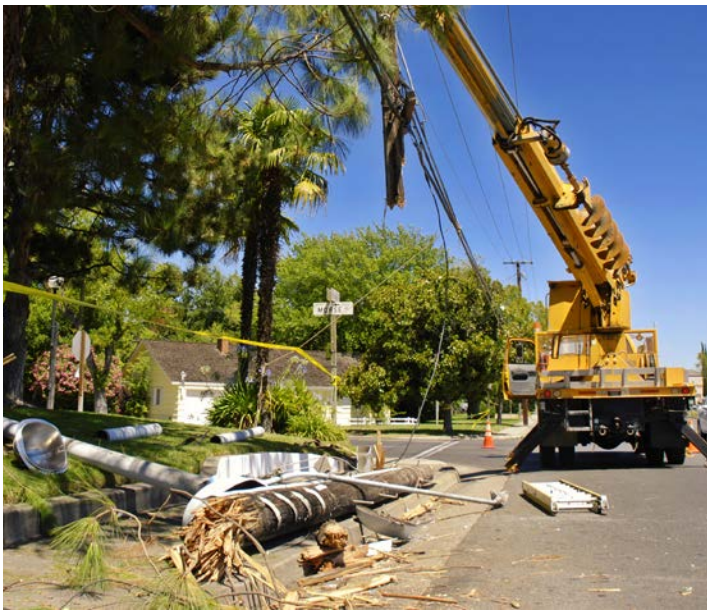
Brunswick EMC Case Study

Clevest and Brunswick EMC See a New Way to Look at AMI Data

Established in 1939, Brunswick EMC (BEMC) is the second largest electric co-op in North Carolina and the 35th largest of 851 cooperatives in the U.S. It serves approximately 89,000 members located across Brunswick and Columbus counties, as well as in small areas of Bladen and Robeson counties. BEMC has a longstanding tradition of working to improve the quality of life in the communities it serves. It also has an equally longstanding commitment to innovation that has supported its vision to deliver superior electric and consumer services to members—and Clevest Smart Grid Visualization is another example of this principle.



The Currents of Innovation

Over the decades, BEMC has consistently been seen among other co-ops as a leader for its implementation of new technologies designed to increase efficiency and reliability. These include, for example, a high-tech dispatch center and mapping system that is one of the most advanced of all North Carolina electric co-ops, and the PowerStat prepaid power program that was among the first in the U.S. and that serves as a model for other utilities. BEMC has also led the way in underground electric installation, which provides enhanced system reliability by protecting services from the area's severe weather and the corrosive effects of salt air.

Leadership in Technology

- Dispatch and mapping system
- Prepaid power program
- Underground electric installation
- AMI
- Smart Grid Visualization

Based in the utility's Supply, NC headquarters, David Adams is BEMC's Manager of Information Services. Adams provides perspective on the co-op's innovative nature, "We've always been quite a progressive organization. It was a long time ago that our board bought into the idea of technology as a way to make us more effective and efficient. And from the management team to our employees, we're all committed to the value of technology, when it can be justified of course. For us, the timing needs to be right and the technology needs to have matured. It's not simply tech for tech's sake."

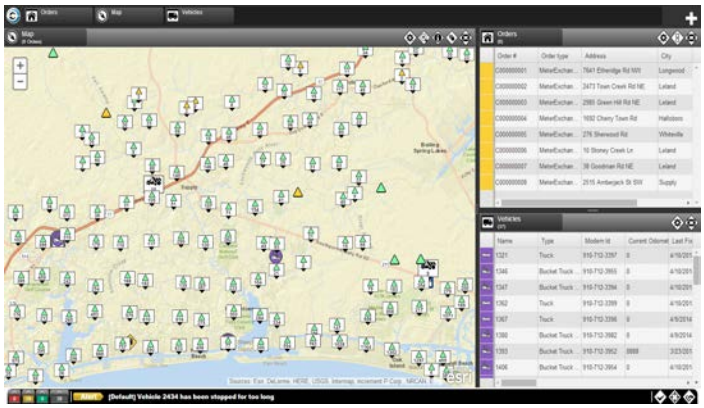
A Surge in AMI Data

In 2012, Brunswick achieved another milestone for the organization and all of its members with an AMI initiative. After deploying smart meters and AMI communications networks, utilities face a substantial increase in meter data. Unless it can be turned into meaningful information, however, this data provides little value. It's one of the biggest and most pervasive challenges for utilities that have installed smart meters. Without the ability to access timely and relevant AMI information—and put it into proper context—utilities are in the dark, as it were, with little visibility into what's actually happening in the distribution system and why. This compromises any opportunity for quick action to resolve issues, restore power and improve reliability.

