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PA Public Utility Commission
***En Banc* Hearing on Trends in the Wholesale Electricity Markets**
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Introduction and Summary

Thank you Mr. Chairman, Mr. Vice Chairman and members of the Commission for the opportunity to testify today. My name is David Ciarlone and I work for Alcoa as Manager, Global Energy Services. I am responsible for the procurement and management of natural gas and non-smelting electricity in North America, including the company's aluminum rolling mill in Lancaster.

I am honored to be before you today, and among this company, to have the opportunity to share my views on Wholesale Electricity Markets. By now you have already heard technical, legal, and scholarly arguments on many aspects of how the wholesale electricity markets have been structured and operated for the past decade or so. You have heard that in many ways, the reality of retail electric deregulation and competition has fallen far short of the vision that we had for this experiment when we embarked upon it a decade or so ago.

However, rather than repeat what you have already heard, my purpose today is to focus on a perspective that is vital to the health of the economy of our Commonwealth and our Country. I hope to provide a perspective that has been heard far too infrequently in discussions such as these. Specifically, I will focus my remarks on how the impact of rising energy prices, driven by a dysfunctional wholesale market, will affect our ability to continue to manufacture flat-rolled aluminum products or make other manufactured goods in Pennsylvania. I will discuss how these defects are driving family-sustaining manufacturing jobs out of state and off-shore. In so doing, I hope to add urgency to the several efforts the aimed at correcting these defects.

1. Manufacturing Jobs are the Foundation of a Strong Economy

It is a simple fact. Manufacturing jobs are the foundation of any strong economy. We are all familiar with the FIRE economy built upon Financial, Insurance and Real Estate. But as some of us are now learning anew, it is the making and shipping of tangible

THINGS that drive a vibrant economy from the bottom up. These are the jobs that enable a population to afford mortgages, to have healthcare, to educate their kids, to plan a retirement and to support other businesses and worthy endeavors in their communities with purpose and dignity. As we have seen in other states, communities that do not have viable *Industrial* rate payers, soon no longer have *Residential* or *Commercial* ratepayers. And, as we have also seen in these communities, once these jobs are gone they do not come back.

2. Alcoa is a Source of these Jobs in Pennsylvania and Elsewhere

For those unfamiliar with Alcoa, it might be helpful to share some background. There is no company on the planet with more experience mining, refining and smelting aluminum than Alcoa. Founded in 1888 by a group of investors and one of the world's two inventors of the commercial smelting process, Alcoa maintains its position on the leading edge of aluminum technology and sustainability. Alcoa serves the aerospace, automotive, packaging, building and construction, commercial transportation and industrial markets, bringing design, engineering, production and other capabilities of Alcoa's businesses to customers. The Company has 97,000 employees in 34 countries and has been named one of the top most sustainable corporations in the world at the World Economic Forum in Davos, Switzerland. While our Energy Services group serves Alcoa's businesses globally, our North American focus extends to 45 Major Locations in 26 States and Provinces.

Alcoa is committed to sustainability and we are a leader in climate change. Alcoa is a founding member of U.S. Climate Action Partnership (USCAP), an expanding alliance of major businesses and leading climate and environmental groups. These groups have come together to call on the federal government to enact legislation requiring significant reductions of greenhouse gas emissions. We also act on our commitments. Two of our most significant accomplishments—rooted in our culture of environmental stewardship—include:

- **Reducing Greenhouse Gas Emissions by 33% since 1990:** Goal of 25% by 2010 reached seven years ahead mainly through aggressive reduction of Perfluorocarbon (PFC) emissions.
- **Recognition for Energy Efficiency:** The Alcoa Energy Efficiency Network was established in 2002 as a partnership with the U.S. Department of Energy to conduct energy efficiency surveys at operating locations and identify areas of possible improvement. We were recognized as a national leader in energy conservation and environmental stewardship by the Industrial Energy Technology Conference Advisory Board in 2005

More specifically at Lancaster, PA, Alcoa produces aluminum sheet for a variety of markets, including automotive, commercial transportation, consumer electronics and consumer goods such as cookware. We've been a member of the community since the 1940s and currently employ more than 850 people at our plant. A study released this spring put our total direct economic impact on Lancaster County at nearly $240 million annually.

