

Advancements in Sustainable Energy Storage Technologies: A Review of Battery Innovations

December 15, 2024

Abstract

The growing demand for renewable energy sources has heightened the need for efficient, cost-effective energy storage solutions. This paper reviews the latest advancements in sustainable energy storage technologies, with a focus on battery innovations. We examine various types of batteries, including lithium-ion, solid-state, and flow batteries, evaluating their performance, scalability, and environmental impact. The paper also discusses emerging technologies such as graphene-based batteries and sodium-ion batteries, which promise to address some of the limitations of current systems. Additionally, the study explores the challenges of widespread adoption, including raw material shortages, recycling issues, and integration with existing energy infrastructures, while proposing potential pathways to overcome these obstacles and accelerate the transition to renewable energy.

References