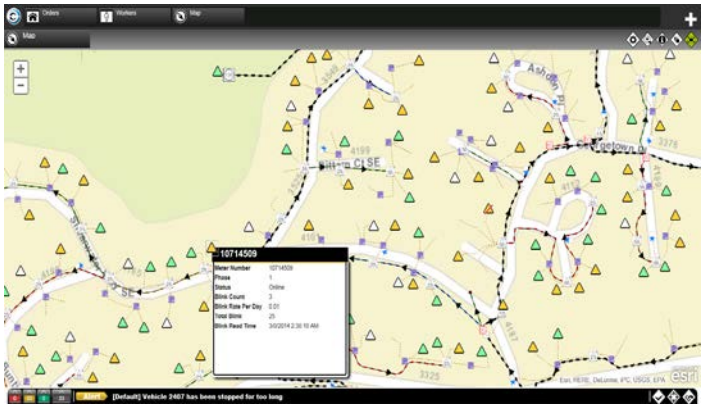
Adams elaborates, "With AMI, we now have all of these sophisticated systems and huge volumes of data available to us, but it's very difficult to make heads or tails of it. In terms of format, it's just sheer reports. We can't really see 'the big picture', which means we can't quickly and accurately spot trends and identify problems and we can't, consequently, respond effectively. With just data, we're in a very reactive position. With a better fix on the meaning and interpretation of that data, we'd be able to operate much more proactively for our members."

Smart meters can monitor and record numerous parameters that support other enterprise systems related to outage management, voltage optimization, asset management and revenue protection, among others. They also offer real-time meter reads, power outage notification, and power quality monitoring. Powerful functionality, but how do you make sense of the reams of new data and how do you correlate it with information from other technologies?

For BEMC, momentary outages, or 'blink' counts, and voltage irregularities represented a significant area of opportunity. While new smart meters were automatically capturing these events as they happened, data logs and reports weren't enough to empower BEMC to visualize, assess and respond to the questions the data raised on power interruptions and power quality. What's happening in the distribution system? Where exactly is a trouble event taking place? How often? What's the root cause? Is it an indicator of an area that requires preventive maintenance before a widespread outage occurs?



Rich, geo-spatial view of smart meters, vehicles and service work.



Drill down to smart meter status in the situational context of distribution system assets and satellite imagery.

