

## Structural Safety Assessment of Transmission Tower with High-Low Legs

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**Abstract :** Transmission lines are essential for power systems which play a significant role in a city for the development of infrastructures. Once a tower on the transmission line is damaged or becomes unstable, small-scale transmission tower damage might cause a large-scale electric power failure, and consequently, the enormous economic losses will occur. This paper assesses the structural safety and considers the impact of earthquakes and winds, presents a preliminary study of transmission tower with high-low legs by building structural analysis models of towers. The result shows that the high-low legs towers do have some structural characteristics need to be considered, such as the length of the difference of high legs and low legs should be restricted and the deployment direction of legs must be carefully planned during the design of transmission towers. The outcome of this study is beneficial to power systems authorities.

**Keywords :** power transition tower, structural analysis, high-low legs, safety assessment

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