

Residential Energy Management: A Machine Learning Perspective (Conference Paper)

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Abstract

In smart grids, residential energy management is a vital part of demand-side management. It plays a pivotal role in improving the efficiency and sustainability of the power system. However, challenges such as variability of consumption profiles require machine learning to understand and forecast residential demands. Moreover, machine learning based intelligent load management is required for effective implementation of demand response programs. In this article, applications of machine learning algorithms in residential demand forecasting, load profiling, consumer characterization, and load management are comprehensively discussed. The article also examines the characteristics and availability of relevant databases, and explores research challenges and possibilities. © 2020 IEEE.

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