All of this is to say that we believe Alcoa is a great corporate citizen and the kind of industrial you want in your community. Within the Commonwealth, Alcoa is proud to associate with the 26 other similarly motivated members of the Industrial Energy Consumers of Pennsylvania (IECPA). Together, we provide over 43,000 of these family-sustaining jobs within the Commonwealth, with an estimated economic annual impact of over $12 billion.

3. Manufacturing Jobs Threatened by Power Prices

As you might guess, heating 32,000 pound aluminum ingots and then rolling them into sheet or plate uses enormous amounts of energy. Our Lancaster plant is among the largest industrial energy users in Pennsylvania and spends more than $10 million annually purchasing electricity. However, several other members of IECPA use far more electricity. Together, IECPA members consume over 6.6 billion kWh of electricity. This puts us on the front line of any change in electricity price. To shift metaphors, we are the canary in the coal mine.

Unlike some of my colleagues this afternoon, Alcoa has direct, first-hand experience with the havoc wrought by flawed market structures in both PJM and ERCOT. Our aluminum smelter in Frederick, Maryland closed in 2006 when Maryland's move into the PJM market was completed and we were no longer able to obtain long-term, competitively priced power. Ultimately, this eliminated 700 great jobs and all of the things within that community that went with them. Just a few weeks ago, Alcoa announced that we have been forced to curtail production at our Rockdale, Texas smelter and eliminate 820 jobs because of local power price and supply issues driven by the ERCOT market.

Because of their energy intensive nature, aluminum smelters are the first to feel the impact of rising energy costs. In other businesses, the results might not be as immediate, but it is just as real over the long-term. Earlier this year, an Alcoa executive asked me for a long-term forecast of electricity prices for Lancaster. When we forecasted the prices resulting from our exposure to the PJM market, the best numbers we could produce painted an extremely challenging picture for the business: a 67% increase. As bad as this was, when we considered the large volatility in these prices and the limited ability to manage that volatility, the picture becomes worse still. We were looking at a range that could run from 44% to 113%.

Most of our products are sold into markets where pricing is very competitive and suppliers come from every part of the world. Passing along cost increases such as these will be difficult – even unlikely. More likely, our task will be to try to cut costs elsewhere. If we are not completely successful, our higher costs will make it more difficult to win new capital investment from Alcoa, which evaluates where to invest shareholder money based on the prospects for earning an acceptable return. We are competing with different businesses around the world, even within Alcoa, for capital investment.

a. The Specific Threat to Lancaster

To put real perspective on the adverse impact of the PJM market design, the accompanying three charts compare the electricity rates of Lancaster to those of key competitors, including Alcoa's rolling mill in Davenport, IA. To produce these charts we used our forecasts for Lancaster as well as the known tariff rates available to industrial customers from their host utilities. We also used a recent study by Carnegie Mellon[1] to estimate the value of the LMP price inflator effect (the gap between prices and costs). In order to preserve the confidentiality of certain rates, the comparisons are all expressed as a percentage of the rates paid by Lancaster.

- Chart 1 makes the comparison in 2008 based upon Lancaster's capped rates, and shows that two competitors already have a significant advantage with respect to electricity costs. It is important to emphasize that these comparisons are made using the published tariff rates, and that it is most likely that these competitors enjoy negotiated special contracts that afford them better rates and an even more decided competitive advantage than indicated by these charts.

- Chart 2 advances the clock to 2010 when Lancaster's prices will be determined by the operation of the PJM market, and its competitors will still be subject to fully regulated rates. While the regulated rates have been increased, based upon what we know about present and likely filings, Lancaster's rates increase faster. Suddenly, Lancaster is fighting a large competitive disadvantage relative to all of the competitors shown. This situation is very troubling.

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[1] Seth Blumsack, Lester B. Lave, and Jay Apt, "Electricity Prices and Costs Under Regulation and Restructuring" Carnegie Mellon Electricity Industry Working Paper CEIC-08-03.

