

Southern Co-Op Uses Exacter Predictive Technology & Achieves Four-Point SAIDI Reduction



Summary

- After year one of the program, SAIDI was reduced 4.5 points
- Equipment-related power outages were reduced by 21%
- Year two discovered many critical lightning arrester failures
- After year two, utility convinced that Exacter was identifying true outage risks

In the fall of 2014, a mid-size rural cooperative in the southern US was approached by the Davey Resource Group with a new solution for the utility to get a jump-start on improving reliability. Davey promised that Exacter Predictive Technology could identify specific places on the utility's overhead grid that were most "at risk" for a future outage.

Because the utility had a strong history of successful projects with Davey, the new Director of Engineering & Operations was open to the idea, but still needed to be convinced of the technology's viability. "To be honest, when Davey shared the concept with me, it sounded like snake oil. I was definitely skeptical," said the Director. However, because the new Director was in the process of shifting the mindset of his operations team from being reactive to being proactive, he was open to exploring a project. When they discovered that Exacter made multiple patrol passes of each circuit and then verified each finding at the pole using ultrasonic equipment, the utility was satisfied enough to begin the first project.

Exacter Year One: Watching & Waiting

Before the project started, Davey estimated the Exacter program would reduce SAIDI by 1.1 minutes. "When we did the pre-project analysis for the utility, we found that by surveying just 8.4% of their overhead miles, we could target 98% of the previous year's Customer Minutes of Interruption (CMI)," stated Davey Resource Group's Vice President – Asset Management Services, Scott Carlin. "One of our chief goals in designing a program is to maximize system impact while at the same time

minimizing the utility's investment by selecting the most target-rich circuits – and for them the value and opportunity for improvement was excellent."

The Year One Program

The first-year Exacter program surveyed approximately one third of the utility's three-phase lines, totaling 230 miles. Exacter verified 26 components that were consistently arcing, tracking, or leaking; these are the early warning signs of a pre-fail state on the system, which puts customers at risk. The Director and his team spent some time

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in the field with the Davey and Exacter locating teams. "Most of the finds showed no visible signs of damage, however they were definitely arcing," stated the Director. "In doing the surveys with Exacter, I wanted to see if the technology would prove itself. For me that meant helping to reduce SAIDI and hopefully preventing late night outages because those events take twice as long to find and create a backlog in our work schedule."

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After finishing the surveys, maintenance teams went to all 26 locations to remove the problematic equipment. "The premise behind Exacter is that by removing at-risk components from the grid (the equipment showing verified signs of being out-of-spec), you are making your system less vulnerable and therefore more reliable," continued Scott Carlin of Davey Resource Group. "These components represent the weakest points on the overhead, which are not only more prone to outages, but are also the most susceptible to damage caused by storms, hurricanes or other

major weather events. Taking this step also makes the overhead more resilient as well."

Measuring The Results of Exacter's Year One Program

One year after the circuits that were surveyed in 2014, the utility reviewed their outage data for those circuits. Outages were down 21% compared to the year before – a significant improvement. The Davey-Exacter program exceeded its SAIDI reduction estimate of 1.1 minutes to a remarkable 4.5 minutes! "If a utility can reduce just one minute of system SAIDI annually, they are doing amazing work," states Exacter President Geoffrey Bibo. "The design of this program and the Director's due diligence on the follow up maintenance made the difference in achieving significant results."

"Outages were down 21% compared to the year before. The Davey-Exacter program exceeded its SAIDI reduction estimate of 1.1 minutes to a remarkable 4.5 minutes!"

Continuing with Proactive & Predictive Exacter Approaches

In year two, the utility surveyed 220 miles of three-phase line in 2015. They found 30 components, about one every 7 miles. "In 2014, we found a lot of insulators. In 2015, we found a lot of lightning arresters which are a critical part of our overhead reliability program in this area where we have so many storms."

The utility is still evaluating the 2015 study, but is very impressed with what they have seen from Exacter. "One thing we know is that we are identifying conditions that are putting our system and our customers at risk of an outage. Being proactive to confront these issues before the outage occurs will certainly save us time and money in the long run. All indications tell us that our overhead is becoming stronger and more resilient to outages," concluded the Director. "I'm looking forward to getting our 2015 results and staying proactive with Exacter."