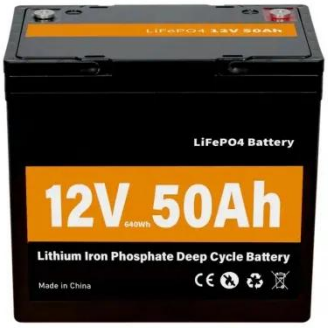
PEES Power Systems

# Cost-effectiveness of fast charging for marine mobile energy storage containers

## Overview

This thesis focuses on the system-level assessment and comparison of fast charging and battery-swapping technologies for the full electrification of maritime vessels. Maritime electrification requires effective charging infrastructures. In order to expand maritime electrification, integrated charging infrastructures should be. Electric and hybrid marine vessels are marking a new phase of eco-friendly maritime transport, combining electricity and traditional propulsion to boost efficiency and reduce emissions. In Canada, the BCI Marine reported part-nership with the Aqua superPower to in tall fast-charging points throughout Canada [10].

## Cost-effectiveness of fast charging for marine mobile energy storag




### Electrification in Maritime Vessels: Reviewing Storage Solutions and

Despite being heavier and less energy-dense compared to lithium-based alternatives, their lower initial cost and proven reliability make them a viable option in certain contexts, particularly ...

### Fast charging of mobile energy storage containers for port terminals

A key aspect of this research is the feasibility of establishing an electrical charging infrastructure at Los Angeles Harbor, powered exclusively by renewable energy sources, to


### Fast Charging for Marine Transportation , Springer Nature Link

Hybrid energy system design is discussed where renewable and energy storage technologies are integrated to meet load profiles for maritime charging and waterfront energy supply ...

## System-level assessment and comparison of fast charging and

In this thesis, the performance of fast charging and battery-swapping technologies for inland waterway vessels is modelled using the queuing method and simulation models developed in Python and Excel ...

## Chapter 9 Fast Charging for Marine Transportation

gions are considered promising areas of research. This is especially true in energy production from the water current stream energy (WCSE) and wind energy, due to the av ilability of these resources ...

## Economics of marinised offshore charging stations for electrifying the

Before countries pour trillions of dollars of investment, this study is commissioned as the first attempt to investigate the economics of offshore marinised charging stations for enabling long ...

## Assessment of the Effectiveness of Energy Transfer for Shore-to-Ship

This study presents a comparative analysis of energy efficiency among AC, DC, and Inductive shore-to-ship charging solutions for short-distance ferries utilizing both AC and DC-based

## Maritime electrification pathways for sustainable shipping

The review highlights persistent barriers, including limited energy density for large vessels, insufficient megawatt-scale charging and refueling infrastructure, durability and reliability concerns ...


## Energy Storage and Wireless Charging Technologies for Marine ...

Aging of batteries could be different, leading to wasted capacity, over-charge/discharge issues, and reduced battery lifetime. Failure of one battery will affect the operation of the whole battery bank, ...

## Accelerating green shipping with spatially optimized

## offshore charging

Here we develop a route-specific model for the optimal placement and sizing of offshore charging stations to assess their economic, environmental and operational impacts.

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