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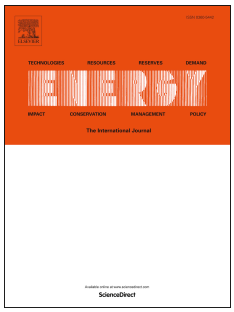

Simultaneous co-integration of multiple electrical storage applications in a consumer setting

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Title: Simultaneous Co-integration of Multiple Electrical Storage Applications in a Consumer Setting

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Abstract

In a consumer setting, storage systems can be dispatched in order to shift surplus generation to periods when a local generation deficit exists. However, the high investment cost still makes the deployment of storage unattractive. As a way to overcome this problem existing literature looking at storage installed at the grid-level suggests dispatching the storage device for multiple applications simultaneously in order to access several value streams. Therefore, in this work, a Mixed Integer Linear Program is developed in order to schedule the operation of a storage device in a consumer context for multiple objectives in parallel. Besides shifting locally generated energy in time, the peak demand seen by the electric grid is reduced and the storage device is operated to provide primary reserve control. The model is applied in a case study based on the current German situation in order to illustrate the value contribution