

Unintended Benefits of Investing in VM Software

By Andy Olson, Forester, East Central Energy

A forester isn't necessarily the first person you would pick to roll out a new software capability but, back in 2008, that's exactly what we did at East Central Energy. When an organization is feeling challenged, all resources are leveraged to overcome the challenge, myself included.

At East Central Energy, one of our biggest problems at the time was caused by paper-based maps. We had multiple vegetation management (VM) contractors, and every contractor needed four sets—one for each service territory. To make matters worse, many of the maps were outdated. This resulted in poor communication, wasted trips, contractors getting lost, and significant lost productivity.

In order to begin streamlining our operations, we began looking at VM software while our engineering department inventoried all of our electric facilities and captured accurate global positioning system (GPS) locations.

Although it was relatively new on the market at the time, we selected Clearion software because it was compatible with our electrical inventory and we liked the customizability of the system. As a forester, I had to learn all of the different moving parts, which wasn't always easy. It took me away from being a forester and doing what I'm supposed to do. Years later, we still don't have an in-house person to handle upgrades or request changes. I've worked closely with Clearion to tailor our system to meet our needs and desired outcomes. While their support team has been great, at times, it felt like a lot of trial and error. However, as a result, I've not only gained a much greater appreciation for the complexities of our business, but also built stronger working relationships with teams such as engineering, geographic information system (GIS), and integrated technology (IT).

But here's where the journey has been interesting. By implementing

this VM system, we've experienced a number of positive, yet unintended, side effects.

Saving Trees, Time, and Money

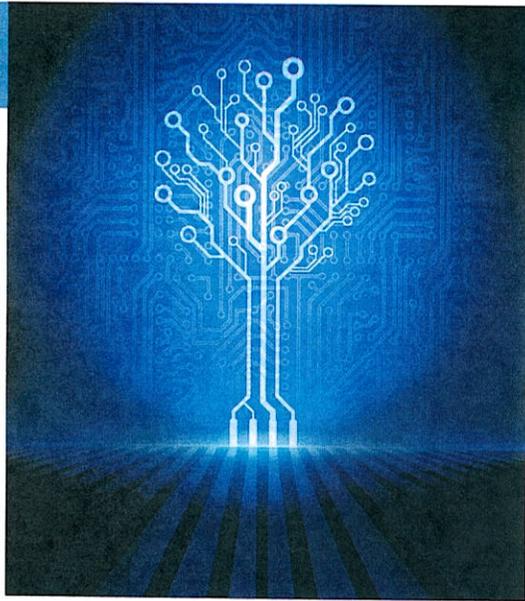
East Central Energy now has a full inventory of electrical facilities including lines, poles, and hardware, all with known life expectancies. We have lines that were built in the 1940s and 1950s that have lived out their life expectancy and are fully depreciated. We can use this information to concentrate our VM efforts. For example, when widening a corridor, historically we would remove all fast-growing trees that were next to primary lines and, in so doing, remove trees that had value to our members. Then, a few years later, when engineering would determine that the overhead facilities would be retired and reconstructed as underground, all would discover that we had removed trees and unnecessarily devalued properties.

Eight to 10 years ago, we would aggressively invest to clear a long section of line without considering its age and condition (i.e., all primary voltage were created equal). Today, we work with engineers and ask questions like, "Where are your plans for line reconstruction in 48 years?" We discover where old copper or steel conductors will be replaced soon and our GIS mapping department actively changes the appearance of this type of line. We now know that if the wire is old, we won't need to go the extra mile because it will be replaced soon.

Not only has this engineering- and data-informed approach to VM saved us a significant investment in the work that we do, we believe that it has a direct effect on minimizing member dissatisfaction. We no longer have to look and sound foolish when members would ask why we removed their trees before burying the lines for which we had no good answer.

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"When we invested in VM software, we had no idea how much it would help during the reimbursement verification process at the government level, but it's been extremely beneficial."



Cross-Departmental Collaboration and Intelligent Decisions

At East Central Energy, we've moved from inaccessible three-ring binders to on-the-spot field decisions. We now make more intelligent decisions on the prescription for each site. Our software investment helped close communication gaps among the forestry, engineering, GIS, and IT departments.

Keeping Our Crews Safe and Members Happy

As anyone in the field knows firsthand, there are times when you encounter challenging properties. From hostile homeowners or attack dogs to locked gates or "do not touch" member plantings, there are many documented nuances. At East Central Energy, we've maintained notes on accounts for many years, such as: "this member is maintaining his own brush" or "this member is opposed to the work." However, to get that information to the crews who need it was always a challenge. Today, it's simply another layer in our software, showing things such as transplant arrangements, special maintenance preferences, and safety notes directly on the interactive and up-to-date field map. As soon as our crew shows up, they can see exactly what they need to know; in return, the crew can relay on-the-spot information back to us, we input it, and it's synched in the system. It's truly incredible and can save our crew members from injury and/or our members from dissatisfaction.

Increased Contractor Satisfaction with Electronic Work Assignments

Today, every crew leader among our contractors has an iPad containing restricted, contractor-specific information. Crews can see up-to-date maps and know exactly where

Using Vegetation Management Software to Manage the Emerald Ash Borer

The EAB has come to stay. Here in Minnesota, we have one of the highest ash populations as makeup of natural forest in the country. Not only is there a huge component of ash in our normal forest communities, it was overplanted and overused in our urban tree communities as well. At East Central Energy, we recognized our exposure when the EAB went from Indiana to Ohio and Wisconsin. We knew it was at our doorstep but we were unsure of its potential impact on our future workload.

We recognized that we needed to inventory our trees in order to track the progress of the EAB and determine what to do about it.

