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# A Case Study on Design and Implementation of Zol based Safe Economical Reliable Earthing System (SERES)

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## Abstract



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#### Abstract:

Demand of smart and reliable services in power sector increasing day by day. The smartness of the system depends on the immunity to handle the abnormalities and disturbances. Smart system is said to be smart with proper grounding facilities. Though several studies carried out regarding the earthing design, new problems arrives with their own specifications such as extension of the site, enhancing the level of protection of site which having high risk probability. This study presents the journey of "Problem to solution" at the test site located at Visakhapatnam. The work carried out that which presented in this paper relates three objectives such as Safety, economically viable with limited space for an energy system powered using clean energy resource . Precisely the case study presents the Safe Economical Reliable Earthing System (SERES) design based on Zone of Influence (Zol),Factors affecting the design and the selection of design parameters studied under seasonal variations. Role of Impulse impedance and Centre fed, Corner fed grid incorporated. Comparison of the test field results had been carried out with Nature Inspired Algorithms Such as Big Bang Big Crunch, Cuckoo search Algorithm, Ray optimization Algorithm results.

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 **Contents**

**I. Introduction**

In present technological race, increasing the demand of power utilities, the world moving forward to attain sustainable mark to reduce levels of pollution by encouraging smart grids with renewables. Though the system is so smart, what should be the use if it is unable to handle the unwanted disturbances and abnormal conditions. This is the right time to focus on the reliable systems which plays significant role in Protecting the System with adequate immunity. In power system Point of View, each System protected by proper grounding and whole plant/Industry Connected to the Earth terminal such that it can handle the abnormalities. [1] [2] So much of Research work has been carried out till now. But still, a problem creates a little gap in between.

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