Workshop alternative Kraftstoffe

Stand der Ladetechnik bei Batteriegetriebenen Schiffen

(State of the Art in Marine Charging)

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Segmentleitung Elektrifizierung

Leer (Ostfriesland), 2. Juni 2026

Wabtec CORPORATION

/// WABTEC

- WABTEC (Westinghouse Air Break Technology) Wilmerding (Erie), PA, USA. NYSE: WAB
- Marine Competence Center in Schüttorf,
- Industries: Transit, Ports, Cruise and Container Shipping, Bus & Truck
- 90 Land-side Ferry Chargers installed
- 175 ship sides recepticals installed since 2015

GLOBAL IMPACT

$11,7 Mrd
2025 REVENUES

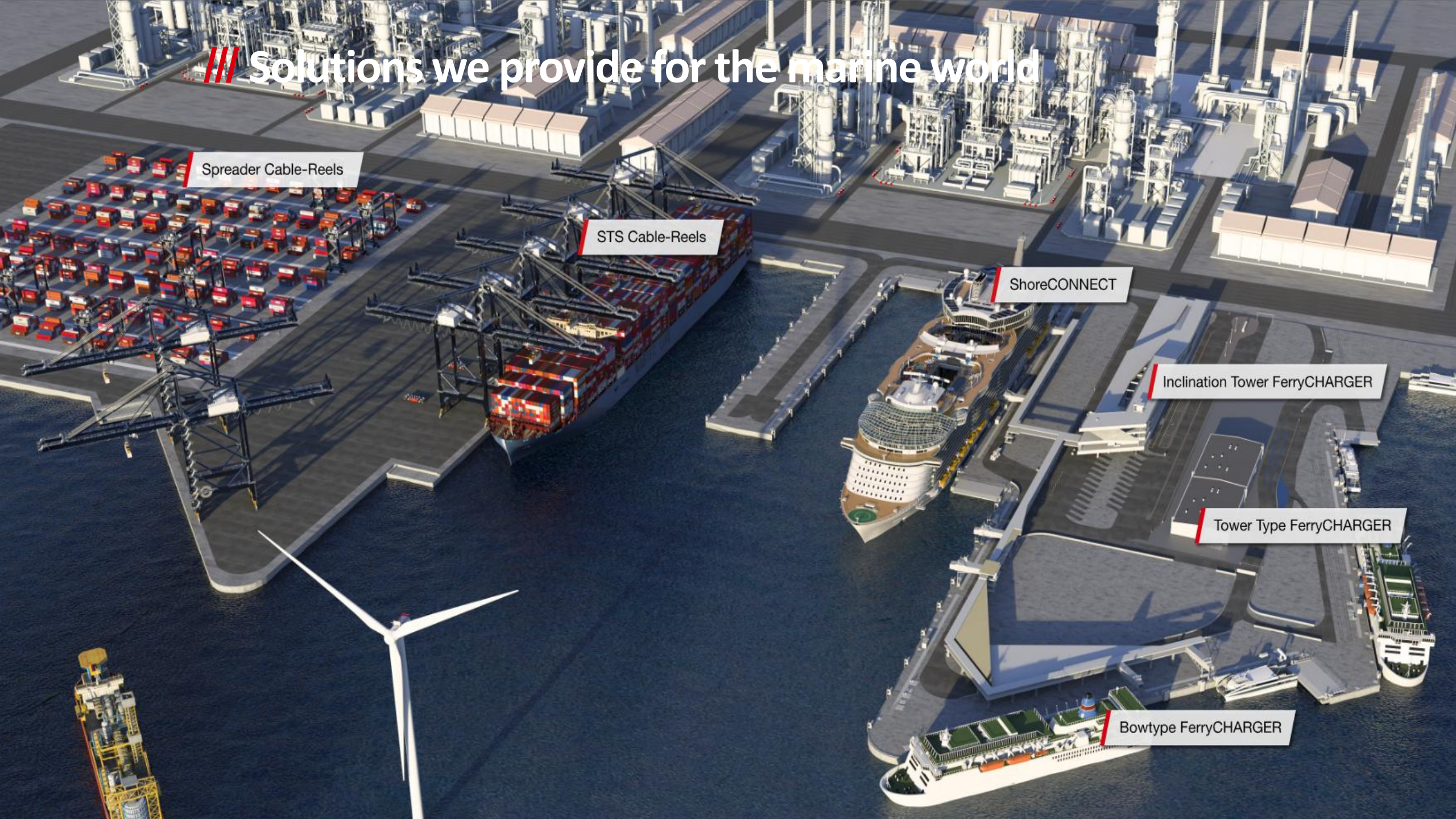
~23k
GLOBAL LOCOMOTIVES INSTALLED BASE

~30k
GLOBAL EMPLOYEES

~7k
PATENTS

~50
COUNTRIES WITH WABTEC OPERATIONS

100
COUNTRIES WITH WABTEC TRANSIT APPS

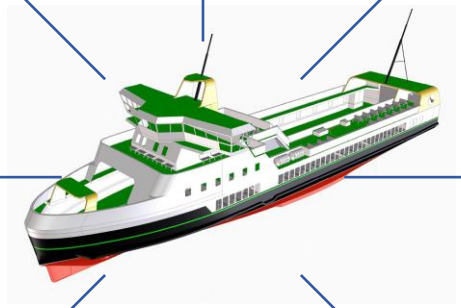

/// Solutions we provide for the marine world
Spreader Cable-Reels
STS Cable-Reels
ShoreCONNECT
Inclination Tower FerryCHARGER
Tower Type FerryCHARGER
Bowtype FerryCHARGER

/// Factors influencing the system selection

Safety
- Automatic Connection of the Charger
- Arc-free operation
- Fail-safe operation

Avail-ability
- Fullservice programmes
- Preventive maintenance
- Remote service support

Schedule
- Charging must never corrupt the ferry‘s schedule
