

## Optimal Analysis of Grounding System Design for Distribution Substation

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**Abstract :** This paper presents the electrical effect of two neighboring distribution substation during the construction phase. The size of auxiliary grounding grid have an effect on entire grounding system. The bigger the size of auxiliary grounding grid, the lower the GPR and maximum touch voltage, with the exception that when the two grids are unconnected, i.e. the bigger the size of auxiliary grounding grid, the higher the maximum step voltage. The results in this paper could be served as design guideline of grounding system, and perhaps remedy of some troublesome grounding grids in power distribution's system. Modeling and simulation is carried out on the Current Distribution Electromagnetic interference Grounding and Soil structure (CDEGS) program. The simulation results exhibit the design and analysis of power system grounding and perhaps could be set as a standard in grounding system design and modification in distribution substations.

**Keywords :** grounding system, touch voltage, step voltage, safety criteria

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