

Engineers additively manufacture power poles from bioderived and recycled materials

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ORNL researchers demonstrated a 3D-printed power pole made of bioderived

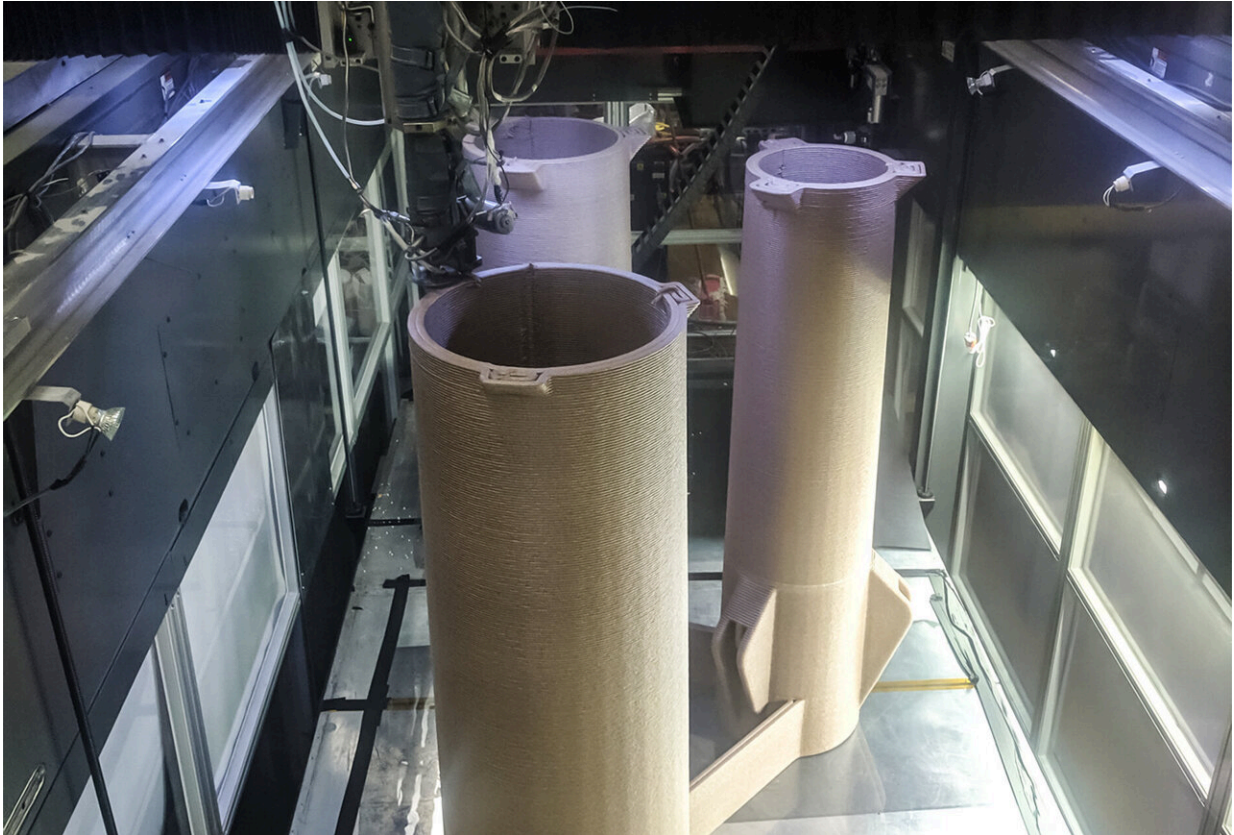
and recycled materials could be easily manufactured, transported and assembled, enabling the quick restoration of power after natural disasters. Credit: ORNL, U.S. Dept. of Energy A team of researchers at Oak Ridge National Laboratory demonstrated the ability to additively manufacture power poles from bioderived and recycled materials, which could more quickly restore electricity after natural disasters. Credit: Oak Ridge National Laboratory

A team of researchers at Oak Ridge National Laboratory demonstrated the ability to additively manufacture power poles from bioderived and recycled materials, which could more quickly restore electricity after natural disasters.

Using the Big Area Additive Manufacturing system, the team 3D printed a 55-foot pole designed as a closed cylindrical structure. They evaluated three different composite [materials](#) with [glass fibers](#) including cellulose ester, recycled polycarbonate and bamboo fiber reinforced polystyrene.

"We developed a [modular design](#) that is easy to manufacture, transport and assemble," ORNL's Halil Tekinalp said. "Sections within the pole can also be customized to accommodate wires and different heights can be supported, too."

The ability to 3D print power poles with locally harvested materials such as wood debris and trees makes production and installation more efficient. Future research efforts will focus on increasing production efficiency and improving material performance.



Credit: Oak Ridge National Laboratory

Provided by Oak Ridge National Laboratory

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