- Fast physical, automated operation for safe processes



Risk
- Standardisation and
- Modularisation
- Interchangeability of vessels

Energy Demand
- AC: up to 90 MW“,
- DC up to 24 MW
- Power provision: landside battery banks?

Local Conditions
- Tidal Flux
- Weather / corrosion
- Compensation of vessel movements

Interchan geability
- Interchangeability required
- Various terminals
- Various owners
- Varoius ships and types

Terminal Layout
- Pier or ponton
- Linkspan
- Wingwall

BALTIC WHALE, 7.500 kW_{el}, 1.200 m loadtrack

/// Increased Power Demands

- From 2 MW in 2015 (AMPERE) to 90 MW in 2026
- Energy transfer shore to ship is possible by LV (AC or DC) up to 24 MW, alternatively HV (AC) up to 90 MW
- Power supply to terminal remains a challenge for the whole industry
- Landside battery banks (second-life) and cable crossings can help to solve the problem

/// Safety

- Controlled arm movements
- Automatic connection
- Automatic disconnection
- Arc-free separation
- Fail-safe disconnection
- Emergency stops
- Safety distances
- No Cable – no Wear

FerryCHARGER Bow-Type

FerryCHARGER Side-Telescope

FerryCHARGER Tower-Type

FerryCHARGER Panto-Type

Finland, Finnferries, 0,5 MW (LV)


Germany, Norddeich, 2,4 MW (LV)
IMO 1013250
Wabtec
CORPORATION
HYP BATT

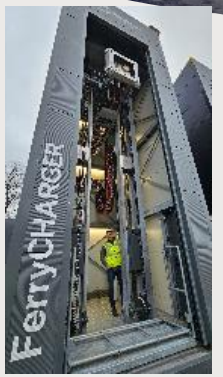
Germany, Norddeich, 2,4 MW (LV)

