ŁOTWA SYSTEM

Environmental assessment of liquid flow batteries for solar container communication stations in Malawi

Overview

How are flow battery technologies based on environmental impact?

The production of three commercially available flow battery technologies is evaluated and compared on the basis of eight environmental impact categories, using primary data collected from battery manufacturers on the battery production phase including raw materials extraction, materials processing, manufacturing and assembly.

Are flow batteries a promising technology for stationary energy storage?

Among the various types of battery storage systems, flow batteries represent a promising technology for stationary energy storage due to scalability and flexibility, separation of power and energy, and long durability and considerable safety in battery management (Alotto et al., 2014; Leung et al., 2012; Wang et al., 2013).

Are lithium-ion pumped hydro energy storage and flow batteries sustainable?

The sustainability of lithium-ion, lead–acid compressed air, pumped hydro energy storage, and flow batteries concentration gradient were investigated by implementing a multi-dimensional LCA. The analysis concluded that the lead–acid battery resulted in the most severe damage to ecosystem diversity and human health.

Are flow batteries sustainable?

Flow batteries are seen as one promising technology to face this challenge. As different innovations in this field of technology are still under development, reproducible, comparable and verifiable life cycle assessment studies are crucial to providing clear evidence on the sustainability of different flow battery systems.

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