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Abstract

Electricity markets are complex environments, involving a large number of different entities, playing in a dynamic scene to obtain the best advantages and profits. MASCEM (Multi-Agent System for Competitive Electricity Markets) is a multi-agent electricity market simulator to model market players and simulate their operation in the market. Market players are entities with specific characteristics and objectives, making their decisions and interacting with other players. This paper presents ALBidS (Adaptive Learning strategic Bidding System) – a multiagent system that provides decision support to MASCEM’s negotiating agents so that they can properly achieve their goals. ALBidS uses artificial intelligence methodologies and data analysis algorithms to provide effective adaptive learning capabilities to such negotiating entities. Several distinct strategies to build actions proposals are concerned, so that the best can be chosen at each time, depending on the context and simulation circumstances. The choosing process includes reinforcement learning algorithms, a mechanism for negotiating contexts analysis, a mechanism for the management of the efficiency/effectiveness balance of the system, and a mechanism for competitor players’ profiles definition.

Acknowledgement

This work is supported by FEDER Funds through the “Programa Operacional Factores de Competitividade - COMPETE” program and by National Funds through FCT “Fundação para a Ciência e a Tecnologia” under the project: FCOMP-01-0124-FEDER-PEst-OE/EEI/UI0760/2011