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# Which electricity market design to encourage the development of demand response?

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## Abstract

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Demand response is a cornerstone problem in electricity markets under climate change constraint. Most liberalized electricity markets have a poor track record at encouraging the deployment of smart meters and the development of demand response. In Europe, different models are considered for demand response, from a development under a regulated regime to a development under competitive perspectives. In this paper, focusing on demand response and smart metering for mid-size and small consumers, we investigate which types of market signals should be sent to demand managers to see demand response emerge as a competitive activity. Using data from the French power system over the last 8 years, we compare the possible market design options to allow demand response to develop. Our simulations demonstrate that with the current market rules, demand response is not a profitable activity in the French electricity industry. Introducing a reserve and/or capacity remuneration could bring additional revenues to demand response providers and improve incentives to put in place demand response programs in a market environment.

**Keywords:** Market Design; Demand Response; Capacity Market.

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