COMMENTS OF DR. ROY J. SHANKER

FEDERAL ENERGY REGULATORY COMMISSION
JUNE 16, 2005

The following is a summary of the oral comments to be presented by Dr. Shanker at the FERC Technical Conference of June 16, 2005. (Docket Nos. PL05-7-000, EL03-236-000, ER04-539-000. These comments represent Dr. Shanker's own opinions and are not necessarily those of his clients within PJM.

Capacity markets, in whatever form, are all needed for the exact same reason: in markets with capped energy prices and mandated adequacy requirements, returns from the energy and ancillary services markets, over time, will not provide sufficient compensation to support the cost of new generation. The attached figure shows graphically how all generating units in the market are under compensated due to these two effects.

Some additional form of compensation is needed to make up for this Missing Money. Capacity markets are a mechanism to provide these funds. The challenge is to design the capacity market in as efficient (i.e. least cost) a manner as possible, while complementing other market design elements, (e.g. energy and reserve markets and transmission expansion planning) assuring reliability, and in the context of this discussion also providing for a potential transition to an energy only market.

In the abstract, one might argue that both the status quo PJM capacity market and the RPM can meet at least the requirement of providing the Missing Money. The vertical demand curve of the status quo, with prices capped at a sufficiently high deficiency charge will support new entry, just as will the downward sloping demand curve of RPM which is built around parameters based on the net cost of new entry.

The issue thus becomes which mechanism works better in terms of the criteria I first stated. What has become clear from the debate so far is that the status quo accomplishes these objectives in a fashion that conveys much greater operating/reliability and financial risk to all market participants, both suppliers and load. It also appears inferior with respect to the ability to transition to an energy only market. **In turn these risks will translate into a much higher likelihood of the market either failing in general, that needed reliability resources will not be built, that there will be significant external intervention, and ultimately that there will be much higher costs to all market participants.**

Alternatively, the RPM design is explicitly intended to reduce or remove these areas of risks, send the proper price signals and incentives via locational pricing and new Capacity Transfer Rights, while leading to more stable pricing, a greater likelihood of maintaining the needed adequacy resources, **and, in turn, lower costs for suppliers and load. From an economic perspective it appears to be the most efficient solution to meeting these requirements.**

Further, while not perfect, the RPM energy margin netting approach should facilitate a transition to an energy only market.

With respect to reliability, the RPM is the clear winner over the status quo. The current system assumes all PJM generation is the same with respect to providing for adequacy. This simply isn't true, and current market rules for retirement reflect the fact that some resources have to be retained even if there is a capacity surplus. An important price signal is obviously missing and a basic underlying assumption of the current design has proven to be wrong.

The locational aspects of RPM directly overcome this deficiency by recognizing the fact that all generating supplies are not the same with respect to providing physical adequacy to the electric system and in turn RPM procures different levels of capacity where it is needed. It also creates associated property rights for those that expand the transmission system to help solve these locational problems.

RPM also solves another fundamental weakness in the existing market design. That is, RPM removes the mismatch between the assumptions about generation that must be made for developing base reliability transmission plans, and the actual future generation circumstances that may turn out to be very different. By putting regional transmission planning in sync with forward capacity obligations RPM immediately solves this problem, further enhancing system reliability and planning. No other proposal for capacity market design has this feature, and as such all other proposal are deficient in this important element.

The same is true for other reliability elements such as load following and quick start capability. The current system is blind to these requirements, while RPM explicitly recognizes these needs.

Indeed it is just this recognition of potential physical risks to system security of the status quo that drove the PJM staff to incorporate these features in the RPM market design.

There is also a very material difference in risk on the pricing side of the current market design that interacts with physical reliability, discouraging adequate supplies when needed, and raising overall costs to consumers.

The status quo, with a vertical demand curve tends to lead to a boom bust cycle for pricing. Prices go through cycles of being either very depressed or at or near the deficiency levels. This type of pricing volatility creates enormous financial and regulatory risks for suppliers attempting to finance new facilities for the market. These risks translate directly into increased costs to consumers.

Imagine the response that you would get from a home mortgage lender when you tell him not to worry, that in about a third of the years you earn almost nothing, but on average you earn enough to support the mortgage.

PJM's dynamic market simulations show exactly this type of result, with the current vertical demand curve having very low prices about a third of the time. **Further, when prices are high, and provide enough income for the needed long term average revenues necessary to make**

up the Missing Money, the overall system is experiencing a capacity deficiency impacting reliability.

How realistic is it to assume that lenders will make money available when you get near zero income about a third of the time, and then when your income is high, this income occurs at exactly the same time that regulators, seeing a reliability deficiency coupled with high prices, are most likely to intervene in the market? **Again we have to assume that the market will extract a price for this type of risk by increasing borrowing costs, and in turn the market price that consumers have to bear for capacity.**

Alternatively, the RPM demand curve mechanism is designed to eliminate just this type of financial risk by reducing the volatility of prices. Depending on which demand curve is considered, this type of volatility can be virtually eliminated.

