

LIFE CYCLE ASSESSMENT OF WOOD AND STEEL UTILITY DISTRIBUTION POLES



A detailed, peer-reviewed Life Cycle Assessment (LCA) study published by SCS Global Services finds that steel poles outperform wood poles in key environmental measures. “Environmental Life Cycle Assessment of Southern Yellow Pine Wood and North American Galvanized Steel Utility Distribution Poles” compared the use of galvanized steel and wood distribution poles over a 40-year timeframe including production, installation, maintenance and disposal. Two different scenarios were compared—one in which wood poles taken out of service continued to be replaced by wood poles, and the other in which wood poles taken out of service were replaced with galvanized steel utility poles. The Executive Summary of the study can be viewed at www.smdisteel.org.

Steel poles produce lower levels of greenhouse gas and aerosol emissions associated with global climate change.

Short-rotation, even-aged forest management practices result in losses of forest carbon storage of between 20 to 30 percent, equivalent to 20 to 40 tons of carbon dioxide per acre. When compared over the entire 40-year time span, the emissions from the steel pole option were lower.

Steel poles are less disruptive to the habitats of many threatened and endangered species.

Almost 90 species were affected due to wood pole harvesting and production, and seven of those species experienced significant disturbance to terrestrial habitats, including the Red Wolf, Red-Cockaded Woodpecker, Gopher Tortoise, Frosted Flatwoods Salamander, Indiana Bat, and others.



The Red Wolf and Frosted Flatwoods Salamander are two species impacted by timber harvesting for wood pole production. Photos from the SCS Global Services study.

Wood harvesting practices threaten the long-term persistence of certain forests.

In the Southeastern United States, Southern yellow pine trees are harvested to produce wood poles. These trees are primarily located in loblolly-shortleaf pine forests and longleaf-slash forests, and are managed by even-aged forestry practices in “plantation” stands, where entire stands of forest are cut at one time and allowed to regrow before being cut again on a regular cycle. This plantation-style forestry is threatening the long-term persistence of these forests and altering the plant communities that coexist with them.

Steel poles generate less untreated waste.

At the end of their service lives, chromated copper arsenate (CCA)-treated wood poles are removed and typically landfilled, but may also be reused or incinerated. The disposal of CCA-treated wood poles presents a potential risk to human health and the environment if these poles are directed to municipal landfills.

In contrast, steel pole production results in negligible untreated waste, because virtually all steel material is recycled into new products.



Plantation forestry in Ware County, Georgia. Photo from the SCS Global Services study.