

How to compile container terminals performance indicators?

In order to compile container terminals performance indicators, a survey to container terminals through IAPH member ports and literature research were carried out. Collected information was organized and several different performance indicators were analyzed.

Are there integrated indicators for container terminals?

Currently, no integrated approach and recognized set of indicators has been developed for container terminals. Most of the existing research focuses on electrification and specific processes of equipments in the terminals.

How do container terminals exemplify energy consumption patterns?

Data from individual container terminals are used to exemplify energy consumption patterns for the various identified activity clusters. The explanatory part elaborates on the determining factors for differences in energy efficiency across terminals.

What are the performance indicators of a port's operations?

Moreover, the speed at which a ship is unloaded and loaded again, as well as the energy cost per container, are important performance indicators of a port's operations (Wilmsmeier and Spengler, 2016; Kreuzer et al., 2014; Sakawa and Shindo, 1982).

Why are containers used as unit indicator?

As most activities in a container terminal are performed per container regardless of its size, allocating consumption, emissions or expenses to TEUs would inadvertently lead to a situation where too much consumption, emissions, or expenses would be allocated to 20-foot containers. Hence, boxes (containers) will be used as unit indicator. 7.2.5.

What is the activity-based approach in a container terminal?

As multiple types of equipment are involved in container terminal processes, the activity-based approach, as described in the previous section, allows to decompose the different areas of consumption. In a common container terminal, two main energy sources are relevant, electric, and fossil fuels (mainly diesel).

The main requirements for the design of a TES system are high energy density in the storage material (storage capacity), good heat transfer between the heat transfer fluid (HTF) and the storage material, mechanical and chemical stability of the storage media, compatibility between the storage material and the container material, complete reversibility of a number of ...

Highlights o A detailed literature review on energy efficiency in ports and container terminals is conducted. o Operational strategies such as optimization of port operations and ...

Seven energy storage technologies are selected to test the efficiency and performance of the proposed hybrid method: lead-acid batteries, Li-ion batteries, super ...

Charging and discharging efficiency affects energy loss during these processes. A high-efficiency battery uses energy more effectively during charging and discharging, reducing waste and significantly contributing to the overall economics and performance of an energy storage system. 4. Depth of Discharge (DOD)

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This study accounts current energy consumption of various types of equipments in Chinese container terminals through investigating typical terminals; compares and analyzes the clean ...

This paper analyses energy consumption patterns of container terminals in Chile between 2010 and 2014 and benchmarks the results against a set of container terminals across the globe.

Keywords: energy storage, auto mobile, electric vehicle, thermal management, safety technology, solar energy, wind energy, fire risk, battery, cooling pack Important note: All contributions to this Research Topic must be within the scope of the section and journal to which they are submitted, as defined in their mission statements. Frontiers reserves the right to guide an out-of-scope ...

In the rapidly advancing field of battery technology, understanding key performance metrics is essential for optimizing battery usage, ensuring safety, and extending lifespan. ... For users of electric vehicles and energy storage systems, SOH is a crucial indicator of remaining battery life, guiding maintenance schedules, and replacement ...

Y3000 Portable Power Station 3000W/2.3kWh. Y1600 Off-Grid Energy Storage 1600W/1.1kWh. T3600 Off-Grid Energy Storage 1000W/3.5kWh. T4600 Off-Grid Energy Storage

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Thermal energy storage (TES) technologies are already a reality. However, despite the fact that research on storage materials has been deeply addressed for decades, the maturity of alternative systems to sensible heat TES is still limited [].While latent heat TES applications have been made commercially available recently, chemical and sorption systems ...

Base Line Key Performance Indicators The battery system intended for an energy storage application needs to

## **Container energy storage technology performance indicators**

demonstrate general baseline performance parameters, which include the following: o Discharge performance under various conditions o Maximum discharge current o Internal DC resistance, and o Endurance under cycling and standby modes.

Electric Energy Storage. KPI. Key Performance Indicator. LCA. Life Cycle Analysis. LTES. Latent Thermal Energy Storage. PCM. Phase Change Material. PI. Performance Indicator. TCM. ... several others at national or continental scale are available. joint ESE-EERA energy storage technology roadmap towards 2030 ...

Winline Liquid-cooled Energy Storage Container converges leading EV charging technology for electric vehicle fast charging. ... High-performance PCS. Multilevel topology; Modular design scheme; Precise charge-discharge control, up to ...

This study is to compile a data book on several productivity and other indicators of container terminals through collecting and analyzing major container terminals in the world, and to ...

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