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Abstract Format

Title: Potentials of industrial demand response management

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Abstract

Demand Response Management or load management are increasingly mentioned in energy political discussions about the future design of the electricity market regarding the rising share of fluctuating renewable energies.

A study of Siemens analysed and assessed which demand response potentials exist in the industrial sector in Germany. Starting point of the study is a view on the functioning of power balancing in the today's electricity market, on energy political objectives and deduced an increasing need for a participation of the demand side in balancing the power system.

The analysis takes a look at the installed loads in the industry. Then it is distinguished between different potentials of industrial demand response and shows technical and economic limitations in the industry. The study makes a distinction between a) theoretical potentials, b) realisable potentials (taking into consideration a shift or renouncing of loads using technologies and processes which are applicable for load management and have a sufficient importance in the industry), c) realistic potentials (demand response management when certain requirements are fulfilled; a flexibility factor for the chosen technologies and processes is assumed) and d) in the end an economical potential (load management when economic incentives are sufficient).

The different types of potentials than have been calculated for both chosen processes (steel, cement, chlorine, aluminum, synthetic materials production and paper) as well as crossover technologies over the entire industry sector in Germany.

Besides, barriers for the use of a more flexible load management as well as requirements for participating in demand response management have been assessed and an outlook for future trends in the field of industrial demand response is provided.