

**SOLVING UNIT COMMITMENT USING LAGRANGIAN
RELAXATION METHODS**

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Electrical Engineering (Honours)
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ABSTRACT

Unit commitment (UC) is one of the important analyses required in the scheduling and dispatch of power system .The unit commitment problem consists of determining the schedules of the power generating units and the generating level of each unit. The decisions concern to which units to commit during each time period and at what level to generate power to meet the electricity demand. This problem is difficult to solve, since it covers a multi period time range coping with on/off states of power plants. In literature, several methods have been developed to deal with UC. This report presents the application of a Lagrangian Relaxation method for solving the unit commitment problem. One of the most obvious advantages of the Lagrangian relaxation method is its quantitative measure of the solution quality since the cost of the dual function is a lower bound on the cost of the primal problem. The proposed method has been tested on a 3 generation unit system using Matlab programming and the result give the minimization of generating cost and at the same time optimize the operation of the system base on the load demand for the given day.

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