

Title: Bidirectional charging of energy storage containers for field research

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What is bidirectional charging management (BCM)?

The project Bidirectional Charging Management (BCM) aims to demonstrate the benefit of this technology. The research project BCM was launched in May 2019 and is scheduled to end in October 2022. The objective of BCM is the development and testing of a holistic, user-oriented way of integrating bidirectional EVs in the German energy system.

Can bidirectional charging improve PV UC efficiency?

However, the focus of the project lies in demonstrating bidirectional charging technology rather than efficiency optimization. Additionally, lower feed-in power from PV during the winter months prevented higher efficiencies for the PV UC.

Why do we need a decentralized battery storage system?

The decentralized provision of these battery storages provides a possible large flexibility, which can improve power supply reliability and further increase the proportion of renewable energy in overall electricity consumption. A variety of these bidirectional charging use cases (UC) are possible .

Are non-serial products suitable for low charging and discharging powers?

Our efficiency analysis suggests that the current non-serial products of EVSE and EV are not yet tailored for the use with comparatively low charging and discharging powers. However, the focus of the project lies in demonstrating bidirectional charging technology rather than efficiency optimization.

In this article, we present results from different studies and provide insights as well as implications for a user-friendly future development of the bidirectional charging technology.

Ultimately, this work serves as a conceptual exploration of how bidirectional charging can contribute to energy management systems by reducing peak demand, increasing renewable ...

Contributing to this research gap, this article combines techno-economic grid simulations with scenario-based Life Cycle Assessments. The case study focuses on rural ...

To be able to develop viable business models from the V2X scenarios, automated billing of the energy exchange between the energy supplier ...



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