Forecast Band Methodology

Last year, SUFG used statistical bands of the state econometric model to determine low and high forecasts of load. In essence, this assumes that there is no uncertainty in the projections of the model drivers that are treated as exogenous and that all uncertainty stems from the error in the estimated state models.

This year, SUFG takes into consideration uncertainties in the forecast drivers when estimating confidence intervals of forecast load. However, the approach is not the traditional one because IHS Global Insight does not provide confidence intervals for the projections of the model drivers. To overcome this, SUFG directly estimated the variances of the forecast drivers. This approach assumes that history is indicative of the future as is also the case with other econometric models.

Here are the steps involved in the estimation process. First, autoregressive models for the drivers other than cooling degree days (CDD) and heating degree days (HDD) in each state model are constructed. Those autoregressive models are then estimated as a system using seemingly unrelated regression (SUR) based on historic data retrieved from IHS. By using SUR, it is assumed that uncertainties in the model drivers (other than CDD and HDD) are correlated within a state. (Note that a separate SUR analysis was performed for each state.) Second, the estimated simple autoregressive models are used to obtain forecast mean, lower bound and upper bound (based on a 90% confidence level) for each forecast period and each driver. Third, high and low projections for the model drivers are derived using the bounds from the autoregressive models and the mean from the IHS projections. That is, the difference between the high and mean from the autoregressive model is added to the IHS forecast to get the upper bound of IHS driver forecast and the difference between the mean and the low from the autoregressive model is subtracted from the IHS forecast to get the lower bound of IHS driver forecast for every forecast period. Thus, the auto-regressive driver models are only used to construct the confidence intervals for the forecast drivers, not the forecasts —these are still taken from IHS Global Insight. Finally, the new 90/10 forecasts of the drivers are used in the state econometric models to determine the high and low load forecasts. For each forecast period, the high for each IHS driver which has a positive coefficient in the state model and the low for the IHS driver which has a negative coefficient in the state model are plugged into the

estimated relationships to get the highest possible value for load. Similarly, the low for each driver with a positive coefficient in the state model and the high for the driver with a negative coefficient in the state model are plugged into the estimated relationships to get the lowest possible value for load.