The cost impacts are clear. The PJM simulation results presented January 26 show cost reductions to consumers of about $30-$50 per peak KW per year (capacity and energy scarcity) based on a comparison of the status quo to the proposed PJM demand curve. This represents billions of dollars a year in cost reduction. While the model and any specific results may be subject to much debate, the size and direction of these numbers makes the implications clear, risk reduction via a demand curve offers huge long run savings to market participants[1].

This benefit occurs assuming no change in the cost of funds to market participants regardless of which market design is used. It is hard to imagine that the significantly lowered risk of the RPM would not also result in lower costs of funds to suppliers, and thus lower prices to consumers. If the cost of debt and equity with RPM were just 1% lower than without RPM, these savings become even more impressive, resulting in approximately $675,000,000 per year of additional savings. Actual savings could be several times this amount.

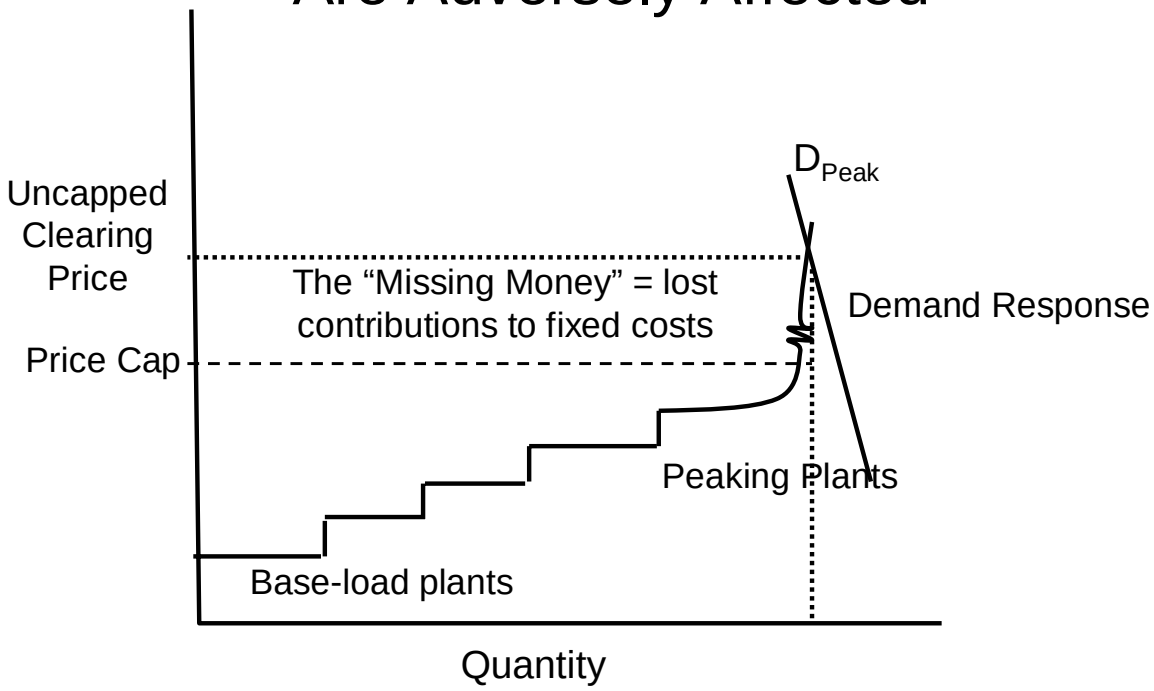
The RPM approach also appears superior with respect to a transition to an energy only market. Because the RPM builds its demand curve from the **net** cost of new entry (also a strong energy market power mitigation feature), the design allows for a smooth transition by simply increasing the energy offer cap over time, allowing net capacity prices to fall as the market price approaches the uncapped clearing levels. The status quo does not have this property.

However, this is still just half of the problem, and so long as there is some sort of mandated adequacy requirement, e.g. one day in ten years LOLE, then some mechanism would be need for both the status quo and RPM to provide for the "dropping" of loads that can not designate physical supply during system emergency. I would expect that the ability to transition on the energy cap under RPM would result in this other feature being more readily developed under RPM as compared to the status quo.

This concludes my comments.

[1] I note that Mr. Hobbs, who performed the simulations, will be speaking in a later session, and may be able to comment on more recent results.

If Price Caps And Mandated Adequacy Preclude Market-clearing Prices, ***All*** *Plants* Are Adversely Affected



Mandated adequacy/reserve requirements shift the supply curve to the right and have the SAME impact.

(based on slide John Chandley)