

Regulatory and market barriers to the realization of demand response in electricity distribution networks

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Abstract— Improving electricity demand response (DR) to support the operation and planning of distribution networks is an essential component of the European Commission strategy to increase economic efficiency in electric power systems across Europe. Due to the lack of the appropriate infrastructure, end consumers have traditionally been blind to wholesale market conditions as well as from the real costs they cause on the network and the power system operation. With the recent deployment of smart metering and communication technologies, provided an appropriate regulatory environment exists, new forms of local DR involving distribution system operators and small consumers could be developed. In a context where many EU Member States are still in the process of opening their retail sectors up to competition and being any active distribution management procedures still to be defined, DR is materializing at a very slow rate. It is the role of regulators to provide a suitable regulatory framework to allow DR to become effective at distribution level. This paper revises the main regulatory barriers that slow down the successful development of demand response mechanisms addressed to small consumers and an active distribution network management across Europe. In order to illustrate this discussion, an overview of six particular national examples is provided: France, Germany, Italy, Spain, Great Britain and Sweden. Finally, recommendations for policy makers and regulators are given.

Index Terms— Demand response; electricity distribution; regulatory barriers; Europe.

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