

عنوان مقاله:

Solving Unit Commitment Problem in the presence of Renewable Energy Resources using HSA

محل انتشار:

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نویسندگان:

Sajad Najafi Ravadanegh - *Smart Distribution Grid Research Lab., Electrical Engineering Department, Azarbaijan Shahid Madani University, Tabriz, Iran*

Hossein Shokri - *Smart Distribution Grid Research Lab., Electrical Engineering Department, Azarbaijan Shahid Madani University, Tabriz, Iran*

Mohammad Reza Jannati Oskuee - *Smart Distribution Grid Research Lab., Electrical Engineering Department, Azarbaijan Shahid Madani University, Tabriz, Iran*

Masoumeh Karimi - *Smart Distribution Grid Research Lab., Electrical Engineering Department, Azarbaijan Shahid Madani University, Tabriz, Iran*

خلاصه مقاله:

In this paper the problem of Unit Commitment (UC) is modified to consider the effect of Renewable Energy Resources (RERs). The main goal of electric power utilities is to provide high-quality and reliable power to the consumers with lower costs regarding network operating constraints. High penetration of RERs into power systems adds further complexity to the UC that require powerful methods to be solved. Wind and solar power are intermittent and the ability to predict production is limited. Given that UC is an optimization problem, Harmony Search Algorithm (HSA) is found to be an appropriate alternative in this regard. HSA is simple to be implemented and also, it's found that HSA leads to feasible solutions with higher convergence speed compared to the conventional optimization algorithms. To validate the practicability of the proposed approach, the simulation is carried out on a test case with and without RERs. The obtained numerical results are compared with conventional methods on base case test. The results show that the UC at the presence of RERs is more economical when compared to traditional UC with only thermal units.

کلمات کلیدی:

Unit Commitment, Renewable Energy Resource (RER), Harmony Search Algorithm (HSA), Optimization

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