- Chart 3 repeats the comparison of Chart 2. However, it isolates the estimated value of the LMP price inflator, which is the difference between cost of the power and the price from the LMP market construct. In this view we clearly see that the cost disadvantage being borne by Lancaster is almost entirely attributable to market design. In other words, it is the market design that is threatening the future of the Lancaster Mill. This is the most important concept in my testimony, so I will repeat it. The market design is threatening the future of the Lancaster Mill. This threat is for the short term benefit of the power generators, but it is to their long term detriment as well. Think of it this way - once the whales were gone due to an unsustainable harvest, the whaling industry collapsed.

  The rest of my testimony deals with quantifying the threat of market design to Pennsylvania, gives some thoughts on the root cause, and provides a recommendation to respond to this threat in a constructive manner.

b. The General Threat to Pennsylvania

We can also estimate the adverse impact that the PJM market design is about to have on Pennsylvania by applying a study being developed at Penn State[2] and a study performed this past summer by the Pennsylvania Public Utility Commission (PA PUC)[3]. The Penn State study is designed to estimate the resulting macroeconomic impact of changes in electricity rates on jobs, population, Gross State Product, etc, while the PA PUC study attempted to estimate various electricity rates by customer class, following the expiration of Pennsylvania's rate caps. Because exposure to the uncapped market is essentially the same as exposure to the PJM market design, we can use the PA PUC results as inputs to the Penn State model to estimate the impact of exposure to the PJM market design.

[2] Rose M. Baker, David L. Passmore "Your Electrifying Utility Bill" Penn State Workforce Education and Development Initiative, Updated April 4, 2008
[3] "PUC Electric Price Estimates" August 14, 2008

Using this approach we estimate that the PJM market design will cost the Commonwealth of Pennsylvania between 34,400 and 64,500 private, non-farm jobs by 2015. Further, of these lost jobs, roughly 11,500 to 21,500 will be high-paying manufacturing jobs. Of course, these job losses would occur in a corresponding environment of shrinking population, declining Gross Product and other measures of declining economic health. In discussing this application of their model, the authors noted that further study could more than likely show that the model is non-linear. In other words, with the increases in electricity costs that are expected, a threshold condition could be reached that would aggravate the adverse impacts estimated by the present simpler algorithms[4]. This means that it could start a spiral which is difficult to stop.

c. Summary

Manufacturing companies compete globally, and we need power prices that are affordable, stable and predictable. Large capital projects require years to pay out their full return. In order to risk the investment, businesses need to trust that the rules will not undergo significant change without warning and that the cost is commensurate with the energy service received.

Alcoa, like other industrials, has demanding shareholders and even more demanding customers. We compete in a global market that is decidedly not level. We have competitors who are not forced to bear many of the costs that we pay every day. Ultimately, however, the reality is quite simple. Our Lancaster mill, like any other manufacturing enterprise, must produce its goods in a way that enables us to sell them at the prices our customers demand while yielding the return that our investors require. If we cannot over the long term meet that challenge our fate is clear.

[4] Discussions between David L. Passmore and David F. Ciarlone, November 4, 2008

4. FERC May Not be Sufficiently Focused on Impact of Market Design on Manufacturing Sector

Balance is a founding principle of the United States Constitution, and balance is crafted into every major law and act that flows from it. The Federal Power Act requires the Federal Energy Regulatory Commission (FERC) to find that rates under its jurisdiction are "just and reasonable". One would assume that an enlightened self interest, if not the law itself, would also require FERC to include in its finding of "just and reasonable" some balancing of the needs of the generators with the needs of the industrials and other customers. The economic fact of life is that a vibrant economy needs both electricity generators and industrial consumers to be healthy and able to maintain their operations into a reasonable future, especially those electricity generators and manufacturing employers that engage in sustainable production. It is abundantly clear, however, from the examples cited by me and others today that customers, and especially the industrial customers, are operating in what must be a FERC blind spot. Instead of balance, the present market designs clearly encourage the health of the electricity generators. This is done at the expense of the very family-sustaining manufacturing jobs that the Commonwealth needs.