To gain a better scope of our future workload, we created a new layer in Clearion where we inventory ash tree categories based on their "condition" including, a) alive and fine but in the strike zone, b) alive with permission to remove preventatively, c) infested and in state of decline, d) infested and dead.

The forester or arborist planning the work can take an electronic device, stand next to a particular tree, and drop the point. The "condition" is then entered in the appropriate field.

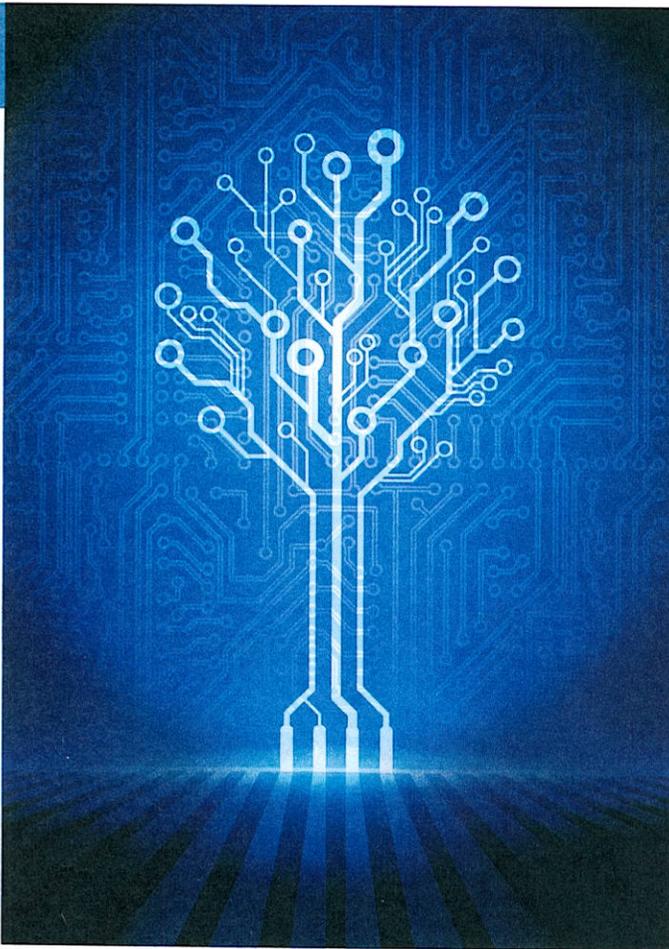
Each VM crew has GPS accuracy right up to a specific tree and only has visibility on what is needed now; other contractors and/or future jobs are filtered out, which takes out the guess work. As a result, we are removing the right trees all of the time.

At this time, we're entering data in the system while staying on the verge of infestation. We've entered the population from our random sample and plan to continue to inventory our ash trees during the next five to 10 years, with an aim to stay ahead of the progression. Longer term, we intend to compare our collected field data with our original random sample to see how close we were and inform future decisions.

We proactively tell our members there is an option to treat annually or biannually with an insecticide injection and we're inventorying those trees that will be treated by homeowners.

In the past two years, we conducted a random sample of our entire system to generate a population estimate of ash trees within the primary strike zone. We defined our strike zone as "any tree that could contact a primary when it falls regardless of distance." We then examined the entire strike zone from pole to pole and used that sample data to determine the areas with the highest density of ash and generate an estimate for the entire system using an average cost per removal. We now have, for the system as whole, what we believe are accurate estimates from a work volume increase and associated throughout the next 10 years. We're also recording data in a separate area in our system, which can be used as documentation to secure incremental funding and mitigate costs.

In business, people will question a recommended approach when presented as abstract ideas. With this system, we are able to show data to upper-level management and other decision makers that gives us greater credibility and substance when requesting budget increases.



they are and what's next (e.g., poles, locations, facilities). In the past, we used plain paper maps in conjunction with a Garmin and crews would try to find a specific dot which wasn't always easy. Now, they look at live stream, server data. If one pole location changes, it can be seen immediately. When we initially invested in Clearion, we didn't anticipate having this available electronically for our contractor crews. The ability to assign work and have it given right to our crews from Clearion has been amazing.

Convincing others in our company that VM software would be a good investment was never hard to do. It simply made sense. Our IT team was on board from the start, but our biggest concern became our contractors. It was a shock for them to hear that we were not giving them paper maps or handwritten forms anymore; instead, we're giving them iPads. Certain processes and procedures were ingrained, and many contractors were hesitant to embrace the technology. However, their adjustment period was very brief. Once they overcame the initial hurdle, this technology became a life changer as they no longer struggle with reading maps or getting directions. Many now go to the other utilities they support and ask for iPads with electronic mapping. The hardest to convince are now our biggest supporters.

Qualifying for Funding

In 2011, we had a Federal Emergency Management Agency (FEMA) qualifying storm event on our system. A large portion of our system was completely damaged or destroyed from straight-line winds. We were only a few years into adopting our Clearion system but we used it to track all the work and keep it separate. Everything storm related was digitally documented, which was an enormous help for us. Three months after the storm, I rode with a FEMA inspector and was able to show documented evidence of all work completed.

While Minnesota qualified for FEMA reimbursement during this storm, Wisconsin did not; yet, we used the data to qualify for state funding.

When we invested in VM software, we had no idea how much it would help during the reimbursement verification process at the government level, but it's been extremely beneficial. We've since used it in Wisconsin to qualify for storm-related state funding and in Minnesota to access grant-matching dollars to get ahead of the emerald ash borer (EAB).

If you're a forester, to make a VM solution work for you, I would recommend having an in-house champion who is trained in mapping or database management along with a strong user network. Because I don't have a mapping counterpart, I work closely with Great River Energy, our power generation supplier, who has invested in Clearion, too. We conduct a lot of brainstorming sessions and sharing of best practices. It's great to have others using it who serve as knowledge resources.

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