Exclusive Partner of the NRTC

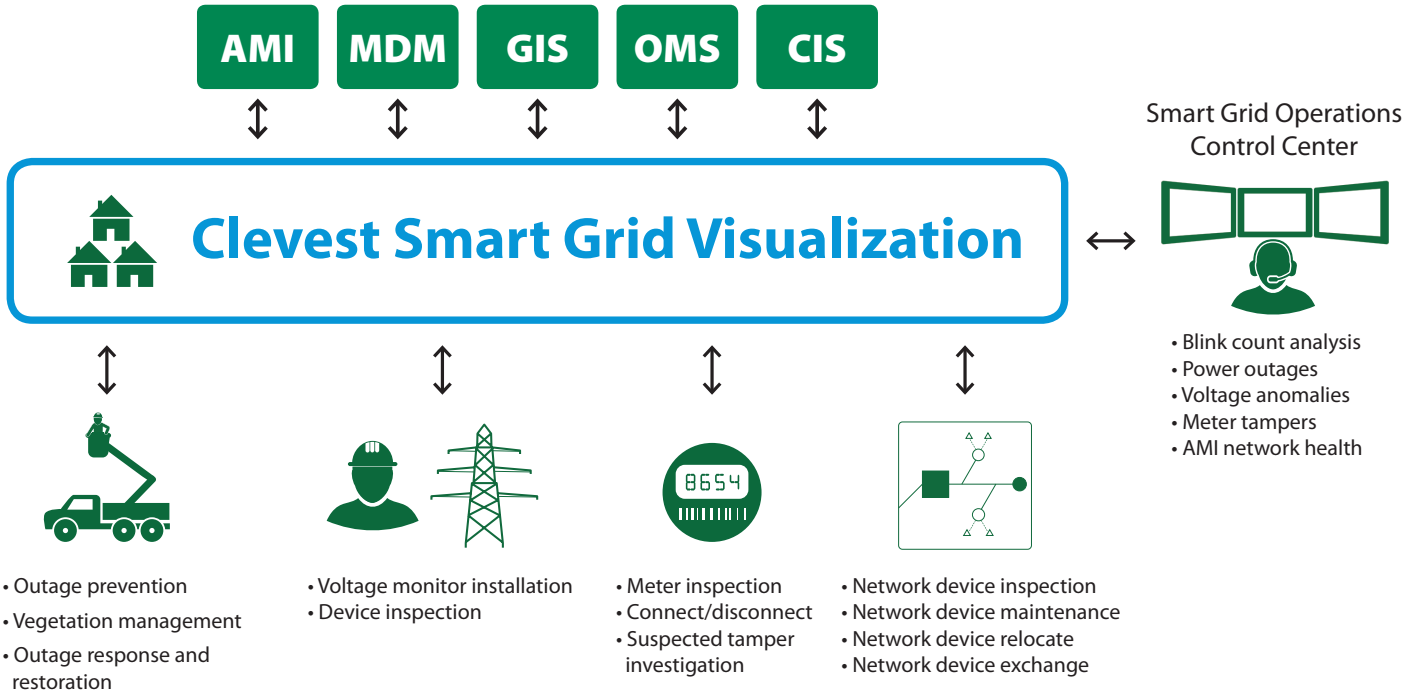
Clevest's solutions are currently used by over 135 utilities, including over 50 NRTC members.

Connecting with Clevest

BEMC began to make some preliminary determinations on how to manipulate and present AMI data in a more intelligent, consumable format. The utility also began to research the approaches of peer companies. At industry conferences, when BEMC did manage to encounter a utility that had something in place, it was exclusively a home-grown system comprised of one or more SQL servers. While the server(s) did house the data in a central location, it was still an exercise to try to manipulate it to support timely and informed decision-making. For 3-4 months, BEMC continued to scope out requirements and investigate what other utilities were doing before the project team was introduced to Clevest.

"We had the pleasure of learning about Clevest at TechAdvantage and contacted the NRTC for more information," explained Adams. The two organizations had recently renewed their highly successful partnership, originally formed in 2009, to offer NRTC members Clevest's software solutions for smart grid operations and mobile workforce management. The NRTC provided BEMC with an excellent recommendation on Clevest and also made the co-op aware of Clevest's upcoming annual User Group Meeting. BEMC seized the opportunity to attend and Adams remembers the team's reception when they arrived in New Orleans: "Clevest welcomed us with open arms!"

In a series of discussions, BEMC framed the challenge it was looking to overcome and learned more about Clevest's smart grid mobile platform and the possibilities it presented to accelerate a solution. It was clear that Clevest had the type of mature offering and track record that BEMC looked for from technology. "Clevest's business is mobility for utilities. Why would we pursue something ourselves and risk amateurism when we viewed Clevest as professionals in mobile with a best-in-class offering," Adams offers. BEMC elected to collaborate with Clevest instead of pursuing an in-house effort. "We both saw where there could be benefits. Clevest could enhance its existing solution with new capabilities and we'd get a solution to our current problem and a mobile platform for the future. "



Bright Ideas

Jump started by BEMC's earlier work, the co-op, Aclara and Clevest rolled up their collective sleeves and started down the codevelopment path toward what is known today as Clevest Smart Grid Visualization. Together, they refined the scope of the product and defined its functional requirements. Then it was over to Clevest's software engineers to develop a new smart grid mobile product offering. The result is an office-oriented product that can overlay AMI data on top of Clevest's map-based, mobile platform. In addition to street, satellite, asset, vehicle and service order layers, utilities can now see the location and status of AMI meters.

