problem assessment scuc considering the impact of wind farms and the incidence rate

Yaser Samiei Siboni*,Dr. Mehran Abazari,

Unit commitment problem is one of the most Important economical plans in power systems. In modern and traditional power systems, more than the economically of this programming , the point of security in operating units has a great importance. Therefore operation of power system in faced to commitment units with considering network security conditions. Unit commitment is described as an optimization problem with the aim of detecting the working condition (on or off) of the Units. This study presents the development of day- ahead security-constrained unit commitment (SCUC) plans for electrical power systems. This plan must reduce the costs while satisfying all operational system constraints. In this investigation a novel hybrid approach named teaching- learning based optimization (TLBO) algorithm is used for planning security-constrained unit commitment (SCUC). This methods inspired teaching-learning process in a classroom and has powerful convergence and also has advanced strategies for exploring large search-spaces. Since the SCUC problem has a lot of constraints, this method is very convenient. Power generation in the studied system, is done through thermal and wind units and uncertainty of wind units will be considered. Optimal system functioning programming will be examined in normal condition and also in probable contingency. Reported results approve the efficiency of used methods and algorithms minding probable outcome of units., the occurrence of contingency will increase the costs of system. Comparing the results shows that algorithm in each iteration, chooses the units which can in addition to providing the load and the security of system, reduse the costs of power network operation to the lowest possible. Key words: securityconstrained unit commitment, teaching-learning, based optimization (TLBO) , Wind units, occurrence contingency

Keywords : Participation planning of units with regard to security constraints, TLBO-based algorithm, wind units, event occurrence