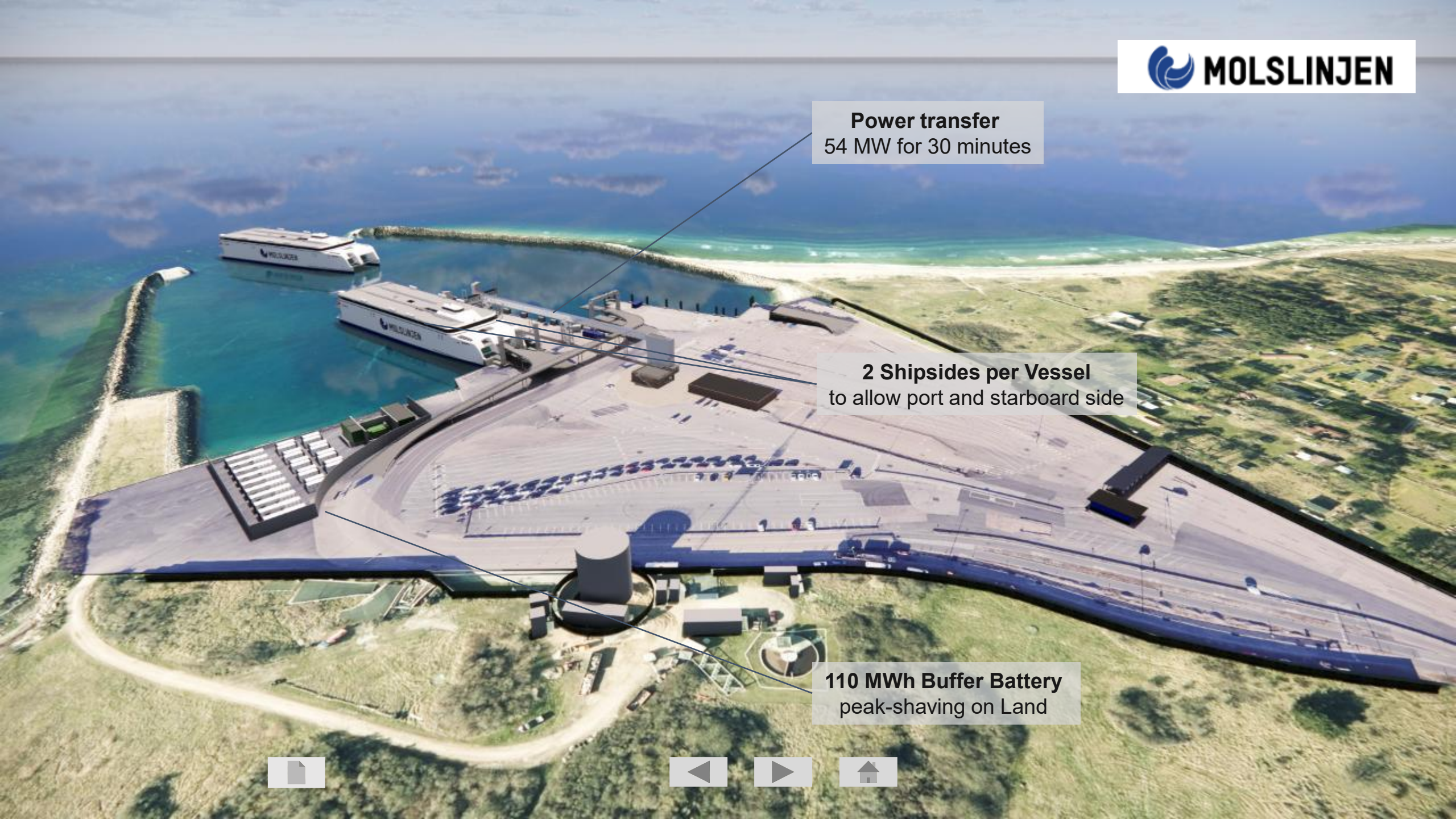
Norway, Moss-Horten, 9 MW (HV)

Denmark, Rödby -Puttgarden, 15 MW (HV)

FerryCHARGER Tower-Type

Denmark, Kattegat route: Århus-Sjelland Odde, 90 MW (HV)




MOLSLINJEN
Power transfer
54 MW for 30 minutes
2 Shipsides per Vessel
to allow port and starboard side
110 MWh Buffer Battery
peak-shaving on Land

/// Availability

- Ensure continuous, trouble-free operation to secure operator‘s ability to move Pax and Cars in a CO2-free manner

- The objective is to have > 98% availability for this critical infrastructure

- Four main pillars:
  - Preventive maintenance
  - Corrective maintenance
  - Overhauls and Repairs
  - Technical support, 24/7 on-call service and Remote monitoring

- fixed monthly costs

/// Take-Away

- Onshore Power Supply = Hotelload
  FerryCHARGER = Battery
- When energy is available at the terminal, it can be brought abord
- Standardized, partly EU-wide harmonized modules are in use since 2015
- Tendency towards inclusive usage of charging infrastructure
- Transfer-Rates up to
  - 24.000 kW DC (… 1000 V)
  - 90.000 kW AC (… 12.45 kV)
- No compromises regarding safety and availability

THANK YOU…

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