

**OPTIMAL UNDER VOLTAGE LOAD SHEDDING SCHEME
BY USING ARTIFICIAL IMMUNE SYSTEM
OPTIMIZATION TECHNIQUE**

**Thesis presented in partial fulfillment for the award of the
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ABSTRACT

Under voltage load shedding (UVLS) is one of the most essential issues in planning, security, and operation of power system. It has been employed in the electric utility industry as a safety measure to prevent or reduce possibility of voltage collapse due to high impact disturbances. Several methods to optimize load shedding have been proposed so far such as Evolutionary Programming (EP), Artificial Neural Network (ANN) and Particle Swarm Optimization (PSO). This project presents a new approach of optimizing load shedding scheme which is by using Artificial Immune System (AIS) optimization technique to restore the stability of the system and to avoid the phenomenon of voltage collapse due to line outage. This program was developed using MATLAB software and the proposed technique was tested on IEEE 30-Bus reliability test system. The objective function is to maximize the minimum voltage and minimize the total loss after the 30-bus system was subjected to line outage. By implementing this technique, it is capable to determine the right amount and location where load is to be shed in order to meet the objective function.

Keywords: Under Voltage Load Shedding (UVLS), Artificial Immune System (AIS), Line Outage, Voltage Collapse.

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