5. Recommended Actions by Commonwealth

It seems appropriate in such a venue to follow what we hope will be perceived as constructive criticism with what we believe to be helpful recommendations. The Commonwealth and this Commission are not powerless. You have the ability to shape the fate of the manufacturing jobs for which I advocate today. There are still opportunities on both the federal and state levels to effect change that we need.

On the federal level, I urge Pennsylvania to join Ohio and other states in the creation and appointment of a dedicated advocate at FERC. This role would be empowered to represent the consumers of the Commonwealth in FERC proceedings and engage with those states to form a coalition to correct the structural defects built into the present market designs. This position will help balance the over-representation of power generators during FERC and "stakeholder" proceedings and bring back needed balance of interests.

Within the Commonwealth, this Commission should encourage and seek to require the electric distribution companies, load serving entities and utilities under its jurisdiction to obtain an increasing share of the power that they need to serve their ratepayers via longer termed contracts. This would reduce and eventually eliminate the impact of the daily and next-day clearing markets on the price paid by consumers for most of the electricity they need, while also lending needed stability and predictability to that pricing. In addition, if structured properly, this could encourage investment in the new generating infrastructure that we will need in a way that is much more effective and efficient than the present method of throwing random sums of money at the generators through the daily clearing markets. Short-term gains, no matter how scandalous, can never be as effective in encouraging investment as predictable cash flows that are sustainable and reliable over the long term. Finally, to the degree that forces seek to eliminate industrials from eligibility for stable, predictably priced supply from the utilities, the Commission should resist such forces to its full ability, and at every opportunity.

I thank you for the opportunity to address you today, and I will do my best to answer your questions.

