

Economic benefits of integrating active demand in distribution network planning: a Spanish case study

M. Vallés, J. Reneses, P. Frías, C. Mateo

Abstract— The recent advances in smart metering and communication technologies in electricity distribution networks could bring new opportunities to distribution system operators (DSOs). In particular, new forms of Active Demand (AD) could be developed to help DSOs to alleviate network congestions and decrease peak capacity requirements, which could in turn reduce or postpone the need for network reinforcements. This paper explores the mechanisms that would allow DSOs to incorporate AD procedures into their network planning strategies. A Reference Network Model (RNM) is used to quantify the potential economic benefits that AD could bring to distribution grids. The analysis is supported by a case study of two rural and urban areas of Spain, based on realistic large-scale exemplary networks and real consumption data.

Index Terms— active demand; distribution network; planning

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:

[Request full paper to the authors](#)

If your institution has an electronic subscription to Electric Power Systems Research, you can download the paper from the journal website:

[Access to the Journal website](#)

Citation:

Vallés, M.; Reneses, J.; Frías, P.; Mateo, C.; "Economic benefits of integrating active demand in distribution network planning: a Spanish case study", Electric Power Systems Research, vol.136, pp.331-340. July, 2016.