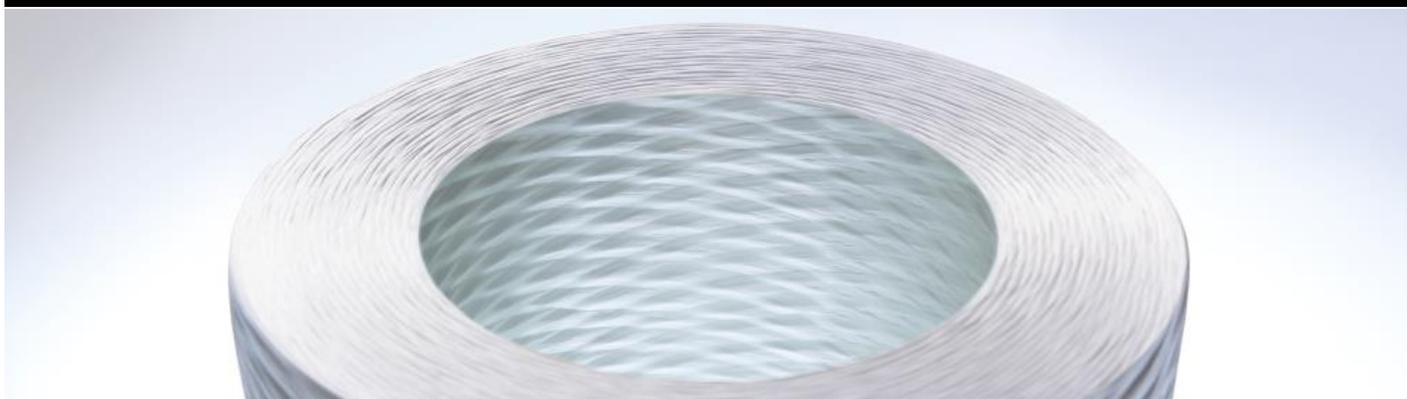


# Composites provide typhoon resistant and long-life utility poles

CHINA SOUTHERN POWER GRID COMPANY



© Picture: Courtesy of Dinglicheng Composites, China

In 2014, Dinglicheng's new poles were certified by the China Southern Power Grid Company and in six months alone almost a thousand had been installed.

<sup>1</sup><http://www.navigantresearch.com/research/smart-grid-in-china>

China is hit by typhoons every summer, normally affecting its eastern and southern regions. Last year, a subsidiary of the China Southern Power Grid Company embarked on the rebuilding of power transmission utility poles along 20 kilometers of coastline exposed to grade 12 and grade 13 typhoons. China is currently in the second stage of its smart grid deployment. The project, lasting from 2011-2015, includes key areas such as transmission and distribution covering all voltage levels<sup>1</sup>. Investing is good, however maintenance is crucial. This is why the China Southern Power Grid Company decided to replace conventional, steel-reinforced concrete poles with poles made of lighter, advanced composite material – especially in areas that are more exposed or difficult to access. The market for the replacement of steel reinforced concrete poles is potentially huge, with literally thousands of kilometres needing upgrading.

## 80 PERCENT LIGHTER YET 4 TIMES STRONGER

The new composite poles are manufactured by Dinglicheng Composites Co., Ltd., by a filament winding process using a high-performance glass combined with polyurethane (PU) resin and are primarily used for 110-220kV transmission and 10kV distribution lines. According to engineers from Guangdong, the composite poles are over 80 percent lighter than steel reinforced concrete ones, yet possess a compressive yield strength and load-bearing capacity 4 times higher – up to 200MPa.

## SERVICE LIFE OF UP TO 80 YEARS

In comparison with steel and concrete, the new advanced and corrosion resistant composite utility poles have a service life of up to 8 decades. And, even compared with poles made with conventional E-glass, they offer a higher modulus and longer fatigue life given the same weight and are far more corrosion resistant making them ideal for exposed shoreline use.

**“Their strength allows them to be spaced further apart – more than double that of conventional concrete reinforced poles thereby offering infrastructure costs savings by lowering the number of poles per kilometer,”** says Guansheng Hu, CEO, Dinglicheng Composites Co., Ltd. Their inherent electrical insulation decreases ground-fault arcing and resists lightning. Incorporating composite cross-arms and insulators reduces flashover accidents.

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