Chart 1

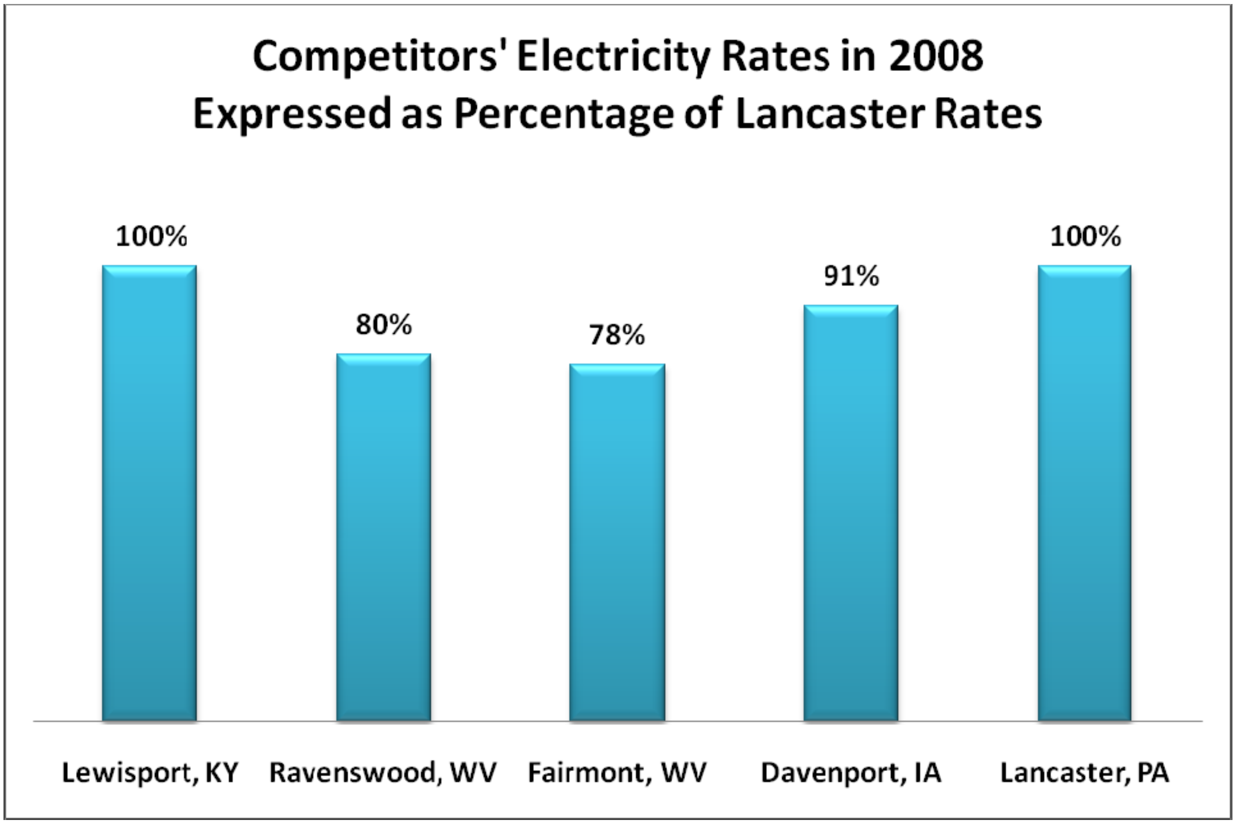

Competitors' Electricity Rates in 2008
Expressed as Percentage of Lancaster Rates
100%
80%
78%
91%
100%
Lewisport, KY
Ravenswood, WV
Fairmont, WV
Davenport, IA
Lancaster, PA

