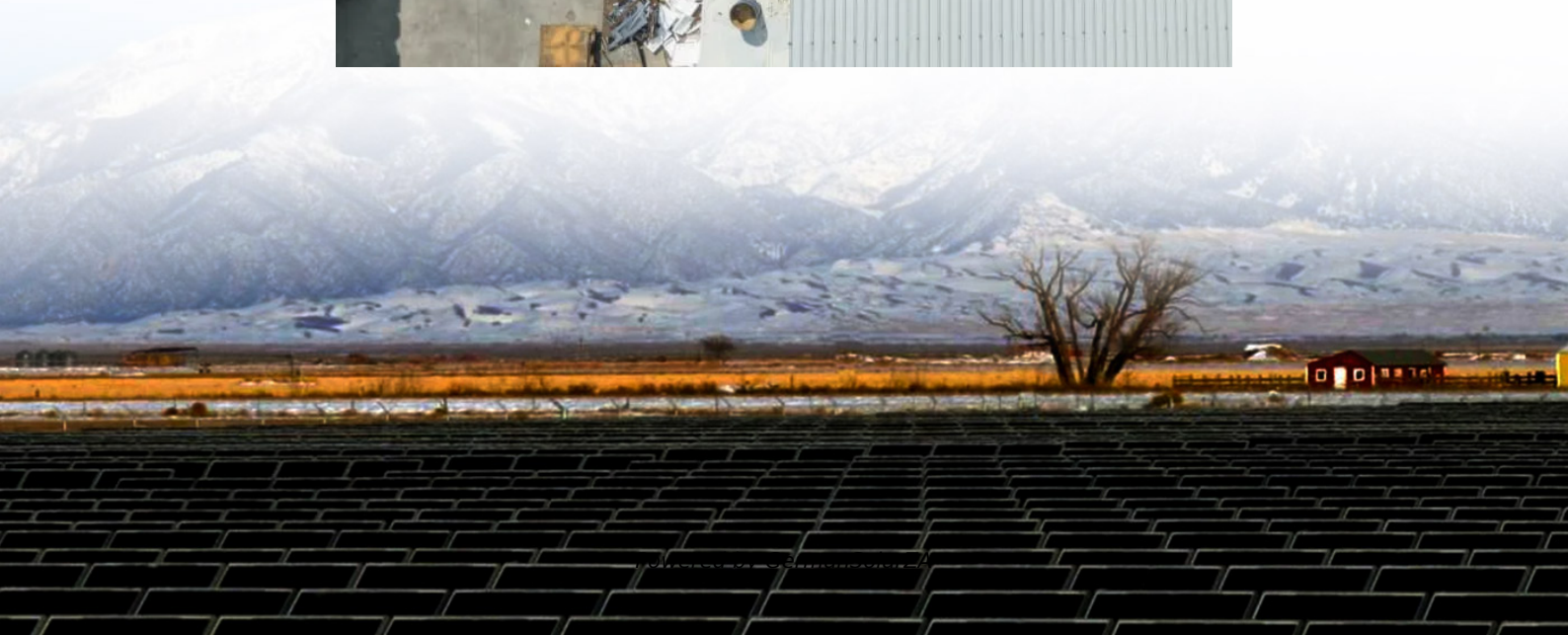


Operation and maintenance of energy storage devices





Overview

Can energy management strategies cope with MGS equipped with ESS?

Contrary to other proposed approaches, the present work aims at defining an energy management strategy that is able to cope with the main issues of MGs equipped with ESS, i.e., ESS degradation and unexpected outages of the main grid, which can be appreciated only considering long time horizons.

Do different operational strategies affect lithium-ion batteries?

The effects of adopting different operational strategies on Lithium-ion batteries have been investigated in [1], which shows that properly managing the SoC of the ESS can help achieving long lifetimes and highlights the need of jointly managing the MG operation and the ESS maintenance.

Can a battery be charged during maintenance?

During maintenance, the battery cannot be charged or discharged. The time of occurrence of the main utility grid outage, T_{out} , is sampled from an exponential distribution with rate $\lambda_{grid} = 5.71 \cdot 10^{-5} \text{ hour}^{-1}$, which has been set according to [2].



Operation and maintenance of energy storage devices



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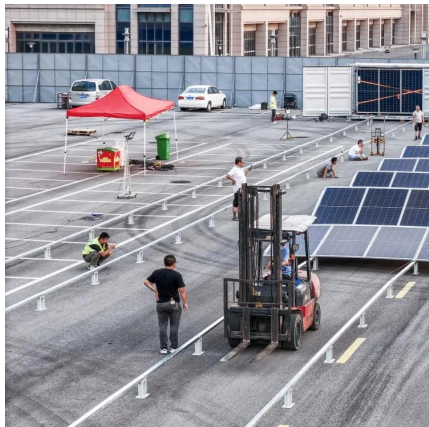
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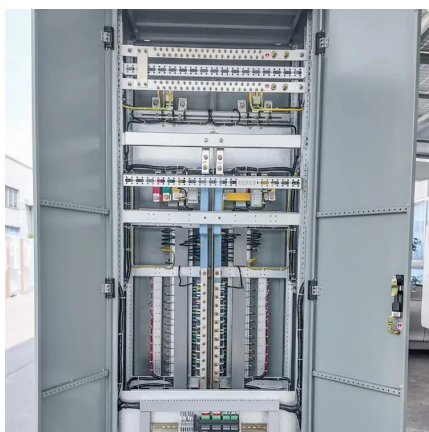
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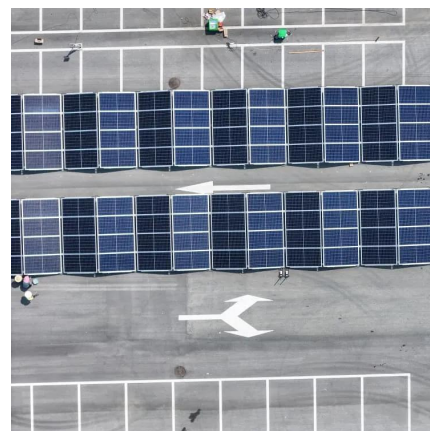
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