

OPTIMAL DESIGN OF DISTRIBUTION SYSTEM USING ARTIFICIAL IMMUNE SYSTEM (AIS) TECHNIQUE

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ABSTRACT

This paper presents optimal design of distribution system by using Artificial Immune System (AIS) technique. The main is to evaluate optimal cost of distribution substation an also loads objective distance connected to substation. By selecting the best of an initial set of control variables from the beginning of the optimization procedure, this method can be worked out excellently to achieve the main objective function to minimize instantaneous costs. The Artificial Immune System (AIS) were written in MATLAB. Test was conducted on the 16-bus system.

Keywords

Distribution system, Artificial Immune System (AIS), Fitness, Optimization, Clonal, Mutation.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The high application of the load in distribution network, there a lot of parameter that is include in future network design and also determine of substation location and capacity and also feeder routs. We uses Artificial Immune System (AIS) to minimization of total investment costs in design distribution system problems that have been discussed and have improved progressively. A new model for the optimum location and determine of substation size and its feeder in a distribution network [1].

In this model, linear and non-linear load are intended. In other method, location and capacity of substation are determine intelligently and its doesn't need to some candidate location at the first [2].

The Artificial Immune System (AIS) Optimization Technique has the ability to conduct any type of the objective function, variables, and constraints. Computation procedures of this method provide not one "ideal" solution but rather a set of applicable near-optimal solutions and it is appropriate for parallel computation.

This biological immune system is a complex adaptive system that has expands in vertebrates to protect them from invading pathogens. To accomplish its tasks, the immune system has evolved sophisticated pattern recognition and response mechanisms following various differential pathways, i.e. depending on the type of enemy, the way it enters the body and the damage it causes, the immune system uses various response mechanisms either to destroy the invader or to neutralize its effects [3].

This paper presents optimal design of distribution system by using Artificial Immune System (AIS) technique. The main is to evaluate optimal cost of distribution substation an also loads objective distance connected to substation.