With real-time smart meter data represented against a comprehensive map view of the field, BEMC now has timely, relevant alerts to trouble events within the visual context of its power distribution system. And alerts on power outages and voltage anomalies can be correlated with meter and customer information to pinpoint the root cause and exact location of issues. Adams illustrates, "By overlaying this data on our maps, we have a platform for visualization that will help us be much more proactive in troubleshooting. If we see a series of blinks in an area, it may be a transformer problem, or if only a few houses are affected it may be a different issue. With no visual representation before, it was extremely difficult to isolate a problem and determine the best course of action."

By harnessing the value of AMI data, Clevest Smart Grid Visualization will help BEMC to increase the ROI on its AMI investment. The solution will also help increase customer satisfaction due to reduced outage duration and improved service reliability. BEMC will also be able to provide enhanced levels of safety for its mobile workforce and the public thanks to more meaningful and timely information on events within its new smart meter distribution system.

The first version is currently rolling out at BEMC. "The starting point is our engineering department," explains Adams. "We're keeping it high level right now so we can really get a feel for what we can do with the data." Adams continues, "Where we're planning on taking the solution will make it an even more powerful tool. The intention is to incorporate our GIS data. By integrating smart meter data and system maps, we'll be able to see and assess AMI data in relation to substations and other assets. This is going to be an extremely valuable step because it will give us even more intelligence to act upon."

Brunswick at-a-Glance

- AMI: Aclara TWACS
- MDMS: NiSC
- CIS: NiSC
- GIS: Esri
- OMS: ABB CADOPS
- Smart Grid Visualization & AVL: Clevest

BEMC is further leveraging its GIS investment by integrating its Esri system with another Clevest product: Clevest Automatic Vehicle Location (AVL). Adams summarizes, "We're completing the installation of equipment on our trucks now and we're also incorporating our outage maps—a decision we made in the wake of an ice storm this year that we finally had cleared up on Valentine's Day. The plan is to update vehicle locations on the AVL map every minute. Knowing exactly where our crews are, especially during outages, will really help us reduce the radio and voice traffic between the field and our three offices and help us shorten response times." Clevest AVL and now Clevest Smart Grid Visualization can also be fully integrated with Clevest Mobile Workforce Management for a single, powerful view of crews in the field and the service work they are performing.

The "Power of We" at Brunswick

It's one of the mantras on BEMC's website, and the Clevest Smart Grid Visualization solution is yet another testament to the co-op's guiding values. "It's been a team initiative. This is how we approach technology projects here at BEMC. From the CEO level on down, we make sure employees are introduced appropriately to new programs and are made as knowledgeable and as comfortable as possible on the change they inevitably bring about. A cooperative-wide standpoint gets more groups involved and pays more dividends to the organization and its members," Adams reflects.

In working together, both BEMC and Clevest are demonstrating their respective roles as innovators in the utility industry. By participating in Clevest's product evolution, BEMC is again asserting itself as a leader among utilities that are just beginning to make use of the advanced data monitoring, recording and event reporting capabilities of smart meters. And, as BEMC's development partner, Clevest is further advancing its utility-specific smart grid mobile software suite to meet critical new needs in an industry beset by enormous upheaval.

Adams offers, "Technology continues to be an important vehicle to help us scale to meet the growth in our membership and the big changes in our industry, and we're adept at finding best in practice, high value systems like Clevest. We wish we'd found Clevest a year earlier but, like everything at BEMC, now that we've made a decision, it's ahead at 100 miles per hour!"

Clevest provides software for mobile workforce automation and smart grid operations exclusively for electric, gas and water utilities. Over 135 utilities worldwide have chosen Clevest to transform their field operations by harnessing the power of our software and deep domain knowledge of mobile computing and utility operations.

CLEVEST

Mobile Workforce Management | Automatic Vehicle Location | Meter Reading | Smart Grid Operations & Maintenance | Asset Investment Planning

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