

Abstract Thermal energy storage (TES) systems are pivotal in enabling wider adoption of renewable energy sources by overcoming their intermittent nature. However, many ...

Energy storage technology is a crucial means of addressing the increasing demand for flexibility and renewable energy consumption capacity in power systems. This ...

This assessment evaluates a novel solar-driven trigeneration structure that simultaneously generates electricity, cooling, and freshwater by combining a parabolic trough solar collector ...

Abstract This review article critically examines papers on renewable energy integration (REI), with a specific focus on the economic and environmental impact ...

The U.S. Department of Energy's (DOE's) Solar Futures Study projects deployment of solar technologies--including photovoltaics (PV) and concentrating solar power (CSP)--of up to ...

The third observation was the need for integrated environmental and economic assessments to provide a comprehensive evaluation of the solar thermal plants as it will enable investors, ...

The main objectives of research on innovative materials (phase change materials, PCM, or thermochemical materials, TCM) for thermal storage are the development ...

Additionally, an in-depth economic analysis is conducted to assess the cost benefits of integrating various solar energy systems with heat pump systems. An ...

USTES can effectively solve the mismatching characteristics of renewable energy heating system in terms of time, space and strength, which can transfer the renewable energy ...

The research evaluates the financial feasibility and the environmental implications of thermal energy storage systems when integrated into CSP plants. The paper examines solar power ...

Land fragmentation - (solar energy, wind energy, and energy storage) - Choosing a site for solar, wind, or battery storage should account for the potential impacts of fragmenting and perforating ...

This paper provides an overview of recent developments in the field of energy storage; combining a comprehensive assessment of the technical and economic ...

Environmental assessment of solar thermal energy storage project

Thermal energy storage (TES) is a key player in the energy transition to support the integration of renewable sources and reduce the energy demand supplied by fossil fuels. ...

People are focused on using renewable energy resources to generate energy because of certain negative environmental effects like air pollution, climate change, and the depletion of natural ...

The aim of this thesis is to develop techno-economic models and assessments to investigate the performance of seasonal thermal energy storage integration and renewables-based district ...

Abstract In this study, a cradle-to-grave life cycle assessment (LCA) of integrated borehole type thermal energy storage (TES) systems in buildings is performed, and ...

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