WALMER ENERGY

# Hybrid Trading Conditions for Mobile Energy Storage Containers Used in Port Terminals

## Overview

To promote the consumption of renewables in ports, based on the transportation-energy coupling characteristics of ports, a nested bi-layer energy management and capacity allocation method of hybrid energy.

How can ports reduce the dependence on grid-supplied electricity?

To minimize the dependence on grid-supplied electricity, ports are also investing in renewable generation notably PV solar on warehouse roofing and parking areas. Energy storage is also needed to optimize utilization of in-port generation and avoid curtailment when generation exceeds the available demand.

How can ports reduce energy costs?

ESSOP has explored two ways in which ports can minimize their energy costs by using energy storage: • Optimising how to use PV solar generation to offset grid electricity. The wholesale price of energy varies every half-hour, and on a time-of-day tariff this variation is passed onto users.

Why is energy storage a critical port function?

Ensuring availability of these electrical resources to meet loads which are intermittent and uncertain is becoming a critical port function. It requires investment in multi-vector energy supply chains, energy storage in ports and their associated energy management systems.

How does port optimization work?

The algorithm driving this optimization forecasts the amount of grid energy needed by the port in the next 24 hour period and identifies the times when power can be purchased at the lowest prices, based on historic wholesale price profiles over time1. This means that the average price paid by the port can be lower than the average over 24 hours.

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