

Comments on Statement of Work (SOW) for Independent Consultant on PJM Load Forecasting Methodology

PJM has proposed a SOW in response to a stakeholder request for a review of its peak load forecasting methodology. Exelon Generation has the following comments.

- 1) In the proposed SOW, there are two categories:
 - a. Maximizing Forecast Accuracy
 - b. Minimizing the Impact of Forecast Error

Only the first category belongs in the SOW. If other PJM processes need revision then separate requests need to be prepared. The RTEP bright line test, the 97.5% procurement of resources through the BRA, and rules for incremental auctions, are patently outside the scope of peak load forecast methodology. That is, the work listed under “Minimizing the Impact of Forecast Error” should be outside the Scope of Work on PJM Load Forecasting Methodology.

- 2) The Brattle Group already conducted a general review of the PJM load forecast model methodology for unrestricted peak forecast, in 2006. PJM already addressed most if not all of the recommendations by The Brattle Group. Since The Brattle Group review was quite comprehensive and general at the time, if the present proposed independent consultant review goes forward it should be limited in scope to those issues which could have caused significant differences since the last review. As such, the draft SOW in the Maximizing Forecast Accuracy section is appropriately focused.
- 3) The issues identified with Maximizing Forecast Accuracy are reasonably stated and presented. The remaining comments address each of the specific factors.
- 4) Weather: SOW looks fine. Monte Carlo simulation of weather uncertainty is generally accepted, but if there are feasible and more appropriate ways to treat weather uncertainty or to determine the 50/50 and 90/10 load levels they should be explored.
- 5) Economic Activity: Economic variables need to be available at the MSA (Metropolitan Statistical Area) level, both historically and as forecast, for purposes of the zonal load forecasts. There is no need to include exploration of economics sources that cannot provide the needed variables at the MSA level. It is an open question whether one provider of data at that level should be preferred over another, specifically with respect to Global Insights and Moody’s Economy.com as competing providers of appropriate economic forecast data.
- 6) Price Variable. It is appropriate to separate out net energy for load from peak to investigate price effects; see comments 6a) and 6b).
 - a. It is operationally possible to add a price response to the energy load forecast if there is a two-way link to a price forecasting model. Such linkages are required for certain equilibrium analyses. Two precautions must be observed: i) There is overlap between the amount of price-induced conservation available and the amount of efficiency within the load forecast. It is easy to double-count electricity savings from efficiency trends and mandates when creating price elasticity estimates, and precautions not to double-count need to be taken. This is not just Exelon’s opinion but also based on advice given

to Exelon during a study by The Brattle Group. ii) A change in wholesale prices is only partially reflected in retail prices; to the extent the end-user does not experience the price change there will be no associated change in demand and any percent change in price for calculating change in net energy for load needs to be adjusted down accordingly.

- 7) Price variable/peak load: There is too little variation in historical TOU prices to obtain statistically significant estimates for this relationship. This dependency needs to be explored after some years of dynamic pricing programs and data become available, not in a current study. It could reasonably be left off the SOW. Estimates from other regions are not transferable due to several factors, especially differences in weather-sensitive load composition. In addition, Price Responsive Demand is to be treated as a supply-side product in PJM and therefore cannot also be counted on the Demand Side.
- 8) Demand-Side Response: PJM uses an unrestricted load forecast, and DR does not impact the unrestricted peak. This is appropriate. DR is a supply-side resource. The DR amounts as published in Table B-7 of PJM's Load Forecast report are market-based and will automatically change as DR penetration changes in the market.
- 9) Energy Efficiency and supply participation: Energy efficiency participates in PJM as a supply. A forward view of efficiency is already taken in PJM's process due to EE participating as a supply resource in RPM. Thus for efficiency to further reduce the load forecast would be double-counting, and also would be injecting modeled estimates into a process that is now market-data based. That is not an improvement.
- 10) Energy Efficiency and load forecast: energy efficiency gains are partially embedded in the load data. Ten years of market data feed into the load forecast and already incorporate efficiency gains, producing a lower load growth rate trend than would otherwise occur. A structural approach can be useful to adjusting the load forecast for efficiency in the load data, but is a complex approach that requires customer class models by zone. Potentially the Load Forecast review, if it proceeds, should specifically demonstrate a feasible structural approach for at least one zone. This is an emerging modeling approach; it is unrealistic for PJM to attempt a structural approach against all customer classes across all zones at this time.
- 11) Energy Efficiency mandates and uncertainty: the amount of energy efficiency in state mandates in PJM states is very large (in some cases 15% by 2015). The level of the state mandate is only one factor to assess an achievable amount of efficiency gains. As has been experienced in Ohio in the first year of implementing efficiency mandates, there can be delays. There First Energy had a plan to distribute 3.75 million compact fluorescent bulbs by the end of 2009 to meet state-mandated energy efficiency targets; the direct delivery program in early October had to be put on hold due to public outcry over both the cost of the program and the rate recovery plans that were already in place. In subsequent years, as one goes up the cost curve for additional efficiency, the rate of implementation is uncertain.

Thank you for the opportunity to comment on the Scope of Work for Independent Consultant review of PJM's Load Forecasting Methodology.