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Editorial
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Buckling Analysis and Design of Guyed Transmission Poles

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Editorial

The design of overhead electrical transmission lines to transport current is a unique activity involving contribution of many disciplines, within Civil Engineering and others. This movement of power also requires conductors, insulators, supporting structures (poles, towers or pylons), connecting hardware, good foundations and electrical grounding while satisfying many rules, governmental regulations and guidelines aimed at safety and reliability. The transmission line industry encompasses a wide range of structural systems and configurations, foundations, materials, hardware and construction practices. The industry now employs wood (round and laminated), tubular steel, pre-stressed concrete and FRP (composite) as materials. Foundations include direct embedment with several backfill options, concrete drilled shafts, isolated footings, plate anchors and helical screw anchors for guy wires. Guyed poles are employed as angle and dead-end locations and are guyed either in one plane or both planes. The behavior of a guyed pole is similar to that of a beam-column subject to axial or compressive loads. Design involves careful checks for pole buckling.

This special issue of the Civil Engineering Research Journal (CERJ) - with the theme Buckling Analysis and Design of Guyed Transmission Poles - is intended to present several articles highlighting some of the current research related to guyed poles of various materials. The issue is organized into 4 papers:

1. Buckling Analysis of Guyed Wood Transmission Poles

2. Buckling Analysis of Guyed Tubular Steel Transmission Poles

3. Buckling Analysis of Guyed Concrete Transmission Poles

4. Buckling Analysis of Guyed Laminated Wood Transmission Poles

Although some of the focus in this issue is on US design procedures and standards, the underlying theories and principles are universal and are applicable everywhere.