

Reaching a tipping point in battery-electric container handling equipment.

Overview

- Container Handling Equipment (CHE) is a critical enabler of seaborne transport, which has a lower carbon footprint than land or airborne transport and accounts for 90% of global trade
- In 2020, the global fleet of CHE enabled the transportation of ~815 million Twenty-foot Equivalent Units (TEUs), which is equivalent to the annual emissions of Slovenia
- Battery-electric is preferred over hydrogen-electric CHE due to a lower cost of ownership and greater efficiency
- While cheaper than hydrogen-electric, battery-electric CHE faces affordability and accessibility challenges which can be overcome with the right actions from industry stakeholders
- A tipping point is a moment in time when a new technology becomes more affordable, accessible, and attractive than the incumbent technology

How do we make this happen?



Terminal Operators

- Re-think the way terminals operate
- Develop terminal-level electrification roadmaps
- Identify workforce training requirements
- Increase / scale up demand



Original Equipment Manufacturers

- Cooperate to develop technology standards



Port Authorities and Affiliated Government Entities

- Incentivise the transition to zero-emission CHE fleets
- Make zero-emission CHE a requirement in new proposals
- Provide financing for the required infrastructure
- Ensure clean air mandates for CHE



Shipping Lines

- Identify requirements for end-to-end zero-emission supply chains
- Include zero-emission CHE in green shipping corridor requirements



Affordability challenges

BE-CHE is currently more expensive than diesel CHE

- Higher equipment prices
- Charging infrastructure costs
- Additional downtime for charging
- Battery replacement before end of life



Accessibility challenges

The BE-CHE value chain does not have the scale required for a large roll-out

- OEM production capacity is insufficient
- A lack of standardisation across OEMs
- Access to sufficient power supply can be challenging
- Shortage of skilled workers



Attractiveness benefits

BE-CHE immediately eliminates tailpipe emissions

- No scope 1 emissions
- Lower scope 2 emissions
- No air pollutants
- Lower levels of vibration and noise