



**energies**



*Special Issue Reprint*

## **Energy Management of Prosumer Communities**

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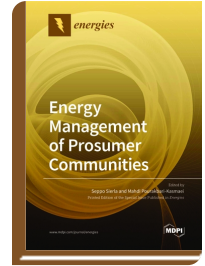
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The penetration of distributed generation, energy storages and smart loads has resulted in the emergence of prosumers: entities capable of adjusting their electricity production and consumption in order to meet environmental goals and to participate profitably in the available electricity markets. Significant untapped potential remains in the exploitation and coordination of small and medium-sized distributed energy resources. However, such resources usually have a primary purpose, which imposes constraints on the exploitation of the resource; for example, the primary purpose of an electric vehicle battery is for driving, so the battery could be used as temporary storage for excess photovoltaic energy only if the vehicle is available for driving when the owner expects it to be. The aggregation of several distributed energy resources is a solution for coping with the unavailability of one resource. Solutions are needed for managing the electricity production and consumption characteristics of diverse distributed energy resources in order to obtain prosumers with more generic capabilities and services for electricity production, storage, and consumption. This collection of articles studies such prosumers and the emergence of prosumer communities. Demand response-capable smart loads, battery storages and photovoltaic generation resources are forecasted and optimized to ensure energy-efficient and, in some cases, profitable operation of the resources.



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