



100 E. Old Country Road
Hicksville, NY 11801
Tel 516 545-2309
Email: mmihous@keyspanenergy.com

January 8, 2007

To: John Charleton, NYISO

From: Mat Milhous, KeySpan Ravenswood

**Subject: Comments of KeySpan Ravenswood, Initial NERA/Sargent & Lundy
Presentation to the NYISO ICAPWG, December 21, 2006**

Gas Turbine Unit Characteristics

Technology

While the LMS100 unit does represent newer technology, apparently no commercial project has yet gone forward. Consequently, there is no project experience database to draw upon, and when such a project does go forward, it will be based on detailed site specific cost estimates that are well beyond the scope of this effort. For this reason, the initial choice of the LM6000 for an aeroderivative unit is appropriate.

Heat Rate

No details were provided on the basis for the heat rate of 9,640 Btu/kWh in the table of plant performance assumptions. The number quoted is slightly lower than the number used in the previous study for ISO conditions (9739 Btu/kWh), which was based on General Electric brochures, with some correction for long term degradation. In the previous reset of the demand curve, PA Consulting, working on behalf of KeySpan, reviewed data from the NYPA units, which when corrected for start-up fuel, resulted in a heat rate of 10,400 Btu/kWh. KeySpan found that limited data on its own LM6000 units was comparable to that reported by NYPA. It should also be noted that in the revenue estimate for new capacity developed in Dr. David Patton's State of the Market Report, a heat rate of 10,500 BTU/kWh is used to represent current aeroderivative technology, such as the LM6000. The methodology proposed by NERA for estimation of energy and ancillary services revenue appears to be somewhat analogous to that used by Dr. Patton, i.e., historical prices are utilized with appropriate assumptions regarding heat rate, start-up fuel, O&M costs, etc. The point of this comment is to stress that heat rates used in estimation of energy and ancillary services revenues should be based on operational experience, and appropriate for the analysis methodology employed.

Ancillary Services—LM6000 units are not qualified as 10-Minute Non-Spinning Reserve

It was ultimately determined during the last reset process that LM6000 units do not qualify as TMNSR, because start-up emission limitations require a start-up time of approximately 20 minutes or longer. DEC emission limitations on these units have

recently been resolved, and this conclusion has not been altered by that outcome. These units remain qualified only for 30-minute reserve. On a related note, the start-up gas requirement does not reflect the longer start-up time; subject to review of notes from the last reset process, this appears to be low by a factor of roughly three.

Fuel

Dual fuel capability as the base case is appropriate, however, all storage and piping facilities, constructed to applicable environmental codes, should be included in the capital cost. The assumption that no gas compressors are required would be valid only if units are supplied by pipelines or possibly by major transmission mains within LDC systems. While gas supply parameters could be highly variable, it would be more reasonable to develop a gas compressor cost based on a representative supply pressure.

Interconnection Costs

Mention of interconnection requirements is limited to an assumed 345 kV voltage, and use of an existing switchyard. While interconnection costs can be highly variable, a reasonable, representative estimate must be developed use in this study.

Financial Parameters

Property Taxes

Property tax rates for New York City were the subject of considerable debate during the last reset process. Of the three rates show in the table (likely minimum and maximum), only the maximum rate is comparable to the rate used in the previous study. In-city generators commented that the rate used in that study was low relative to actual tax bills.

Variable O&M

There is no indication of the variable O&M charges except the notation that it will be included in the energy charges. KeySpan believes that the rate used in the previous study (\$3/MW/hr) should have been 50% higher (\$4.50/MW/hr).

Fixed LDC and/or Pipeline Charges

LDC and Pipeline charges are typically a combination of fixed and variable charges. In the last reset process, no fixed charges were included. For this study, representative rates with both components should be developed.

Estimate of Energy and Ancillary Services Revenues

The presentation on development of net energy and ancillary services revenues by use of a statistical model suggested the following comments.

