

**Minnesota Power Values Accuracy, Time, Safety**  
*... and Embraces the Needed Technology to Get it!*

**Customer**

Minnesota Power is a division of the ALLETE Company and manages electrical power for 144,000 customers in northeastern Minnesota and northern Wisconsin. Since its inception in 1906, its jurisdiction has grown to cover 26,000 miles and includes 16 municipalities along with some of the largest industrial customers in the U.S.

**Challenge**

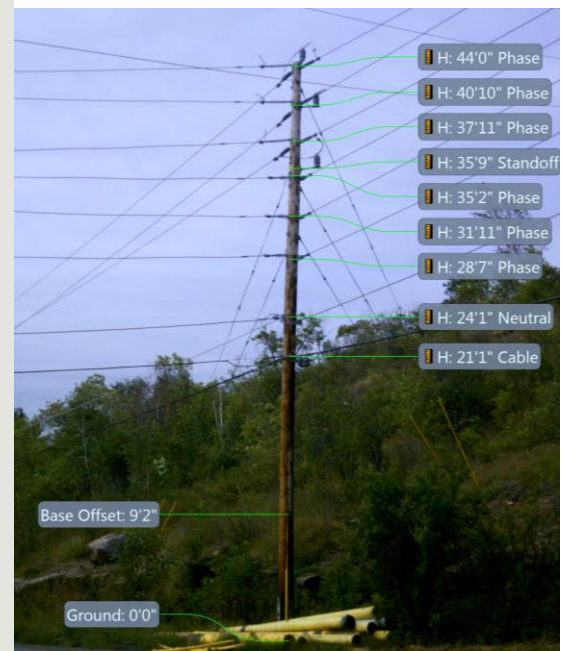
For Minnesota Power, safety is the No. 1 priority. However, more frequent and larger pole attachment requests to hang new lines or fiber on its poles were pushing pole loads closer to their safety limits. The lack of accuracy in pole attachment raised concern about the needed strength and clearance analysis.

The traditional tools used for collecting the pole data were numerous and cumbersome. Minnesota Power developed a worksheet that took approximately 35 minutes to fill out and required a compass, measuring wheel, camera, telescoping stick and notepad. No matter how careful the data was collected, approximately 5 percent of the poles measured had inaccuracies or missing information that required a revisit to the site. The field data team had to jump back in the truck and collect the missing or erroneous information, adding dollars and time to the process, both of which are valuable commodities in permit review.

Sharing the post analysis information involved sharing pictures and worksheets, but these could be disputed and were difficult to track without time-intensive data sorting.

With thousands of poles to manage and more permits being submitted, Minnesota Power realized the old manual method wasn't working anymore. Minnesota Power wasn't getting the accuracy needed to ensure reliable analysis, and the inefficiency was costing the company money.

*Since first using IKE 3\* two years ago, the results have far exceeded Minnesota Power's goals for safety and accuracy. Minnesota Power has increased its investment in IKE from three to eight units due to employee demand and has integrated calibrated images into its scope of work for pole attachment survey work.*



\* IKE 3, formerly branded as GE MapSight™



## Solution

To maintain safe pole use and reduce inefficiencies, Minnesota Power set out to streamline its utility pole data collection process, increase reliability of that data, and enhance its relationship with customers. Through an active LinkedIn discussion, it learned of a digital collection device for field data known as IKE\* and decided to invest in three units. Upon receipt of its units, the engineering team field tested its IKE devices against a telescoping stick and found the accuracy was within an inch nearly every time.

The IKE solution integrates a laser range finder, sub-meter GPS, digital camera and compass all into one unit. It allows collection of height and span measurements within the single instrument. It also provides a “smart” image, known as TrueSize, which allows for pole attachments measurements to be calculated and labeled within the image. When necessary, the data can be captured from a remote location to avoid putting the field tech into traffic or other dangerous situations.

## Result

Minnesota Power experienced immediate positive results relating to the use of IKE and shared the following observations and statistics:

- ✓ Training was simple. Technicians with no experience in the “old-school” stick method picked up use of IKE quickly.
- ✓ Instead of monopolizing a work crew’s time to capture primary voltage measurements, Minnesota Power could use a team of one or two with the IKE to get this information from a safe distance.
- ✓ Measurement data was captured in the same format consistently by creating workflows within the IKE device. Workflows are basically checklists tailored to exactly what data should be collected.
- ✓ With one TrueSize image of each pole, Minnesota Power could measure anything on the pole with verifiable accuracy. It can also re-verify measurements within the images and/or share them with other entities.
- ✓ The return visits required due to measurement errors dropped from 5 percent to nearly zero.

In addition, accurate field data allowed professional engineers to spend more of their time analyzing pole data and processing permit requests rather than revisiting sites for data verification.

## Challenge

- Requests for co-location of fiber and other equipment were increasing and becoming difficult to manage effectively and timely.
- Record management relating to field assets was difficult to manage and involved time-intensive data sorting.
- Ability to ensure utility poles were not overloaded with equipment that may create a safety hazard was not being met.

## Solution

- Use IKE for field data collection.

## Results

- Reduced the average per-pole measuring time from 35 minutes to 10 minutes and provided greater detail on poles.
- Limiting the potential for human error reduced the need to revisit poles.
- Reduced fatigue for field personnel. One simple hand-held mobile device carried from pole to pole eliminated the need for multiple equipment.

