How can we improve forecasting to increase our return on smart grid investments?

YOUR GOAL: Maximize investments in smart meters and advanced metering infrastructure (AMI)

The utilities industry is investing heavily in large-scale smart meter implementation projects, creating a new flood of data that must be harnessed, converted into information and used to build more efficient operations. The deluge of data will offer utility forecasters many new opportunities to optimize resource allocations, predict future growth and deepen insight for the utility planning process. The ability to predict the volume, magnitude and location of demand – along with improved revenue projections – will bring significant financial rewards to companies that successfully glean predictive insight from their data.

OUR APPROACH

Forecasting is increasing in importance in the smart meter and smart grid era due to the growing complexity of challenges to the industry and abundance of new data. For the energy and utilities industry, better forecasting enables long-term integrated resource planning and improved capital expense budgeting. We approach the problem by providing software and services to help you:

• Analyze and forecast trends, now and over time. Whether you want to understand past trends, forecast the future or better understand how your business functions, we provide a wide range of analytical tools that ensure your success.
• Identify which factors improve forecast accuracy versus which ones to exclude. With multiple views of trends and correlations, you can make better decisions about the power portfolio and improve understanding of the effects of climate, economic factors and other determinants on the forecast.
• Know when customers change behavior. Gain clarity into consumer response to economic conditions, climate changes, demand response programs or government initiatives by forecasting energy demand at any level of geographic or asset hierarchy, including meter level.
• Manage volumes of energy usage data inputs from smart meters. Harness new data streams to improve minute-by-minute responses to changing use conditions. Convert transactional meter and operational systems into a forecast-ready format.
• Quickly build forecast models for smaller time increments. Understand demographics and user profiles, with usage information coming in 15- or 30-minute intervals.
• Develop predictive modeling capabilities. Take the knowledge from forecasts and predict the impacts that changes to the independent variables will have on demand, load and revenue for better planning, risk mitigation and improved response to governmental regulations and inquiries.

With proliferating smart meters and more data from connecting grid sensors, the ability to mine and use this data for increased operational efficiency and customer service will strengthen the return on today’s AMI technology investments. With SAS®, you can maximize the value of data inputs by utilizing the SAS statistical methodology for researching and developing models and predicting and managing energy usage to make fact-based decision making a reality.
THE SAS® DIFFERENCE: A proven track record within industries that demand effective and efficient forecasting

SAS solutions for the energy and utilities industry combine award-winning software and best practice services to transform masses of data into strategic forecasting tools, and perform business analytics with minimal administration. SAS provides:

• Superior data integration capabilities. This enables companies to extract and transform data from nearly any source, identify analytically relevant variables and describe underlying patterns and characteristics of a data set.

• A proven track record in helping industries adapt to change. SAS has many years of experience working with a wide range of markets that have faced new forecasting challenges. SAS can support generation, transmission and distribution resource planning, capital and O&M budgeting, revenue forecasting, retail marketing, call center staffing, customer management and risk assessment.

• A proven solution. SAS solutions can generate large quantities of high-quality forecasts quickly and automatically, enabling organizations to plan more effectively for the future. Forecasts are provided through a user-friendly graphical interface. Analysts can generate forecasts that reflect the realities of business, improving your ability to plan future events with confidence, and improve forecasting performance across all products and locations – at any level of aggregation.

CASE STUDY: Oklahoma Gas & Electric (OG&E)

■ Situation

Named the 2011 Utility of the Year, OG&E currently operates nine power plants and three wind farms delivering 6,600 megawatts of power during peak times. The utility was interested in analyzing a growing volume of smart meter data to eliminate the need to build new fossil fuel power plants (until 2020) without relying on outsourcing or hiring additional analysts. The 2020 plan requires the company to expand and integrate renewable power sources and, more importantly, to understand energy consumption patterns of individual customers so that OG&E can steer them toward appropriate energy-saving options.

■ Solution

SAS provided a solution that enabled OG&E to:

• Dramatically decrease data analysis time through integration with a Teradata high-performance database.
• Perform load forecasting in-house rather than relying on costly consultants.
• Segment customers into groups based on their usage patterns.

■ Result

• Analysts can create forecasts in hours when it once took days.
• Managers can evaluate smart meter data coming from customers every 15 minutes (versus once a month) to create and measure the effectiveness of programs that reduce energy consumption.
• OG&E can forecast short-term demand to participate in day-ahead markets and pass those energy price signals directly to customers.