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Energy efficiency actions related to the rollout of smart meters for small consumers, application to the Austrian system

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Abstract-

Smart meters (SM) may provide large benefits to all stakeholders by providing the information required to implement certain sets of demand response actions. Benefits produced by SM related actions depend on the features of these actions, the system and the targeted consumer group.We first lay out an analytical framework to analyze the application of Demand Response (DR) actions. Based on this framework, we describe a way to determine the response of domestic load in a system to the implementation of DR actions. We propose determining the overall change in the consumption behavior of domestic load based on previously obtained estimates of the peak load and overall consumption reduction for different types of consumers in different types of systems resulting from the application of each set of actions. We have carried out a comprehensive literature review to provide here such estimates.We apply the analytical framework and methodology developed to characterize the reaction of consumers in the Austrian system to different SM related actions. Finally, we provide guidelines on which DR actions to implement in this system and how to implement them. The use of advanced indirect feedback on consumption behavior, critical peak prices and simple time-of-use tariffs is advocated.

Index Terms- Smart meters; Feedback; Time-varying pricing; Demand side management; Consumer segmentation

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