



David Hamilton, Manager of Load Forecasting

## ODEC: SAS® Analytics energize utility cooperative's demand forecasts

### Industry

Utilities

### Business Issue

Forecast power supply needs for more than 1 million member customers.

### Solution

SAS Analytics with SAS Forecast Server sliced in half the time it takes to build accurate, reliable forecasts.

### Benefits

ODEC saved utility customers millions of dollars in its first year of using SAS Analytics. As a result, ODEC reduced rates four times in a single year.

### Partner

Zencos

The Old Dominion Electric Cooperative (ODEC) saved utility customers millions in its first year of using SAS Analytics to forecast energy demand. The savings helped the not-for-profit lower rates four times. With better forecasts, the cooperative hopes to continue keeping costs low and service levels high.

ODEC provides wholesale power to 11 not-for-profit distribution cooperatives in Virginia, Maryland and Delaware that serve 1 million member customers in the rural and suburban portions of those states. "Each cooperative has unique characteristics, its own weather and economic drivers that affect growth," explains David Hamilton, Manager of Load Forecasting. ODEC owns power plant assets and also seeks to purchase power. For energy purchases, the cooperative must contract months in advance. Bet wrong about the weather or energy needs, and ODEC is at the mercy of the spot market.

"If I don't buy enough, I have to pay whatever the market price is at the time I need to buy. If you have excess, you have to sell it for whatever price you can get," Hamilton says. "The electric utility field is fairly unique. But the problems we face each day are the same as those in energy, gas or oil."

SAS allows Hamilton to forecast more efficiently. This provides ODEC with nimbleness when it comes to buying and selling power and planning for the future. "When you're investing up to \$3 billion in a power plant, you need to be

sure you're going to use it when you build it," Hamilton says.

SAS Forecast Server allows Hamilton's department to use the most sophisticated forecasting models and techniques available, including exponential smoothing models, ARIMAX models, unobserved components models, intermittent demand models and dynamic regression – plus user-defined models. SAS models are used to support system analysis, hedging models, financial forecasts, and future resources for energy and demand. With SAS, ODEC can:

- Quickly adjust for changing conditions. Forecasts take half the time to build. Unforeseen changes – a cooler summer or colder winter – can be quickly worked into a forecast.
- Understand each cooperative's individual market while also aggregating data for a big-picture look. Individual market snapshots help ODEC choose where to buy power from. An aggregate look helps plan for power needs five, 10 or 20 years down the road.



- Factor in multiple data sources from retail sales to population trends along with daily weather information that goes into such detail as wind speed and cloud cover. SAS allows ODEC to understand every variable in a model and how it contributes to a model's

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results. The cooperative can run competing models against each other to choose the best one. It can also screen outlier factors – like a hurricane – to avoid skewing the model.

- Manage effectively despite the volatility that smaller energy providers are more prone to experience. “Utilities with large loads can stand a lot of variants and still have a pretty good forecast. We’re much smaller and our variability has a propensity to be higher,” Hamilton says.

“We couldn’t do what we do without SAS,” Hamilton says. “There is no other software I know of that has that amount of flexibility and power.” And it pays enormous dividends to ODEC’s member customers. “We actually lowered the rate we charge for wholesale power four times in the past year. The cooperative can pass that benefit directly along to the members who have been struggling.”

### Streamlining the Forecasting Process

In the past, ODEC used SAS for some reporting but used another forecasting tool and Excel spreadsheets to cobble together forecasts. “It was labor-intensive, but people understood

the spreadsheets so that’s how it was done.” Hamilton found other forecasting products lacking in capabilities and believed from his prior use of SAS that SAS Forecast Server would provide a more robust solution.

Hamilton also uses SAS to answer analytics requests from other ODEC staff members and to look at data that comes in from meter readings. “SAS came in really handy for the AMI (meter) data because the sheer volume would outstrip any Excel application or basic desktop application,” says John Robinson, Business Systems Analyst.

“Our organization is not one to add people. If we need to do another project, then I need to wear another hat. We couldn’t answer these questions for the organization if we didn’t have SAS,” Hamilton adds.

Working with SAS to implement SAS Forecast Server made the process smooth, says Hamilton. ODEC uses SAS partner Zencos to administer the solution. A SAS Gold Partner, Zencos provides SAS clients with services required for installing, optimizing and managing the SAS Business Analytics

Framework. “The whole team at SAS has been so helpful,” Hamilton says.

Ultimately, Hamilton says, SAS takes the guesswork out of interpreting forecasts. Other solutions can tell him that power usage is down and trending toward staying that way, but only SAS helps him understand if that is related to weather or the economy or both. “If I didn’t have SAS, I probably wouldn’t know how to do this. It’s nice to be able to get a feel for how much variability is in each component that drives our sales. I know SAS has a lot of different customers with a lot of data that use SAS in different ways. It’s the same for an electric utility. We have a lot of data. We have to have a system that can crunch large data sets, and you can’t do any kind of analysis on these large sets without SAS.”



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