, Allegheny Power estimated total Warrior Run costs of more than \$111 million for 2008, and revenue of only \$71 million from sales into the PJM markets. Despite significant increases in wholesale electricity prices, driven by rising fuel costs, the Warrior Run QF was still expected to be priced more than 50% above the market, and Maryland consumers are obligated to pick up the difference. Source: Annual Update to Allegheny Power's Warrior Run Surcharge, MPSC Case No. 8797, filed December 7, 2007.

price increase pending before West Virginia regulators that would increase industrial rates by nearly 30%.

For all of these many reasons, the simplistic comparisons of prices in Maryland and West Virginia are misleading and in no way prove cost-of-service regulation superior to competition.

At the November 6 hearing, Mr. Ciarlone of Alcoa referred to a study by Penn State University entitled “Your Electrifying Utility Bill: A Forecast of Pennsylvania Economic and Workforce Changes Resulting from Removal of Electricity Rate Caps” (Professors Banker and Passmore). This study concluded that, “all other things being equal,” a 10% increase in electricity prices pursuant to the expiration of Pennsylvania’s retail rate caps would harm consumers, and reduce output and jobs. Further, the authors claim that the conclusions may be linearly extrapolated to any presumed higher percentage change in electricity prices. There are many conceptual and practical problems with the cited study, and it should not be relied upon in establishing that render it virtually useless for public policy purposes.

As a recent analysis of the Penn State study shows, among other faults, the authors incorrectly assume that price controls costless ignore the harm caused by artificial price controls. Therefore they omit any mention of the well-known, significant adverse costs imposed on the economy by They ignore the fact that artificial price caps such as restricting restrict investment in delivery infrastructure, generation supply and energy efficiency technologies. Similarly, they fail to account for the benefits that would derive from accurate price signals once retail price caps are lifted. See, “Removing Electric Rate Caps Will Benefit the Pennsylvania Economy” by Jonathan A. Lesser,

Ph.D. at:

http://128.118.35.33:8082/joomla/index.php?view=article&catid=40%3Ainvited&id=47%3Aelectrateprelim&format=pdf&option=com_content.

To follow the authors' apparent logic, we should leave extend the retail price caps on indefinitely even though we know the long-term results would be far more disastrous for the state economy (not the least of which would be financially distressed utilities and eventually an electricity shortage that would more severely reduce output and employment) than the questionable results forecast by their unworkable model. – bankrupt electric utilities and an electricity shortage that would reduce output and jobs much more than allowing electricity prices to reflect market conditions. For we know that Contrary to the authors' assumptions, in a complex interconnected regional economy, all other things are decidedly not equal.

6. Consumers have benefited from electric restructuring.

Contrary to the claims of witnesses for ELCON and the PJM Industrial Customer Coalition, improvements in the operating efficiency of power plants have benefited consumers substantially. Under the "single price auction" PJM administers to set prices in energy markets, generating units submit offers at their marginal operating cost, and PJM accepts these offers beginning with the lowest priced until demand is met. All accepted offers are then paid at the level of the "market clearing" or last offer. This type of energy pricing mechanism, which is used in every organized wholesale electricity market in the U.S., provides an incentive for generators to reduce their operating costs and increase the chance that their offers will be accepted more frequently.

To the extent that baseload plants with relatively low operating costs improve availability and output, this lowers the number of hours that other plants with higher operating costs will be dispatched. The experience of nuclear plant performance illustrates this point. The percentage of time that nuclear plants operate has improved from less than 70% to over 90%, with the best plants achieving a capacity factor of more than 95%.⁷ These tremendous efficiency gains, almost all of which occurred since the advent of competition, have been the equivalent of adding 26 new nuclear reactors nationwide. Closer to home, a study by Bates-White found that the improved performance at four of the five nuclear plants in Pennsylvania from 1999 to 2007 resulted in annual net savings of \$432 million in eastern PJM and \$122 million in Pennsylvania.⁸ Coal plants have also improved their capacity factors and heat rates, while reducing their operations and maintenance expenses.

The greater availability of this low-cost generation reduces the need for higher cost generation such as natural gas, thus lowering total costs for the market. In its effect on market prices, an increase in low-cost baseload output is equivalent to a reduction in load – they both tend to displace the higher-priced marginal generating resource.

Consumers have also benefited from the shifting the operational and construction risk from captive ratepayers to investors. It is important to remember that the “good old days” of monopoly rate-of-return regulation weren’t really good at all, but produced massive construction cost overruns, operating inefficiencies, and rate increases during

⁷ Source: Nuclear Energy Institute

⁸ The Pennsylvania Electricity Restructuring Act: Economic Benefits and Regional Comparisons. Bates White, LLC, February 2007, pg. 10.

the 1980s and early 1990s far in excess of what is now being contemplated for Pennsylvania's utilities even after more than ten years of capped rates.

Although difficult to quantify, it is no trivial benefit to Pennsylvania consumers that they no longer bear these risks. This is particularly valuable during periods of high capital investment, volatile fuel prices, and rapidly changing environmental requirements, when the dollars at risk are highest and the potential for costly mistakes the greatest.

Closing Remarks

Evaluating the benefits of competitive markets is challenging, not because the benefits have been insignificant, but because the restructuring process itself has been complex, and because retail rate caps and volatile fuel prices have masked the efficiencies and savings of wholesale markets. Again, I draw your attention to the fact that, when adjusted for changes in fuel costs, wholesale energy prices have dropped by 23% over the ten years that the PJM wholesale electricity market has been operating.

PJM has estimated that it will need 22,000 MW of new generation built by 2020. Now that RPM has been implemented, the largest impediment to capacity investment is regulatory uncertainty. Investors are extremely wary of state initiatives to “re-regulate” the generation industry. Investors will not risk billions on new plants and modifications to existing plants needed to address climate change or to maintain reliability if they do not know whether they will have a reasonable chance of cost-recovery or even a fully-functioning market ten years from now. Yet that is the situation we face today.

If we are going to attract the investment and innovation on the scale needed to meet our energy security and environmental challenges, investors must be assured that the basic rules of the market will not be changed dramatically by legislation or regulation.

In short, our efforts must be focused on improving wholesale markets, not dismantling them, because as Chairman Cawley has recognized, “retreat is not an option.”

Again, EPGA thanks the Commission for holding these hearings on wholesale energy markets and granting us the opportunity to present our views.

