A-Core Container

Energy storage system operating load rate

Overview

This report describes development of an effort to assess Battery Energy Storage System (BESS) performance that the U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP) and others can employ to evaluate performance of deployed BESS or solar photovoltaic (PV) +BESS systems.

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These systems can be deployed to replace or defer investments of peaking capacity, provide operating reserves to help respond to changes in generation and demand, or they can be used to defer transmission system upgrades in regions experiencing congestion from load or generation growth.

Electrical Energy Storage (EES) systems store electricity and convert it back to electrical energy when needed. 1 Batteries are one of the most common forms of electrical energy storage.

For a 10 MWh BESS operating at 1C, it can deliver 10 MW of power for one hour or recharge entirely in one hour if supplied with 10 MW of power. This high rate is ideal for applications demanding rapid energy availability, such as emergency support and immediate grid stabilization.

NERC recently conducted a joint study with WECC that underscored some of the potential benefits BESS can provide for FFR to avert using under frequency load shedding (UFLS) in response to generation losses.

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