POTOMAC ECONOMICS

MEMORANDUM

TO: Mark Lynch

FROM: David Patton

DATE: July 14, 2006

RE: Comments regarding the 2005 State of the Market Report

A letter was submitted by a Market Participant (MP) with several questions and comments related to the Independent Market Advisor's 2005 State of the Market ("SOM") Report. This memo provides our responses to most of these comments and questions.

Long Term Market Signals

The SOM report included a net revenue analysis (on slide 34), which is a standard metric used to evaluate the economic signals provided by the market that are the source of the incentives to invest in new generation and retain existing generation. The net revenue analysis approximates the amount of revenue that a supplier would have earned if it operated an asset efficiently in the wholesale market. It does this by assuming that generators earn the difference between the energy price at their location and their variable production costs when the energy price is higher. In addition to the net revenues from the energy market, revenues from the capacity and ancillary services markets are included.

The net revenue analysis in the SOM report concluded that the New York market is sending price signals to build in areas that need additional generation. However, the MP comments that this conclusion is the result of methodological flaws rather than because the market is actually sending the appropriate signals. The MP correctly pointed out that the standard net revenue analysis does not model the commitment decision (start-up costs, minimum load, and minimum run times are not considered) so the analysis will lead to a modest over-estimate of the true number. While the MP proposes to fix these by simply raising the heat rate of the hypothetical units, it would be more accurate to perform a more detailed analysis that models the commitment decision. We plan on including this analysis in next years report, but we will have to continue to also estimate net revenues under the simplified assumptions because these assumptions have been standardized by FERC for use in this type of analysis by all market monitors.

The MP also comments that new combined cycle units will likely earn less than the net revenue analysis would predict because the installation of a new combined cycle unit is likely to lower prices. This is a concern that investors face in any capital-intensive industry. Investors base some of their decisions on spot market signals, but also must assess the impacts of demand growth and new investments (including their own) on prices over the life of the investment.

Thus, investors are forward-looking and will not necessarily wait until current prices rise substantially above the long-run equilibrium. The net revenue analysis is not intended to serve as a forecast for future net revenues, but rather is a reporting of the net revenues for the current year. Modifying the methodology to forecast prices after the entry of a large unit goes well beyond the scope of the net revenue analysis.

We also would correct two of the assertions made by the MP. First, our net revenue analysis did incorporate variable O&M costs although it may not have been clear to the MP from the presentation materials. Second, the MP disagrees with the verbal comment I made during the presentation that New York City price signals were dampened by excess up-state generation. The MP might have understood this comment to be referring to excess up-state generation reducing the NYC capacity price. However, my statement was referring to the net revenues earned by generators in NYC from instances of shortage pricing throughout eastern New York. As the surplus of generation in the rest of state area falls, the frequency of the shortage pricing should increase, resulting in higher net revenue in NYC. Likewise, software changes to address shortage pricing issues identified in the SOM report will also increase net revenue for new generators in NYC.

Transmission Congestion

The MP disagrees with our assessment that day-ahead congestion rose partly because of the rise in real-time reserves shortages in Eastern New York, pointing to the fact that there were no instances of reserves shortages in the day-ahead market. However, frequent real-time price spikes resulting from reserves shortages raise forward expectations of real-time prices. As with any forward financial market, the prices in the NYISO's day-ahead market will reflect these expectations through higher day-ahead prices in eastern New York (because the price spikes tend to occur in eastern New York). Practically, this occurs through increases in physical and virtual load in eastern New York, or reductions in scheduled physical or virtual generation in eastern New York. Hence, the increased congestion in the day-ahead market need not be the result of actual shortages in the day-ahead but can, nonetheless, be attributed to real-time reserve shortages.

The MP also points out that day-ahead reserves prices were substantially lower on average than real-time reserves prices. We believe this indicates that market participants under-estimated the degree of real-time scarcity in eastern New York. With better expectations of potential real-time reserve shortages, the effect of the shortages on congestion in the day-ahead market would have been larger.

Market Operations – Real Time Commitment

The SOM report evaluated the efficiency of the process to start gas turbines in close to the real-time auction. This process is important, because over-committing uneconomic gas turbines depresses real-time prices below efficient levels and results in large amounts of uplift. Conversely, under-committing gas turbines when they would have been economic results in unnecessary real-time price spikes (i.e., reserve shortages) when sufficient resources were on-hand to satisfy demand. The report concluded that this process worked far more efficiently under SMD 2.0 than under the previous design. Moreover, the New York ISO has advanced far beyond other ISOs in terms of the efficiency of the real-time commitment process.

It should be noted that our evaluation tends to under-estimate efficiency. We compared offer prices to clearing prices, assuming that clearing prices should generally be higher than offer prices for economically committed units, and likewise, clearing prices should be lower than offer prices for non-economic units. However, in some cases, the efficient commitment of a gas turbine lowers the clearing price such that the unit appears uneconomic in our assessment.

We examined the consistency of RTC and RTD prices in 2005, and the MP is correct that there are several signs of bias towards higher prices in RTC. This sort of bias would generally lead to over-commitment in RTC and uneconomic gas turbines being paid uplift. We have not done a detailed analysis to evaluate the causes of this bias, but plan to do so following the summer. This evaluation will examine several factors that affect RTC to RTD consistency, including market participant conduct (e.g., the effect of under and over-production on the hybrid pricing in RTC and RTD) and external transaction scheduling (and curtailment) practices of other ISOs, not simply factors within the control of the NYISO operators.

Reserves Shortages and Shortage Pricing

We reported that there were 235 intervals with physical shortages in the East but no scarcity pricing, indicating that prices were depressed in these intervals. The MP goes on to "conservatively" estimate a $38 million impact on suppliers. However, it is wrong to assume that shortage pricing would have occurred during all of these intervals if pricing had been totally consistent with the physical dispatch because higher real-time price signals would have induced additional resources from three sources:

- Additional generation from self scheduled units with excess capacity (above their schedule);
- Excess capacity from dispatchable generators that would have taken longer than 5 minutes to be fully available; and
- Since the same software issue was present in RTC as in the RTD, RTC failed to schedule 30 min turbines in many of these periods, but these would have been economically committed if RTC had perceived the reserve shortage condition.

These issues make it difficult to accurately estimate the actual market impact of this issue, but it is necessarily less than the estimate under this MP's methodology.

External Transactions

The MP concludes from several exhibits that RTC-RTD convergence could be the largest contributor to poor convergence in prices between New York and adjacent markets. However, there is little relationship between RTC and RTD convergence and real-time price convergence with adjacent markets. Analyses that shed light on this issue is presented in Slide 119, which quantifies the extent of inefficient scheduling by RTC. Inefficient scheduling by RTC are instances when a transaction is scheduled that is not economic at the real-time prices. The analysis shows that these quantities have been relatively small and are not likely to explain much of the poor convergence between adjacent areas.

DBP