

Lightning protection risks of battery solar container energy storage systems for solar container communication stations





Overview

Should lightning protection systems be included in hybrid solar PV-battery energy storage systems?

Essentially, a lightning protection system is a must-consider item for system protection. Therefore, the results and analyses presented in this paper will be useful information and sources for other researchers, as well as a basic guideline for conducting future research on insulation coordination in hybrid solar PV-battery energy storage systems.

Do lightning strikes affect solar PV systems in Malaysia?

As reported in [8, 9, 10, 11], both direct and indirect lightning strikes can severely affect solar PV systems that incorporate battery energy storage; in Malaysia, such systems are not properly protected against lightning strikes .

Do lightning-induced voltages affect hybrid solar PV-battery energy storage systems?

Nevertheless, since the effects of lightning-induced voltages on the hybrid solar PV-battery energy storage system were highly dependent on the abovementioned factors, an insulation coordination study is crucially needed to ensure the security of grid-connected systems, as well as to assign and coordinate appropriate protection schemes.

What is a hybrid solar PV-battery energy storage system?

Hybrid solar PV-battery energy storage systems are usually installed in outdoor areas, whereby the likelihood of lightning strikes is very high, especially in the areas that are vulnerable to lightning. For instance, Malaysia is recognized as the “Crown of Lightning”, experiencing an average of 200 thunderstorm days every year [5, 6].



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