

## STEEL DISTRIBUTION POLE CASE STUDY

### Bluebonnet Electric Cooperative, Bastrop, Texas

#### Steel Distribution Poles Provide Texas Utility Defense from Woodpeckers and Weather

Every year, damage caused by woodpeckers and severe weather take an economic bite out of Bluebonnet Electric Cooperative's vast distribution system. The non-profit rural utility is one of the largest power distribution cooperatives in Texas with over 11,000 miles of power lines, over 200,000 poles and 80,000 meters stretched across more than 3,800 square miles in central and southeastern Texas.

Since it was first organized in 1939, Bluebonnet has used predominantly wood poles along its vast network. Unfortunately, in areas of heavy woodpecker activity, some of these poles lasted less than five years. Weather is also a significant issue in central and southeastern Texas, with frequent thunderstorms and occasional hurricane-force winds and rain.



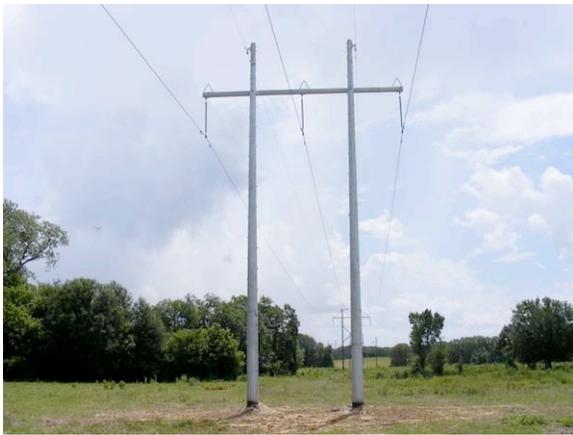
*David Tobola, Bluebonnet Superintendent of Training and Maintenance and Thomas Ellis, Bluebonnet Manager of Engineering.*

“We knew we had to look to alternative pole materials to gain longevity, durability and economic value,” says Thomas Ellis, manager of engineering with Bluebonnet. “We began using steel poles a few years ago in special circumstances such as areas of high woodpecker activity, poles damaged by lightning strikes, or difficult-to-access areas.”

Dan Snyder of AISI's Steel Market Development Institute says that Bluebonnet's experience is not unique. “Steel distribution poles stand up to nature's wrath in a number of ways that relate to cost savings, from woodpecker damage to severe weather.” He adds, “Steel poles are reliable and have a long life, providing low lifecycle costs. Plus, there is minimal maintenance required with steel poles, which reduces overall labor expense.”

During this time, the Bluebonnet Standards Committee performed an extensive steel-versus-wood trade study to evaluate overall lifecycle costs from longevity to installation costs to resistance to damage. They found that the benefit of a steel pole is longevity, maneuverability and durability, particularly in difficult-to-access areas.

Ellis continues, “We found that in difficult-to-access areas, the cost of installation per pole goes up significantly, whether we use wood or steel. However, steel poles last longer than comparable wood poles and they’re lighter and more manageable to install. We install a steel pole with the expectation of a structural life that’s twice as long as a standard wood structure.”



The Bluebonnet Electric economic study found that the steel poles save the utility 10-20% in lifecycle costs when compared with wood poles.

“The big savings is that we don’t have to go back in 30 years (the average lifespan of a wood pole) to replace hard-to-reach poles,” explains Ellis. “We realize even greater benefits when considering woodpecker

damage. We have areas where we are replacing wood poles every five years or even more frequently because of woodpeckers. We replace those poles with steel poles and eliminate the woodpecker problem altogether. The steel poles may cost more upfront, but they are resistant to decay and woodpecker damage and, with proper maintenance, will last well past a typical wood pole. Bottom line, we use them where we need poles to last a long time with little maintenance.”

Bluebonnet is also banking on the resilience of steel poles in bad weather, namely thunderstorms. Lightning strikes to wood may cause pole fires, which can lead to other problems. As well, high winds and small tornadoes have historically caused outages. Ellis adds, “It’s a small percentage of our steel pole system that might realize severe weather, but we are confident that should an event occur, steel poles might bend, but they will not fail catastrophically and cause widespread outages.”

AISI’s Snyder adds, “In our experience, over the lifetime of a distribution pole, a utility typically must install two wood poles to equal the lifespan of one steel pole. Electric utilities should also keep in mind that for a given pole installation, material (pole and all apparatus) costs usually

equate to less than a third of the installed cost. With this in mind, it's beneficial to consider steel as a means to protect a utility's overall investment in the construction and maintenance of a typical line project."

Utility industry data gathered by EDM International shows that the actual cost of a utility pole structure (18 percent) is minimal when compared with the entire cost of constructing a typical line project. Snyder says this research and other evaluations of lifetime ownership cost clearly illustrate the importance of using a material like steel that will provide the greatest amount of reliability to protect the large investment required to build a line -- the other 82 percent.

Bluebonnet orders steel poles pre-configured with inserts and climbing provisions, which minimizes extra training required by repair crews. The poles are predrilled in the factory for framing construction, which takes labor costs out of the field. Steel poles also don't need extra conductors and connections for grounding that are necessary with wood poles.

David Tobola, superintendent of training and maintenance for Bluebonnet, says, "For field personnel, there's very little difference between steel and wood poles with regard to installation and functionality. All of our steel poles have climbing provisions and are typically delivered predrilled. Occasionally we need to modify steel structures in the field, and this requires bits specifically designed for use on steel. Other than that, we've had to do very little extra training specific to steel poles."

To date, Bluebonnet has about 480 steel poles installed, with no failures and no woodpecker damage.

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***For more on steel distribution poles, contact Dan Snyder, market development manager at the American Iron and Steel Institute, 202-452-7100, email [ti@steel.org](mailto:ti@steel.org). Contact Thomas Ellis, Bluebonnet's Manager of Engineering or David Tobola, BlueBonnet's Superintendent of Training and Maintenance at 800-842-7708.***

To learn more about steel distribution poles, visit <http://www.smdisteeel.org> or [lineman.steel.org](http://lineman.steel.org).

The Steel Market Development Institute (SMDI), a business unit of the American Iron and Steel Institute (AISI), grows and maintains the use of steel through strategies that promote cost-effective solutions in the automotive, construction and container markets, as well as for new growth opportunities in emerging steel markets.