

The carbon footprint of island grids with lithium-ion battery systems: An analysis based on LEES

Paper Highlights:

- Simplified Life Cycle Analysis of Li-ion Battery Energy Storage System (BESS).
- Methodology to assess carbon footprint of BESSs in island grid energy systems.
- Two new metrics to describe system emissions behavior: Levelized Emissions of Energy Supply (LEES) and Reduction in System Emissions per Additional Unit of Energy Storage (R).
- Diminishing R value with incorporation of additional Li-ion BESS capacity.
- Maximum reduction of 50 % in system emissions with Li-ion BESS at lowest LEES value.

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