

Do smart home energy management systems incorporate energy storage?

Therefore, cutting-edge reinforcement learning-based methods utilized in smart home energy management systems that incorporate energy storage are thoroughly examined by evaluating their effectiveness and adaptability, taking into account both multi-agent and single-agent reinforcement learning-based methods.

Are smart home energy management systems based on reinforcement learning?

Single and multi-agent systems in smart homes with energy storages are reviewed. Research directions and gaps are provided for future research directions. The paper's state-of-the-art review focuses on an in-depth evaluation of smart home energy management systems which employ reinforcement learning-based methods to integrate energy storages.

What is a home energy storage system?

A home energy storage system is an innovative system consisting of a battery that stores surplus electricity for later consumption. Often integrated with solar power systems, these batteries enable homeowners to store energy generated during the day for use at any time.

Do smart home energy storage systems use multi-agent reinforcement learning?

While some research has made use of single-agent reinforcement learning, smart home energy storage systems that use energy storages seldom use multi-agent reinforcement learning techniques. Researchers, practitioners, and policymakers will be able to use this work as a foundation to build smart, sustainable home energy systems.

1. Introduction

With rising energy costs and concerns about environmental sustainability, there is a growing need to deploy Home Energy Management Systems (HEMS) that can efficiently manage ...

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Besides, the study examined state-of-the-art reinforcement learning-based techniques applied in the smart home energy management system (s) with energy storage (s) by critically ...

This paper presents a hierarchical deep reinforcement learning (DRL) method for the scheduling of energy consumptions of smart home appliances and distributed energy resources ...

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