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Fuzzy subtractive clustering technique applied to demand response in a smart grid scope

R. Pereira^{a,b}, A. Fagundes^b, R. Melício^{a,c,*}, V.M.F. Mendes^{a,b},
J. Figueiredo^{a,c}, J.C. Quadrado^b

^aUniversidade de Évora, Department of Physics, 7004-516 Évora, Portugal

^bInstituto Superior de Engenharia de Lisboa-ISEL, R. Conselheiro Emídio Navarro 1, 1959-007 Lisboa, Portugal

^cIDMEC/LAETA, Instituto Superior Técnico, Universidade de Lisboa, 1049-001 Lisboa, Portugal

Abstract

This paper focuses on demand response in a smart grid scope using a fuzzy subtractive clustering technique for modeling demand response. Domestic consumption is classified into profiles in order to favorably cover the adequate modeling. The fuzzy subtractive clustering technique is applied to a case study of domestic consumption demand response with three scenarios and a comparison of the results is presented. The demand response developed model intends to support consumer's decisions given a compromise between the consumption imperative needs and possible economical benefits due to reshape and reschedule.

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1. Introduction

Demand side management incorporates techniques such as energy efficiency, energy conservation and demand response (DR). DR is necessary to suitably shape the load consumption diagram [1] by consumer active role. Which is crucial for grid management in smart grids in order to contribute for a better balance between electric energy generation and usage, changing the load diagram profile? Requirements of time-scheduling or load shedding are improved when consumer performs an active role in demand side management strategy.

* Corresponding author. Tel.: +351-266-745-372; fax: +351-266-745-394.
E-mail address: ruimelicio@uevora.pt