

## Designing an Intelligent Voltage Instability System in Power Distribution Systems in the Philippines Using IEEE 14 Bus Test System

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**Abstract :** The state of an electric power system may be classified as either stable or unstable. The borderline of stability is at any condition for which a slight change in an unfavourable direction of any pertinent quantity will cause instability. Voltage instability in power distribution systems could lead to voltage collapse and thus power blackouts. The researchers will present an intelligent system using back propagation algorithm that can detect voltage instability and output voltage of a power distribution and classify it as stable or unstable. The researchers' work is the use of parameters involved in voltage instability as input parameters to the neural network for training and testing purposes that can provide faster detection and monitoring of the power distribution system.

**Keywords :** back-propagation algorithm, load instability, neural network, power distribution system

**Conference Title :** ICEMDS 2017 : International Conference on Electrical Machines and Distribution Systems

**Conference Location :** London, United Kingdom

**Conference Dates :** February 16-17, 2017