

# **A New Genetic Algorithm Approach For Unit Commitment**

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## **Summary**

This paper presents a new genetic algorithm approach to solve the unit commitment problem in electric power systems. In the proposed algorithm, coding the solution of the unit commitment problem is based on mixing binary and decimal representations. A fitness function is constructed from the total operating cost of the generating units without penalty terms. Genetic operators are implemented to enhance the search speed and to save memory space. The problem under consideration includes two linked subproblems: a combinatorial optimization problem and a nonlinear programming problem. The former is solved using the proposed genetic algorithm while the latter problem is solved via a quadratic programming routine. Numerical results showed an improvement in the solutions costs compared to the results reported in the literature

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