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Scheduling of Multiple Energy Consumption in The Smart Buildings with Peak Demand Management

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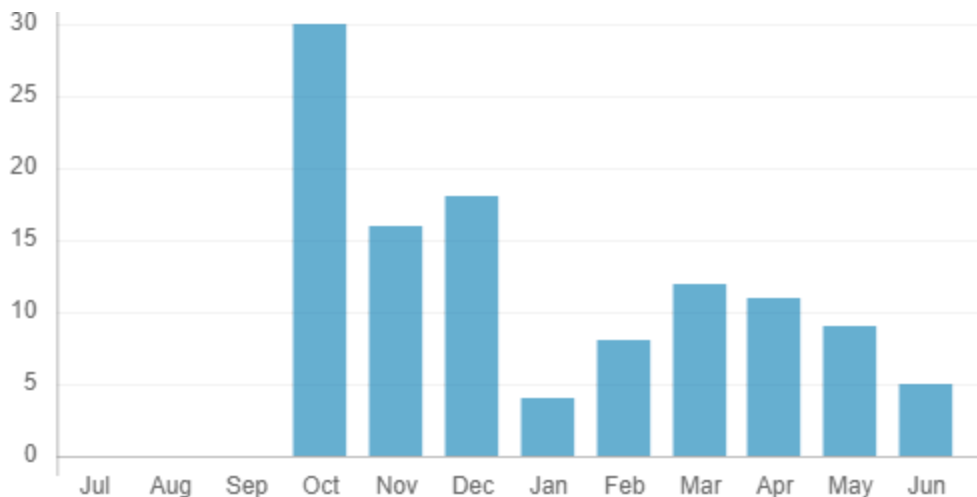
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ABSTRACT

The global energy crisis and the depletion of fossil fuels have become pressing concerns, leading experts to search for alternative solutions. This paper presents an analysis of the day-ahead operation of the multi-carrier energy system (MCES) with the aim of minimizing operational costs, reducing pollution emissions, and maximizing consumers' comfort. The authors propose an optimal scheduling strategy called energy demand curtailment (EDCS), which aims at efficiently managing electrical energy consumption. Additionally, they consider an on-site generation strategy (OGS) for consumers to operate their own energy storages. Both EDCS and OGS are modeled based on demand-side management (DSM). To optimize these strategies and achieve their objectives, fuzzy logic is employed as an optimization approach along with objective functions. Finally, two scenarios are examined through numerical simulations to illustrate the effectiveness of this approach in optimizing energy utilization in MCE.

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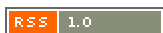
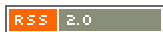




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