

Demand Side Response: Patterns in Europe and Future Policy Perspectives under Capacity Mechanisms

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Executive Summary

Demand side response (DSR) has long been argued to provide a valuable additional resource in energy systems. It could offer an alternative to potentially more costly means of integrating low carbon technologies, such as backup generation, network expansion and physical electricity storage.

In general, however, DSR has been slow to emerge in Europe, despite the increasing number of experiences with DSR programmes mainly in Northern European countries in recent years and some utility-led large Time of Use tariffs applications in France, Italy and Spain.

This paper discusses the potential causes of this slow uptake of DSR. It reviews European load reduction programmes and the state of the European DSR industry with examples from Denmark, Norway, Austria, Germany and the UK. Types of demand response, pricing strategies and their relationship with conservation effects are considered.

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Commercial DSR provision was found to be most advanced in the UK and a detailed empirical assessment of demand responses under Short Term Operating Reserve arrangements is presented. The bulk of this provision still stems from stand-by generators, rather than load shifting or reduction. However, case studies of selected sectors suggest significant potential for increases in the response provision from DSR provided policy and regulatory arrangements are designed with their specific requirements in mind.

Policy and market design implications are discussed and point to the lack of a harmonised DSR policy in the European Union. The introduction of capacity mechanisms in the UK, France and Italy is driven by individual national priorities and seeks to address different aims. We conclude that the high political pressure at a national level to deliver capacity mechanisms makes a single integrated European capacity market an unlikely prospect and poses challenges in relation to market harmonisation and integration.