

ABSTRACT

The Unit Commitment Problem is to scheduling power production of electrical power generating units to meet a load demand on some period of time in order to get the most minimum production cost. The Unit Commitment Problem is optimization problem with mixed combinatorial and have a set of operational constraints with enormous dimension which is very complex to solve.

There are several approaches that have been used to solve Unit Commitment Problem. In this paper the author uses Differential Evolution algorithm with binary as representation of solution and good enough fitness function, has been proved to be able to deliver solution with good optimum economic dispatch cost. In scheduling 10 units with 24 demand period the method deliver best solution with \$560,901 production cost and in scheduling 4 units with 8 demand period the method deliver best solution with \$74,451 production cost. Also with the right parameters setting, this method capable of delivering solution with average accuracy above 98.5% over every operational constraints. This shows the Differential Evolution is an appropriate method in solving Unit Commitment Problem.

Key Word : Unit Commitment Problem, Differential Evolution, binary, constarint, fitness function.