Jamshid Aghaei, Vassilios G. Agelidis, Mansour Charwand, Fatima Raeisi, Abdollah Ahmadi, Ali Esmaeel Nezhad, Alireza Heidari, 2017, Optimal Robust Unit Commitment of CHP Plants in Electricity Markets Using Information Gap Decision Theory, *IEEE Transactions on Smart Grid,* 8(5): 2296–2304.

Abstract This paper proposes a novel method based on information gap decision theory to evaluate a profitable operation strategy for combined heat and power units in a liberalized electricity market. Risk levels can be assessed using this technique, taking into consideration whether the generation company is either risk-taking or risk averse. The test system used in this paper comprises conventional thermal, cogeneration, and heat-only units. The pool price is considered to be uncertain while an information gap decision theory method is employed to model its volatility around the estimated value. Profits lower than the expected value are optimized using the proposed method and the related strategy is determined. The presented method optimizes the opportunities to make use of high profits or high pool prices. To verify the performance of the proposed method, the model has been implemented on a case study.

Keywords Combined heat and power unit, risk, information gap decision theory, robust strategy.

\website\IGT\aghaei-etal2017abs001.tex 2.2.2018