UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.) **Dockets Nos. ER05-1410-000 & EL05-148-000**

PREPARED STATEMENT OF EZRA D. HAUSMAN, PH.D.
ON BEHALF OF
THE PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

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My name is Ezra D. Hausman, Ph.D. I am a Senior Associate at Synapse Energy Economics ("Synapse"). Synapse is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission and distribution system reliability, market design, market power analysis, pricing of electricity, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power. I offer this statement on behalf of the Pennsylvania Office of Consumer Advocate, one of the members of the Coalition of Consumers for Reliability ("CCR"), which is a party to these dockets. The CCR is comprised of state consumer advocates, electric cooperatives and municipal electric utilities representing consumers in 10 of the 14 states in which PJM operates.

I thank you for the opportunity to participate in this technical conference discussion of the appropriate parameters for the variable resource requirement (VRR) for PJM's proposed capacity market, pursuant to the Commission's Supplemental Notice of Staff Technical Conference of May 17, 2006. The structure of PJM's capacity market is an issue of enormous consequence for consumers, both because of their obvious interest in system adequacy and because of the enormous cost implications of this model. CCR is committed to pursuing a capacity construct that can provide system adequacy at reasonable cost to consumers. As a group, representing most of the consumers in PJM, we do not feel that the proposed model meets either of these requirements.

The topic of this technical conference panel is the shape and parameterization of the VRR demand curve. Dr. Hobbs' analysis, based on the behavior of an idealized electricity and capacity market simulated over 100 periods of 100 years each, suggests certain conclusions about the relationship of this curve to market performance, generator profits and cost to consumers. Although I find Dr. Hobbs' analysis illuminating, the results of his analysis must be understood in the context of a highly simplified representation of electric capacity investment decision making. His results are only indicative of what is likely to happen in the real world to the extent that the many assumptions in his model accurately represent the incentives, market opportunities and behavior of market participants. To the extent that they do not, implementation of the RPM could lead to a very different outcome than the one Dr. Hobbs predicts.

First, Dr. Hobbs assumes that new generation will be constructed in response to price signals. However, in many areas of PJM the obstacles to new generation are structural (availability of sites, fuel supply, transmission infrastructure, etc.), rather than economic. These will not be easily overcome through financial incentives no matter how high. In addition, Dr. Hobbs' hypothetical investors consider only the performance of the proxy peaker when considering whether or not to invest in new capacity. In the real market, many or most potential investors would already own capacity in the same market, and would consider the impact of their investment on their existing portfolio of assets. In this light, the income to be derived from a new peaker would often come at the cost of even greater profits that accrue to the potential generation developers under conditions of capacity shortages. In other words, the perverse financial incentive to create shortage could dwarf the incentive to invest.

Should RPM fail to produce adequate capacity investments where they are needed, consumers would be penalized with the twin perils of inadequate capacity and very high costs, while generation owners reap windfall profits with no risk. Given this outcome, it is hard to see how it would be remedied without drastic regulatory intervention, against generators' will. It is this scenario that is of particular concern to the CCR, and it is this possible outcome which may explain both the overwhelming opposition of consumers to RPM and, perhaps, the enthusiastic support it has received

from generators. If the proposal is to go forward, the VRR curve parameters should be set to minimize the damage of this possible outcome.

Given these concerns, I would propose the following with respect to the shape, height and slope of the VRR curve, if it is to be a part of a capacity construct:

- If the demand is to be based on the cost of new entry, it should be a conservative estimate of this cost to encourage least-cost market solutions. The cost as proposed in Mr. Pasteris' testimony in these dockets is not a conservative estimate. In fact, as I discussed in my earlier affidavit under these dockets, Mr. Pasteris uses generous assumptions about technology, such as state-of-the-art emissions controls and fuel switching capability, that are unlikely to be built into real peaking capacity investments. The unrealistic assumption that they will be included in new peaking projects results in inflated estimates of cost.

- The energy and ancillary service (E&AS) revenue adjustment should not be based on historical data that will be from five to ten years out of date; rather, it should be based on actual revenues in the capacity year, as is proposed in New England. The electricity market can evolve dramatically over such time periods, so that even a six-year average will be a poor predictor of future revenues. For example, E&AS revenues will be lower for peaking units during multi-year periods of surplus capacity, such as the current one. If capacity margins then become tighter, not only would consumers pay the normally occurring, higher capacity prices, but these would be inadequately adjusted by unrealistically low estimates of E&AS revenues.

