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## **GIBSON ELECTRIC MEMBERSHIP CORPORATION FINDS STEEL DISTRIBUTION POLES COST-EFFECTIVE ALTERNATIVE**

Charles Phillips is the vice president of engineering and information technology for Gibson Electric Membership Corporation, a 31,000-member rural electric cooperative located in Trenton, Tennessee. The utility has some 3,000 miles of distribution pole lines crisscrossing the rolling terrain in this area of western Tennessee.

In 1995, Phillips initiated a field test using steel poles to evaluate their cost effectiveness in certain situations.

"Gibson EMC is always trying to maximize the dollars spent by considering total ownership costs," explains Phillips. "Engineering economics in our study matrix of the utility pole alternatives proved steel to have the lowest total cost in specific situations."



*Gibson EMC has more than 3,000 miles of distribution pole lines in its system.*



*Phillip's analysis of the numbers showed that the economics favored using steel by seven to 20 percent.*

In the study — called the Griers Chapel Road Project — Phillips developed a cost comparison formula to objectively evaluate the costs associated with wood and steel. He took into account the initial cost of the poles (material and framing), the labor and transport costs, the maintenance costs, and the life cost of the installation, using a 50-year period in his formula. His findings showed that although initial costs for steel were somewhat higher, the total savings for steel poles over wood was 12 percent of the project. Further analysis of the numbers showed that the economics favored using steel by seven to 20 percent. He also noted that with a shorter project life, the salvage value of steel would be much higher than wood.

In his ongoing experiences with steel poles, Phillips has determined other advantages in their use. These include environmental considerations, easier and less costly salvage and disposal, their ability to be reset, the increased safety for motorists and aesthetics.



*Steel pole advantages include less costly disposal, their ability to be reset, the increased safety for motorists and aesthetics.*

"We have had some incredible examples of accidents where steel poles provided a strong advantage," Phillips notes. "In one case, a Tennessee Department of Transportation employee who ironically was doing a study on our compliance of clear zones hit a steel pole, deflecting the pole approximately 4 feet — just above the ground line. The pole remained upright, the framing remained intact, all conductors remained in the air and the lights stayed on except for one breaker operation. Most importantly, the driver walked away from the accident with only minor bruises. Since this was a two-piece pole, we were able to salvage the top of the pole as a 40-foot steel pole. My opinion is that a wood pole would have failed catastrophically in this situation."

He adds that to date, Gibson EMC has not had any steel poles fail from wind or ice loading.

Today, the electric utility company routinely uses steel distribution poles in many of its highway crossings and new work plan projects. Since the test, over 50 percent of all new three-phase construction has been built using steel distribution poles.

According to Phillips, steel poles are most cost-effective in areas that require average pole heights of 50 feet or higher that can be worked from a bucket. He adds that labor savings — speed of setting and framing poles — with steel have shown that even standard 3-phase steel construction is cost-effective.



*Gibson EMC conducted a field test using steel poles to evaluate their cost effectiveness in certain situations. It also took into account labor savings.*



*Charles Phillips will discuss his research findings and share his experiences in the use of steel distribution poles. He can be contacted at Gibson EMC at 731-855-4740.*

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