

Load Forecasting

presented to

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Forecasting & the Midwest ISO

- Some of the same issues that prompted the creation of the SUFG are still relevant 25 years later
- MISO and its stakeholders should examine a similar set of options for load forecasting
- Each has its own advantages and disadvantages

Regional Planning Benefits

- More optimal decisions regarding new construction, retrofits, and environmental upgrades
- Integration of renewable resources
- Better transmission planning
- Integration of demand response, energy efficiency, and smart grid

Load Forecasting

- There are a number of viable approaches to load forecasting
 - They all have their own relative advantages and disadvantages
 - It would be inappropriate to mandate one method over the others

Forecasting – an Inexact Science

- Even the best forecasts have errors
 - Exogenous assumptions (forecast drivers)
 - Stochastic model error (cannot fit relationships of explanatory variables to output variable perfectly)
 - Non-stochastic model error
- Uncertainty costs money
 - Even though we cannot eliminate uncertainty, we need to minimize it

Forecasting Requirements

- Based on consistent assumptions/data
- Avoid over/under counting of loads
- Load data must be of high quality
 - Load research efforts have relaxed in recent years
- Fair and consistent treatment of demand response and efficiency
 - Objective verification of programs
- Unbiased

Option 1 - LSE Forecasts

- LSEs produce their own forecasts individually and use the sum of them
 - Lacks consistency
 - Potential for under/over counting
 - Utilities may have a financial incentive to project low demand growth and high demand response
 - Appearance of bias is a serious problem even when the intent is not there

Option 1 -continued

- Need to develop a system that discourages gaming the system
 - Should not adversely affect other market participants
 - Should avoid penalizing legitimate errors in forecast
- Stick and/or carrot approach based on established standards
 - Financial consequences for repeating, systematic errors

Option 1 -continued

- If the financial consequence is not large enough, reliability may be compromised
 - This may lead to higher reserve requirements for everyone
- If the penalty is large enough and the potential for penalizing honest errors exists, LSEs may intentionally overforecast

Option 2 – MISO Forecast

- MISO produces forecast
 - Solves consistency and appearance of bias issues
 - There has been opposition/criticism of MISO going beyond transmission planning
 - This option costs money

Option 3 – Independent Forecast

- An independent group produces forecast
 - Solves consistency and appearance of bias issues
 - Needs access to sensitive information
 - Must maintain independence
 - This option costs money

Option 4 - Consortium Forecast

- A consortium of entities representing individual states or groups of states produces forecast
 - State commissions
 - Universities
 - Private companies

Option 4 - continued

- Consortium must work together to ensure consistency of assumptions
- All members must be independent
- States are not immune from appearance of bias
- Must be structured to avoid pre-judgment issues
- Some states may lack regulatory authority
- This option costs money

Further Information

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