Zonal vs. Sub-zonal LBMP

Experience with Dr. Patton's analyses in the last reset process suggests that zonal LBMP's would be more appropriate for this type of analysis, or in the case of Zone J, using the 345 kV system value. The latter would also be consistent with the 345 kV interconnection voltage in the assumptions table. In reviewing historical data, it should be noted that the calculation of zonal LBMP's changed from generator-weighted to load-weighted after deployment of SMD2. (Generator-weighted values are still posted as market information.) It should also be noted that addition of substantial generation in the Astoria area has significantly altered prices in that load pocket.

Choice of Study Years

The presentation referred to use of hourly data, by zone, for at least years. On an initial basis, a case can be made for use of the last four years as representative for weather conditions, if the results are averaged, keeping in mind that at the end of the process, representative long-term estimates must be developed. Each of these years represents a different set of weather patterns and resulting load shapes, and the following general observations are based on the last two reviews completed by the NYISO for the Installed Capacity Subcommittee (ICS) of the Reliability Council. ICS continues to use the 2002 load shape as more representative for developing installed capacity requirements. In this case, the desire is to develop a conservative estimate of installed capacity requirements, rather than a representative estimate of energy revenues, two distinctly different tasks.

2003— fairly representative load shape; slightly cooler than normal summer.

2004— much cooler than normal summer; load shape is not representative, similar to year 2000.

2005— New NYISO peaks set, relatively high number of near peak hours, but not as unique as year 2002, which is surpassed only by 1995 in terms of number of near peak hours.

2006— New NYISO peaks set, but load shape does not indicate as many near-peak hours as 2005, i.e. load shape is more typical, but absolute peaks (and associated temperatures and THI) were high for two distinct periods July 17-18, and August 1-3. This year was also unique because of two prolonged outages on the NYC cable interface.

NYISO Planning staff should be consulted in developing the model, and interpreting the significance of the choices in years.

KeySpan's view is that the years 2002 and earlier should clearly not be utilized—the year 2002 for the weather related reasons cited above, and 2000 and 2001 because of these are early years in NYISO market operations, and before the installation of RT price mitigation in Spring 2002.

The model is being touted as implicitly accounting for both weather and fuel uncertainty. The above considerations relate only to weather patterns. This is a more straightforward

assumption for weather than for fuel costs, for which other underlying market factors may also be important, for example, the impact of the 2005 hurricane season on gas and oil infrastructure. It is important that these factors be addressed in developing the model.

Changes in Generation Mix and Transmission Topology

Deterministic models have the advantage that changes in generation mix and transmission topology can be explicitly modeled. Since it is planned to use a statistical model, it is important to account for significant changes in generation mix, in particular, the addition of two 500 MW combined cycle units in the Astoria load pocket, which significantly impacts prices in that zone.

In addition, looking ahead, the Sprain Brook-Sherman Creek transmission line (M29) will increase transfer capability into Zone J, and the 660 MW Neptune HVDC cable from PJM to Zone K will be operational.

RT vs. DAM LBMP

Intuitively, for an analysis that is intended to develop representative long-term estimates of energy revenues, use of DAM prices is more appropriate, particularly if a relatively efficient aeroderivative gas turbine is being considered as the reference unit. Further, Dr. Patton has continued to point to improved convergence between the day-ahead and real time markets. Since there will undoubtedly be arguments that the real-time market data are more appropriate for peaking units, it is important, if such an analysis is undertaken, to exercise care in developing and modeling the impact of key parameters such as start-up time and costs, minimum run times, and intraday gas prices, for example, if the results are to be meaningful. An alternative, suggested by KeySpan during the last reset process, was to analyze both RT and DAM price data, and to average the two results.

Directionality of Assumptions

It is important that the “directionality” of all elements be tracked as the analysis proceeds. In particular, each cost element, whether related to capital cost, project financial structure, fixed costs, or energy and ancillary services revenues, must be representative. This can avoid skewing the resulting reference price in a particular direction. Maintaining this balance is important if market participants are to have confidence in the results. This was a particular concern expressed by KeySpan in the last reset process.

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