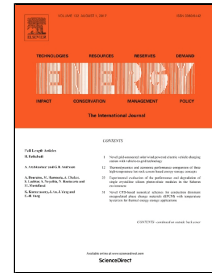


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The application of Household Appliances' Flexibility by Set of Sequential Uninterruptible Energy Phases Model in the Day-Ahead Planning of a Residential Microgrid



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1 **The application of Household Appliances' Flexibility by Set of**
2 **Sequential Uninterruptible Energy Phases Model in the Day-**
3 **Ahead Planning of a Residential Microgrid**

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12
13
14 **Abstract**

15 In this work, an accurate energy consumption model of household appliances based on Set
16 of Sequential Uninterruptible Energy Phases (SSUEP) is applied to day-ahead energy
17 management framework of a residential microgrid in order to effectively activate time-based
18 demand response programs. The homes in the microgrid include the essential and/or shiftable
19 household appliances accurately modeled by the SSUEP. These homes are also equipped with
20 the photovoltaic systems, battery energy storages and electric vehicles. The residential
21 microgrid is assumed to be connected to a smart grid such that bi-directional exchange of
22 electric power would be possible. Being aware of the amount of power demand for the
23 appliances and the day-ahead prices of the energy, the consumer provides the required energy

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