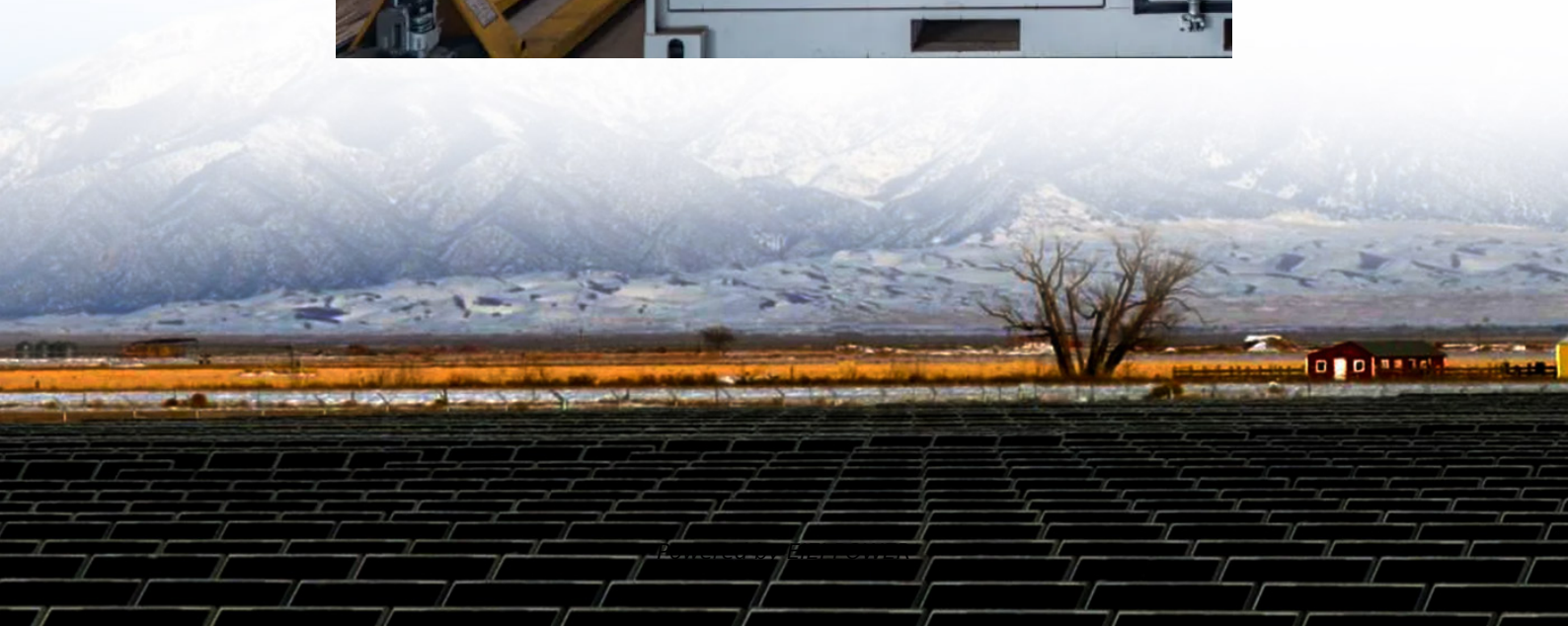


Distributed energy storage field estimation





Overview

Should distributed energy storage systems be connected to the grid?

Connecting Distributed Energy Storage systems (DESS) to the grid is an effective method to enhance the utilization of clean energy and improve the efficiency of power systems (Choudar et al., 2015; Kosai, 2019; Procopiou et al., 2018; Chen et al., 2019; Bakeer and Salama, 2021).

Can a deep neural network solve the distribution system state estimation problem?

Also, the high integration of renewable energy introduces uncertainty, making the Distribution System State Estimation (DSSE) problem even more complex. This work proposes a deep neural network approach that solves the DSSE problem in unobservable distribution grids without employing erroneous pseudomeasurements.

What is the energy storage investment in distribution network 2?

The energy storage investment in Distribution Network 2 is solely distributed at nodes 8, 15, 25, and 30, with no energy storage investment at nodes one and 2. This planning combination is mainly determined by the distribution of renewable energy generation, load distribution and grid structure.

What is distribution system state estimation (DSSE)?

This process, i.e., Distribution System State Estimation (DSSE), constitutes an asset of great importance for the DSO as it can be used for multiple purposes, including loss monitoring, load and RES profile creation, detection of voltage limit violations and asymmetry, fault localization, outage handling, etc., as presented in Figure 1 .



Distributed energy storage field estimation



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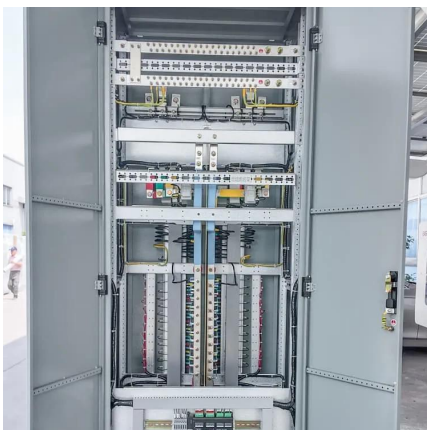
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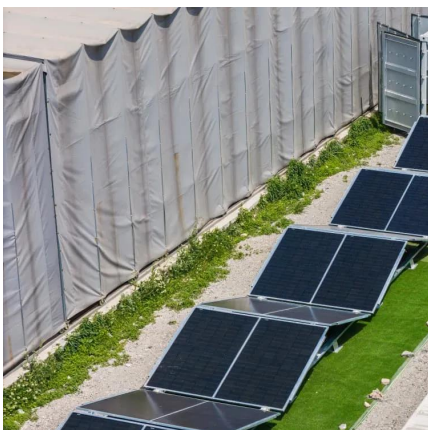


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