

LOAD FORECASTING & RATE DEVELOPMENT

Behind the more than 12 million MWh of electricity that South Mississippi Electric (SME) provides to power much of the state through Member systems is a small team tasked with managing the load data retrieval and analysis, load forecasting and rate development to assure that the Association consistently serves its Members. SME's rates, billing and load forecast team performs long-term load forecasts, processes the data used for billing purposes, prepares monthly Member billing statements, develops and administers SME's wholesale rate schedules and is accountable for a variety of other associated responsibilities.

The team's role in the Association expanded in 2013 as SME joined the Midcontinent Independent System Operator (MISO) group. Participation in the regional transmission organization added the new responsibility of metering and reporting SME's MISO load and generation data.

The rates, billing and load-forecast team, which is a part of the larger wholesale services team, is comprised of two mathematicians—Curt Holland, rates, billing and load forecasting manager and Kerrie Owen, billing analyst; plus Kevin Roper, a computer science major who is the load forecast analyst. The trio works as a team, each with his or her own specialty; however, their roles are intertwined and they also serve as one another's back-up. The primary functions of the group include forecasting future SME loads, Member power requirements and billing; forecasting metering and reporting generation and load data for MISO; and developing and administering appropriate Member rates.

LOAD FORECAST

Load forecasting is a continual process of predicting future loads so that adequate generation resources will be available to serve the load and adequate transmission resources will be available to deliver sufficient electric power to SME's 262 delivery points. Load forecasts are based on average historical weather combined with historical load data and usage patterns to predict what the load is likely to be in the coming months and years.

The load forecasts are based on average weather patterns to yield a normal forecast. Occurrences such as the winter 2014 polar vortex, hurricanes or other extreme weather events are not part of the normal forecast. However, severe weather scenarios are included in alternate load forecasts as a buffer. For instance, extremely cold winter and hot summer conditions result in unusual power load demand, so those events must be factored into the severe weather forecast, while the normal forecast is based on average weather patterns.

Monthly load forecasts are a major component in the development of SME's monthly operating budget. The forecasts are utilized to predict monthly sales and revenue from Members. Load forecasts are also submitted to MISO to aide in resource planning and budgeting for that organization.

For long-term forecasting, Roper prepares SME's annual Power Requirements Study (PRS) based on load data provided by each Member system. The PRS predicts SME load for a 20-year time period, and serves as the basis for the Association's long-range generation and transmission planning.

METERING

The team is responsible for the daily reading of 297 Member meters located at the respective SME power delivery points and 34 SME generation meters located at the various power resource facilities. The meter data is used to produce monthly billing statements for SME's 11 Member systems and provide MISO with daily load and generation data. The meters are read online daily and data from the meters is collected in 15-minute intervals. (See sidebar)

Owen has primary responsibility for ensuring the accuracy of the data and resolving any discrepancies. She works with SME's control center, Member systems, and Metering Engineer Travis Brignac to maintain and verify

meter data. SME's meter technicians also play a vital role in maintaining the meters. Metering Supervisor Jody Lott, Metering Technicians I Charles Hennis, Matt Simpson, and Justin Bennett, and Metering Technician II Patrick Cox, properly program all of the Association's meters to ensure the accuracy and availability of the data.

SME communicates with the meters via network phone lines, the microwave communication network, and cellphone connections. These connections permit the meters to be read remotely rather than having to read the meters across old landline phone connections or in person as was done in the past. MV-90 is the meter data management software package Owen employs to read the meters, verify the data, enable auditable editing of data, and export data for use in billing, forecasting and providing to MISO.

In addition to SME's 331 meters, meters at delivery points located in the Mississippi Power Company (MPC) wholesale area also record SME Member load which is served in that area. MPC reads and maintains those meters while monthly submitting the data to Owen for input into SME's meter data management system.

BILLING

The resulting meter data provides the foundation for providing billing statements for SME's 11 Member systems. The billing amounts are based on coincident and non-coincident peak demand plus energy usage. Bills are calculated on a calendar month basis and are due out to the Members by the fifth day of the month, which often requires members of the group to work on holidays and weekends to maintain the schedule.

MISO DATA

SME's MISO billing is based on accurate and timely reporting of the MISO generation and load data by the group, so the responsibility lies with all three employees. SME's load and generation data is submitted to MISO on a daily basis.

RATES

The group uses the data collected through their various work activities, as well as the load forecasts, to develop and maintain SME's wholesale rates, which are then used in the preparation of SME's annual operating budget. SME's rates and power cost adjustment amounts change annually and consist of a multitude of components, such as annual escalators that must also be updated by this team.

The group also assists in the design of new rates, such as SME's new economic development rates. These specialty rates are used to entice new businesses to move into SME's Member system areas to foster economic growth and job development for SME's end-use members.

The role of the rates, billing and load forecast group in the Association is vitally important in planning for future generation and transmission resources and to enhance SME's ability to continue to serve Member needs. The team's work directly impacts SME's performance in fulfilling its mission of providing Members with economical and reliable power.

By the Numbers:

96 intervals per day per meter x 331 wholesale meters x 30 days per month (average) = an average of 953,280 data intervals per month