

Laurens Electric Cooperative

Mobile GIS Improves Asset Inspections and Cuts Costs

Problems

Laurens Electric Cooperative needs to replace paper-based map books and improve field data collection with mobile GIS.

Goals

- Reduce costs and time needed to collect/edit/load data.
- Reduce dispatch radio traffic.
- Increase data accuracy.
- Make data for the whole system viewable while in the field.

Results

- Accurate and up-to-date data for the entire service area can be viewed in the field.
- Dispatch radio traffic is reduced.
- Daily data can be downloaded quickly and effortlessly.
- Data can be recorded, edited, and viewed in a customized format.

“While there has been a substantial cost savings, the greatest benefit cannot be easily measured, and that is the user trusting the information provided by ArcPad.”

James Owens, GIS Supervisor
Laurens Electric Cooperative

Overview

Laurens Electric Cooperative (LEC) is a nonprofit, member-owned electric distribution utility located in upstate South Carolina. After implementing an enterprise-wide geographic information system (GIS), LEC wanted to leverage its GIS data to cut costs and improve the productivity of its field crews. Using ArcPad®, a solution was created that eliminated the need for printed map books and improved the data collection associated with asset management, redline staking, and circuit inspections.

History

LEC was founded in May 1939 to bring electric service to sparsely populated rural areas in upstate South Carolina. Since then, LEC has grown to become the fourth largest cooperative—by number of members—in South Carolina. LEC serves more than 47,000 residential, commercial, and industrial consumers in the counties of Abbeville, Anderson, Greenville, Laurens, Newberry, Spartanburg, and Union.

In 2001, LEC recognized the need to replace its computer-aided design (CAD)-based system with an enterprise GIS. They selected GIS software from ESRI and its business partners Miner and MESA Solutions. The resultant solution enabled them to create a central database that was integrated with their customer information system/financials software and outage management system. ESRI’s GIS solution helped them accurately track distribution assets for the first time, making them readily available for the entire staff. Using the GIS, they were able to generate revenue through accurate and current attachment inventory as well as support marketing efforts for additional services.

The Challenge

The traditional paper map books LEC crews used to locate assets in the field were costly and permitted only limited views of the service area. Any recorded data had to be painstakingly updated in the corporate database. This time-consuming routine led to out-of-date and inaccurate data. Also, once arriving at a service location, field crews needed to call into the office for information regarding the account in question, which led to dispatch radio traffic. LEC needed to find a solution to reduce radio traffic as well as improve data capture while seamlessly working with its existing GIS. James Owens, GIS supervisor, LEC, says, “We’re constantly looking for new ways to take advantage of our enterprise GIS and extend it. We recognized that deploying GIS in the field would lead to more accurate, up-to-date information and reduce the time and resources needed to update data in the office.”

The Solution

ESRI’s ArcPad mobile GIS software was a logical choice because of its extensive GIS functionality and low price point. ArcPad is ESRI’s software solution for mobile GIS and field mapping applications. ArcPad provides mapping, GIS, and GPS integration to field users via handheld and mobile devices.

MESA Solutions customized ArcPad to meet specific requirements defined by LEC. An enhanced geodatabase-to-ArcPad extraction tool was created that provides the extraction of related tables and the ability to order and rename attributes in shapefiles. MESA has also enabled

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Software Used

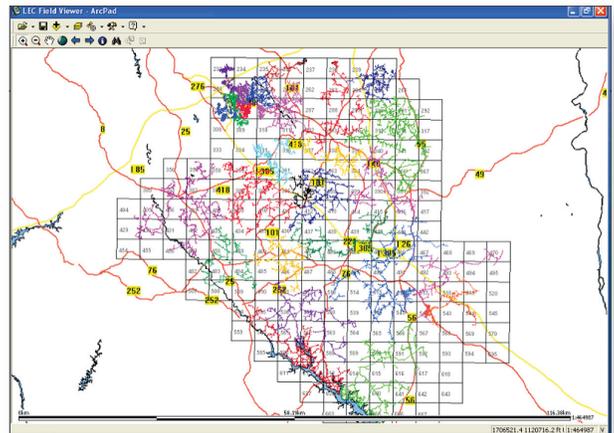
ArcPad (ESRI)
ArcFM (Miner and Miner)

Hardware Used

HP Compaq 7010 laptops
running Windows® XP

ArcPad to capture inspection and maintenance records. This captured data is then imported into the ArcFM (a utilities mapping extension to ArcGIS® from Miner and Miner) geodatabase for reporting and tracking purposes.

The field application provides the same mapping detail that is available in the office. Users can pan, zoom, and find data at different scales. As a crew member zooms in on a particular area, data is automatically visible at the appropriate scale. Field crews can also view substation data by displaying each substation and associated circuit in unique colors. This provides rapid identification of circuit areas and a phase-specific display with color-coded phasing information. Field crews can quickly identify where power is coming from, and as switching is done, the field data instantly reflects the change.



Color-coded phasing information allows for quick identification of power switching.

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Known as Field Viewer, the application is now deployed on HP® Compaq 7010 laptops for data collection and map viewing. Daily, LEC's field crews plug their laptops into the network and, in minutes, download data updates of their entire service area automatically from the enterprise GIS database. Once data is downloaded, crews bring their laptops in the field and are able to view the latest information.

For More Information



ESRI

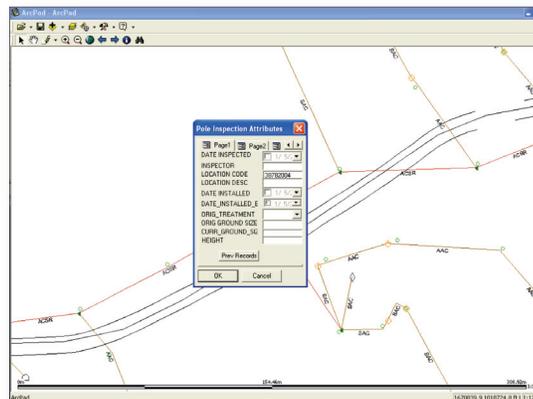
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Select a feature and enter data in the inspection form.

Results

With Field Viewer, LEC's field crews can now view their entire service area while in the field, utilize the most up-to-date and accurate service data available, and upload data to the enterprise GIS architecture once back in the office. This workflow has increased productivity and operational efficiency for LEC, while reducing dispatch radio traffic.

Owens sums up the impact mobile GIS has had on LEC: "Having up-to-date information available to field crews ensures excellent customer service for maintenance, outage restoration, and more. Perhaps the greatest measure of the project's success is user participation. If someone doesn't have a laptop with ArcPad, they want one."

Based on the success of Field Viewer, a new application—the Inspection Tool—is now being deployed for QA and QC of evolving data including pole attachments, yard lights, and others.



View entire service area while in the field.

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Learn more about ArcPad at www.esri.com/arcpad.