Witness: Richard L. Levitan
Request from: New Hampshire Public Utilities Commission Staff

Question:
Re Section 3 of Modeling System Overview: Fuels Price Short-term and Long-term Stochastic Parameters Statistical Procedure

Please provide an example of what you mean by the "short term daily mean-reversion rate" parameter.

Response:
Please see the attached response.

Witness: Richard L. Levitan
Request from: New Hampshire Public Utilities Commission Staff

Question:
Re. Staff 1-91, pages 10-19 of 34.
The energy revenue simulation results for 2011 show that 32 of the 250 simulation runs resulted in annual energy revenue greater than $100 million for Newington Station, with a maximum of $195 million.

Please respond to the following:
a. Provide for each of the above mentioned 32 runs the same data provided in Exhibit G.17 of the CUO Study for 2011;
b. For the runs which resulted in 2011 annual energy revenue of $100.923 million, $149.869 million and $194.511 million, provide an Excel file that contains the following additional data for each hour the unit was dispatched:
- Natural gas, RFO, and 2FO prices at the unit
- DAM and RTM energy prices at the unit's injection node
- Variable O&M costs on RFO and natural gas
- Details of random outage events.

c. Describe and discuss the fuel and power market conditions that result in annual energy revenue greater than $100 million for Newington Station

Response:
LAI recently found that the results contained in the original simulation run were in error due to creation of spark spreads that were at times too large and at other times too small. A revised study was filed on April 26, 2011 containing the results of the revised simulation run. The revised simulation run has energy revenue results that appear more realistic, both on the high side and the low side. In the revised simulation run, the maximum 2011 revenue is $38.5 million, and the top 32 scenarios had 2011 revenue in excess of $29 million.

a. In the original simulation run only the mean and percentile summary results were reported to Excel. Additional reporting capabilities has been added to the new version of the model. CDs containing annual results by scenario of the revised study for the variables reported in Exhibit G.17 for the years 2011 through 2020 were provided to Staff and the OCA in response to STAFF-01, Q-STAFF-073-SP01 (filed on April 27, 2011).

b. Hourly level reporting to Excel has not been implemented. In addition to the annual results provided in connection with part (a), monthly operational results, daily fuel prices (which do not vary by hour of day), and daily peak and off-peak block average hourly DAM and RTM energy prices for all study years and scenarios are provided to Staff and the OCA on CD due to the voluminous nature of the data requested.

c. As one example, Newington Station's $89 million of energy revenue in 2005 equals slightly more than $100 million in 2011 dollars. (From 2005 to 2010Q4, the GDP chain-type price index increased 11.15%, and from 2005M3 to 2011M3 the CPI-AUC index increased 15.74%.) Based on recent history, it is not far-fetched for revenue to approach $100 million again in a few extremely favorable scenarios. There are no descriptive story conditions for the fuel and power markets that can be reported since the method used to simulate the fuel and power market prices is a combination of current market forward prices and statistical analysis of the past several years. The advantage of the Monte Carlo or other probabilistic scenario approaches over the "historical burn" extrapolation of the past approach is that we know future conditions will not be an exact repeat of the past. And while the story-generated or "sculpted" scenario approach (e.g., "US adopts GHG tax"), may make direct connections to certain fuel and power market

conditions, the assignment of probabilities is subjective.
* Due to the voluminous nature of the material, the data is being provided on CD.

Witness: Richard L. Levitan
Request from: New Hampshire Public Utilities Commission Staff

Question:
Re Section 6 of Modeling System Overview: Energy Hourly Prices Simulation Model

LAI states that "TOU by month energy prices in each scenario are dependent on the stochastic natural gas prices, forward energy and natural gas prices, and a SHR elasticity parameter, which plays the role of adjusting the base SHR down (up), depending on whether the statistical estimate of the elasticity is less (greater) than one."

Please explain in detail (using a step-by-step approach) how stochastic natural gas prices, forward energy and natural gas prices, and a SHR elasticity parameter are used to develop the TOU monthly energy prices. That is, describe all calculations and explain the purpose of the SHR elasticity parameter. In addition, explain in detail how hourly energy prices are calculated from TOU monthly energy prices using historical simulation.

Response:
Please see the attached response.

Witness: Richard L. Levitan
Request from: New Hampshire Public Utilities Commission Staff

Question:
Re to Section 3 of Modeling System Overview: Fuels Price Short-term and Long-term Stochastic Parameters Statistical Procedure

Please provide an example of what you mean by the "Long-run daily volatility rate" parameter.

Response:
Please see the attached response.