

KeySpan Ravenswood, LLC  
Comments on Final Levitan & Associates, Inc. Report  
Independent Study to Establish Parameters of the ICAP Demand Curve  
8/25/04

KeySpan Ravenswood, LLC (“KeySpan”) provides the following comments on the final Levitan and Associates report, *Independent Study to Establish Parameters of the ICAP Demand Curves for the New York Independent System Operator* (“LAI Report”). To assist in the review of this report, KeySpan retained PA Consulting Group (“PA Consulting”). PA Consulting prepared the attached letter report (“PA Report”), which is referenced in this summary.

The intent of these comments and the PA Report is to provide some sensitivity analysis to the LAI report that can be used for “directionality” when the NYISO establishes the three reference leveled capacity revenue requirements for Zone J, Zone K and Rest of State.

**Capital Costs of LM6000 Plant**

In the final LAI Report, an appropriate revision of the New York City property taxes was incorporated, and NYC income tax was included in the determination of revenue requirements. While there were other changes in fixed cost estimates, these did not have a significant effect. PA Consulting concluded that the capital cost estimate in the LAI Report for construction of two LM6000 units in Zone J was reasonable. PA Consulting concluded, however, that the capacity revenue requirement should be based on a more representative net rating of 91 MW at the average June-September temperature, rather than the rating under ISO conditions. PA Consulting also concluded that cost recovery over 15 years is a more reasonable methodology, considering the various investment criteria enumerated.

**Qualification of LM6000 Units for TMNSR**

In the LAI Report, LAI recognizes that recently constructed LM6000 units do not provide ten-minute non-spinning reserves (“TMNSR”), however, the revenue contribution is retained. LAI argues that very few plant types can provide this service, and that DEC regulations permit short-term exceedances of emission limits during start-up. LAI also cites consistency with the assumption in the NYISO Independent Market Advisor’s 2003 State of the Market Report. LAI’s reliance on the DEC regulations is misplaced. The cited provision in DEC regulations actually refers to the DEC’s exercise of enforcement discretion for start-up, shutdown and malfunction. In actuality, separate start-up limits have to be negotiated as permit conditions, and this process is still underway for the 2001-2002 LM6000 installations. At this time, KeySpan had found that DEC is seeking a stringent 30-minute start up limit, which necessitates reduced load operation and other controls during start-ups in order to comply. KeySpan further understands that the NYPA experience in this regard has been contentious. To allow 10-minute starts, a future limit with higher mass emissions over a longer period of time would be required.

While it would appear to be a reasonable request to develop such future limits that would permit the units to qualify as TMNSR, there is no reason to assume, and in fact it is unlikely, that this would be achievable under the current regulatory framework. Accordingly, the TMNSR ancillary service revenue credit should be excluded when the NYISO establishes the demand curves.

## **Dispatch Simulation Results**

### Deterministic Modeling

Modeling results in the final LAI Report are unaltered from the draft. KeySpan offers two benchmarks for comparison.

In its review of the LAI Report, PA Consulting focused on two significant factors in the deterministic modeling—load shape and heat rate.

LAI evidently chose the load shape for 2002 based on the precedent that it was used by the New York State Reliability Council (“NYSRC”) in its technical study to determine the 2004-05 installed capacity requirements for the New York Control Area. While this load shape was an improvement over the 1995 load shape that was previously used, and was reasonable for development of recommendations for short term installed reserve margins, PA Consulting concluded that this load shape would tend to overstate energy revenues for an LM6000 in Zone J over the term of the revenue analysis. This conclusion was based on a comparison of 2002 cooling degree-days to the 30-year average (1971-2000), and on comparison of the load duration curves in the NYSRC report. Using a five-year average (1993-97) weather-normalized load shape in the Henwood Model (which was used by LAI) resulted in a reduction in 20-year average net revenues of nearly 50%.

PA Consulting also reviewed available heat rate data (2003) for the NYPA LM6000 units and determined that an average effective heat rate of 10,400 Btu/kWh is representative of actual operations. This heat rate is also consistent with data related to LM6000 units in Zone K. LAI used a heat rate 9740 Btu/kWh, based on vendor specifications adjusted for degradation. The effect of using the more representative heat rate proposed by PA Consulting is a reduction of approximately 15% in net revenue. The combined effect of the two changes, *i.e.*, actual heat rate and weather normalized load shape, is a reduction of nearly 60% in net energy revenues.

As a second benchmark, KeySpan completed a MAPS simulation for Zone J. The intent of this study was not to produce alternative estimates of energy revenues, but to provide some sense of directionality by comparing results from a model that explicitly includes a representation of the existing transmission system (MAPS) to results from a model that does not (Henwood). Since MAPS dispatches the older LM6000 units in Zone J first, dropping the variable O&M rate to \$1.00/MWh and eliminating the LDC gas transportation charge was necessary to get a reasonable capacity factor. Without these changes the new LM6000 units had capacity factors of less than .1%. The capacity factor

predicted by MAPS starts at 3% in 2005, and declines to just above zero, before recovering to about 2.5% in 2009-10, dropping again, and finally slowly climbing toward 10% in the outer years. This trend is significantly different from the plot of capacity factor on page 43 of the LAI Report for Case IIa, the deterministic modeling case. This indicates that the Henwood model is too optimistic with respect to utilization of these units, and the actual capacity factor is more likely in between the two.

### Stochastic Modeling

With the intent to capture both periods of extreme weather and system contingencies, and with acknowledgement that gas price volatility can reduce energy revenues during these very same periods, LAI, nevertheless, chose to focus on stochastic treatment of load only. PA Consulting reviewed the stochastic modeling results, and made two primary observations.

First, PA Consulting found that gas and power prices were positively correlated during the summer months. These are the very same months when significant net revenues were calculated by LAI. Accordingly, when this correlation is not included in the analysis, net energy revenue is overstated.

Second, PA Consulting observed that LAI developed the stochastic treatment of load by developing a random variable that was used as a multiplier to the deterministic hourly loads. If the deterministic hourly loads are based on a normalized 2002 load shape, which has an historically high number of days near the peak load, this will result in a still higher number of days near the peak, and correspondingly higher net energy revenues for a gas turbine peaking unit.

These two concerns, plus other observations regarding the stochastic methodology, led PA Consulting to conclude that the stochastic estimates of revenue are overstated relative to the deterministic results.

### **Conclusions With Respect To Net Energy and Ancillary Services Revenue**

1. The estimate of ancillary services revenue associated with TMNSR should not be included. Newly constructed LM6000 units with Selective Catalytic Reduction (“SCR”) are not currently treated as TMNSR. Development of revised regulations or negotiation of future emission limits that would permit qualification as TMNSR is not likely in the current environmental regulatory climate.
2. With the use of the 2002 load shape, the deterministic modeling results inherently represent more hours of operation near peak load than with a weather normalized load shape more typically used in such modeling applications. Use of a LM6000 heat rate representative of operational experience on recently installed units would result in a reduction of approximately 15% to estimated revenues. As another indication of directionality, a GE MAPS simulation indicates significantly lower utilization of new LM6000 units than the LAI deterministic results.

3. The stochastic modeling results, given the use of the 2002 load shape and omission of the correlation of gas and fuel prices, overstate projected net revenues relative to the deterministic results and should not be used as a credit to capital costs when establishing the demand curves.