Chart 2

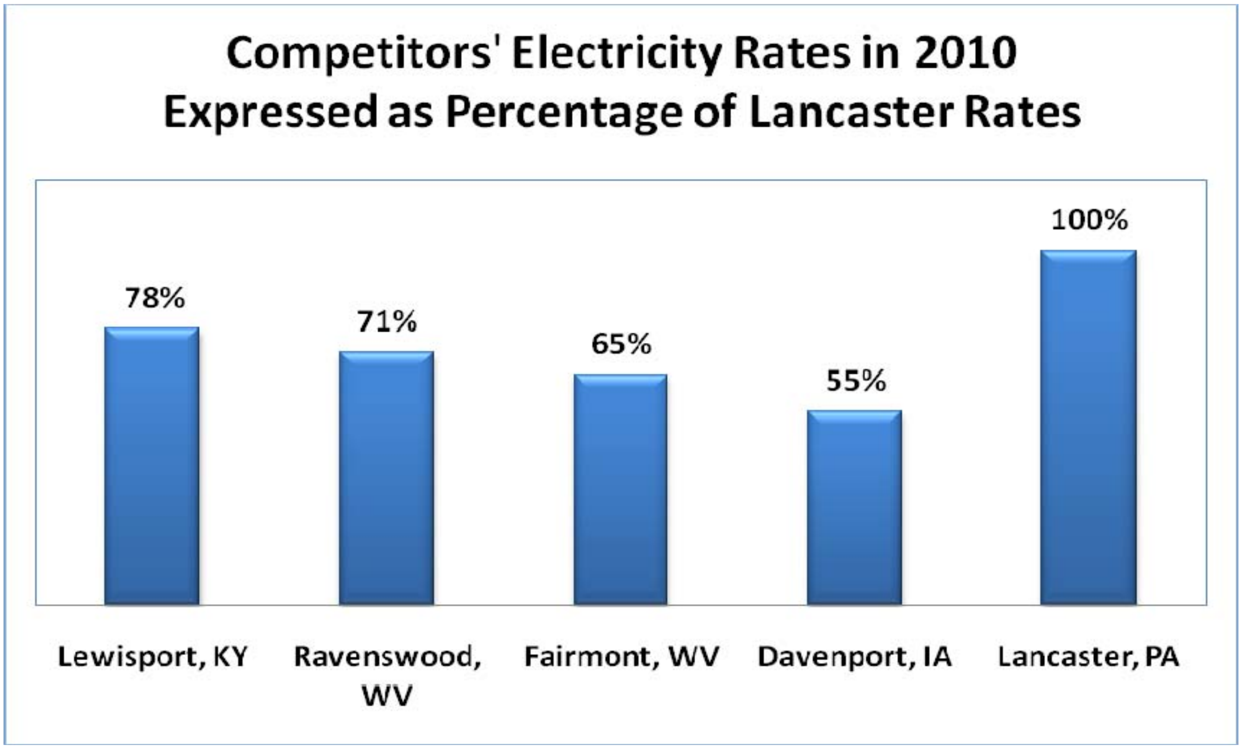
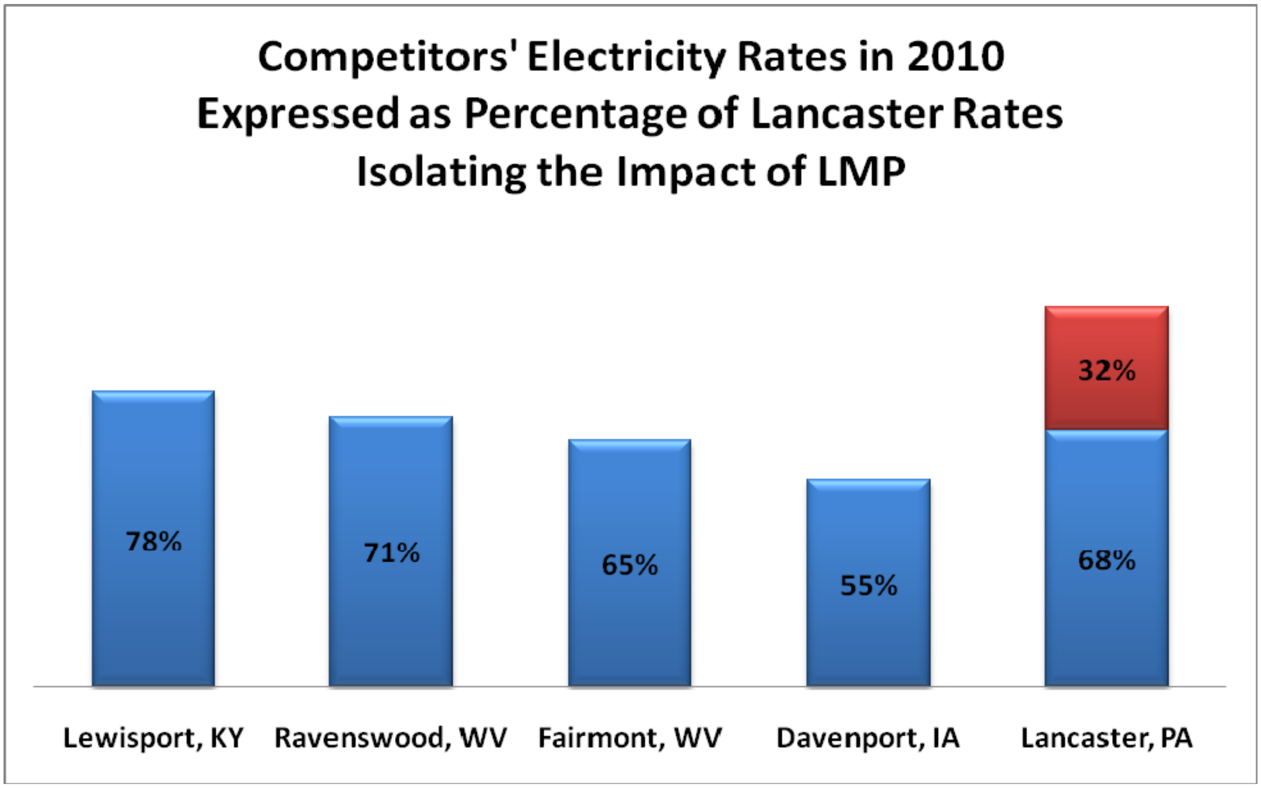

Competitors' Electricity Rates in 2010
Expressed as Percentage of Lancaster Rates
78%
71%
65%
55%
100%
Lewisport, KY
Ravenswood, WV
Fairmont, WV
Davenport, IA
Lancaster, PA

Chart 3


Competitors' Electricity Rates in 2010
Expressed as Percentage of Lancaster Rates
Isolating the Impact of LMP
78%
71%
65%
55%
32%
68%
Lewisport, KY
Ravenswood, WV
Fairmont, WV
Davenport, IA
Lancaster, PA