SOLAR PRO. What are the indicators of energy storage

Does thermal energy storage have a key performance indicator (KPI)?

Recently, the technology roadmaps carried out in thermal energy storage or in energy applications including TES identify KPI for TES. Unfortunately, this first attempt has been done individually and no comparison has been carried out. A key performance indicator (KPI) is a performance measurement that evaluates the success of a particular activity.

What is the scope of the energy indicator?

The scope of the indicator is to consider which part of the total energy required by the building/group of buildings (or by a specific function, such as heating or artificial lighting) and/or the generation from RES, during a certain period, is stored-in and then released from the storage system.

What are key performance indicators?

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What are the main KPIs for the assessment of ESSs in buildings?

The main KPIs to allow the assessment of ESSs in buildings are presented and descried below. 1. Storage capacityThis is the quantity of stored energy in the storage system or available immediately after it is completely charged.

What is storage capacity?

For instance, storage capacity, one of the most used indicator, is defined as the energy that can be stored in reference conditions (Komarnicki, Lombardi, & Styczynski, 2017), or the quantity of available energy which can be retrieved without negatively affecting the storage device (Ibrahim et al., 2007).

What is an energy storage system (ESS)?

In general, the most common applications of ESSs for power uses in buildings are "energy-intensive", that means they are typically suited to store/release energy during time periods that range from minutes (short-term) to months (seasonal) and are not designed to manage power peaks (Chatzivasileiadi, Ampatzi, & Knight, 2013).

Thermal energy storage (TES) is recognised as a key technology for further deployment of renewable energy and to increase energy efficiency in our systems. Several technology roadmaps include this technology in their portfolio to achieve such objectives. ... Key performance indicators have been used in other energy topics. For example, Personal ...

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Del Pero, Aste N, Paksoy H, Haghighat F, Grillo S, Leonforte F (2018) Energy storage key performance indicators for building application. Sustain Cities Soc 40:54 - 65.

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Key performance indicators in thermal energy storage: survey and assessment. Renew Energy (2015) J. Fernandez-Seara et al. A general review of the Wilson plot method and its modifications to determine convection coefficients in heat exchange devices. Appl Therm Eng (2007) D. Gibb et al.

This article focuses on the different charge and health indicators of battery energy storage systems to provide an overview of the different methodologies imple

Energy) that defines standard terms and suggests best common practices to determine energy and water savings associated with energy conservation measures. On the other hand, Personal et al. (Personal et al. 2014) proposed a new approach based on business intelligence to develop new metrics and KPIs for assessing its energy projects. The au-

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Highlights the work proposes a set of simplified Key Performance Indicators (KPIs), specifically identified to simplify the comparison of storage technologies in the decision-making/designing phase and the assessment of technical solutions in the operational phase the analysis of the proposed KPIs on relevant case-studies is carried out; obtained results are useful in order to ...

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