Accepted Manuscript

Title: A new electrical energy management approach for ships using mixed energy sources to ensure sustainable port cities

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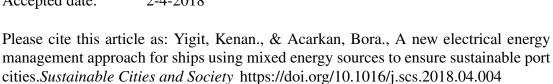
PII: S2210-6707(18)30097-0

DOI: https://doi.org/10.1016/j.scs.2018.04.004

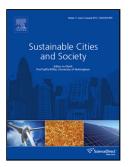
Reference: SCS 1044

To appear in:

Received date: 17-1-2018 Revised date: 2-4-2018 Accepted date: 2-4-2018



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A new electrical energy management approach for ships using mixed

energy sources to ensure sustainable port cities

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Highlights

The energy management approach for ships using mixed energy sources was suggested.

The future ship and port designs were examined.

The significance of the smart grid was mentioned to ensure sustainable port cities.

The case studies were simulated.

The results were compared to determine the optimum energy source on the shipboard.

Abstract

The maritime sector representatives are seeking to improve energy usage habits of ships to

ensure sustainability to minimize environmental effects in port cities. This paper presents new

electrical energy management strategies for the future ship and port designs regarding

developments in the maritime sector. This study focuses on a new electrical energy

management approach and algorithm for ships using mixed energy sources such as renewable

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