  Regarding E&AS revenue projections, Mr. Bowring suggests in his affidavit that "Historical data appear to be the only choice as there is no reliable source of market-based data on LMP and fuel costs for four years in the future." [p. 3] I believe that this is incorrect. The most reliable source is actual market data from the year for which the capacity auction is held. In addition, the goal of capacity markets, as articulated by the Commission[1], is to provide revenue certainty to new entry. This does not require doubly or triply rewarding all installed capacity, at consumer expense, if energy market revenues turn out to be higher than expected. Specifically, FERC intention is that "to the extent that energy market revenues increase, capacity market revenues could be reduced proportionately so that the overall rate remains just and reasonable."[2] Using actual data rather than historic averages would further reduce uncertainty and produce more stable outcomes, while at the same time protecting consumers from excessively high costs.

[1] For example, in the April 20 RPM order, paragraph 50, quoting earlier order, "*We believe that market design features such as locational requirements for installed capacity may prove an effective approach to create stable revenue streams.*"

[2] April 20 order, paragraph 146.

- The maximum, or penalty, price should be no greater than 1.5 times the cost of new entry net of E&AS revenues, where E&AS revenues are subtracted prior to applying the multiplier. This is especially crucial should the final construct be based on an unrepresentative projection of E&AS revenues—in this case, generators would receive higher E&AS revenues in addition to higher capacity prices. Since there is simply no empirical evidence to support the benefit of a higher penalty price, a penalty price with less onerous implications for consumers should be used.

  In addition, a sharply sloping curve would dramatically increase the incentive for generators to withhold capacity. An illustrative example can be made based on PJM's January 2006 simulation[3] presentation, slide 5, provided as an attachment to this statement.. Here the price increases from $106/MW-day at "Point 1" to $318/MW-day at "Point 2", while the available capacity decreases by 4% of IRM. In the PSEG zone, IRM would be about 13,127 MW, so this would be $212 per MW-day for a change in available capacity of only 525 MW. A generator who owned only 500 MW in the PSEG zone would be much better off at the shortage level—earning 500 x $318 = $159,000 per day in capacity payments—rather than building an additional 525 MW and earning (500 + 525) x $106 = $108,650 per MW day.

  This is just an illustrative example. However, the steeper the VRR curve, and the smaller the pricing location, the greater would be the incentive to withhold capacity, rather than build it where it is needed.

We believe that if PJM is to implement RPM, these guidelines will help to mitigate the cost to consumers if the system fails to generate new capacity, and will decrease the incentive for exercising market power. They would produce a more stable revenue stream at lower cost and risk to consumers, consistent with commission goals.

[3] *updated-rpm-prototype-simulations.pdf, available on the PJM website.*

Attachment

PJM Filed VRR Curve

Reserve	UCAP (% Threshold)	Fixed Cost ($/MW-Day)	E&AS Rev ($/MW-Day)	Net Cost ($/MW-Day)	UCAP Price ($/MW-Day)	Comments	Points
12%	**97.4%**	**396**	99	**297**	**318**	**IRM - 3%**	**Point 1**
13%	98.3%	346	99	248	265		
14%	99.1%	297	99	198	212		
15%	100.0%	247	99	149	159	IRM or Threshold	
16%	**100.9%**	**198**	99	**99**	**106**	**IRM + 1%**	**Point 2**
17%	101.7%				98		
18%	102.6%				90		
19%	103.5%				82		
20%	104.3%				**73**		
20%	104.3%				**0**	**IRM + 5%**	**Point 4**
29%	112.2%				0	**IRM+14%**	**Point 3**

- Table uses an average EFORd of 6.53%
- Forecast Pool Requirement (FPR) = 107.49%
- UCAP (% Threshold) = (1+Reserve) / (1+IRM)
- Example Table is for NJ Region
- Table can be converted to other regions by substituting regional data into VRR Curve Table

Geographic Locations	Fixed Cost $/MW-Day	E&AS Rev ($/MW-Day)
NJ Region	$198	$99
DC Region	$203	$81
Chicago Region	$202	$80

The data reflected herein is provided by PJM solely as a sample of the operation of the Reliability Pricing Model (RPM). These results are preliminary and are for illustration purposes only, and do not represent past, current or future actual market data, results or conditions.

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