

# Vollelektrisch auf großer Fahrt Realität statt Vision

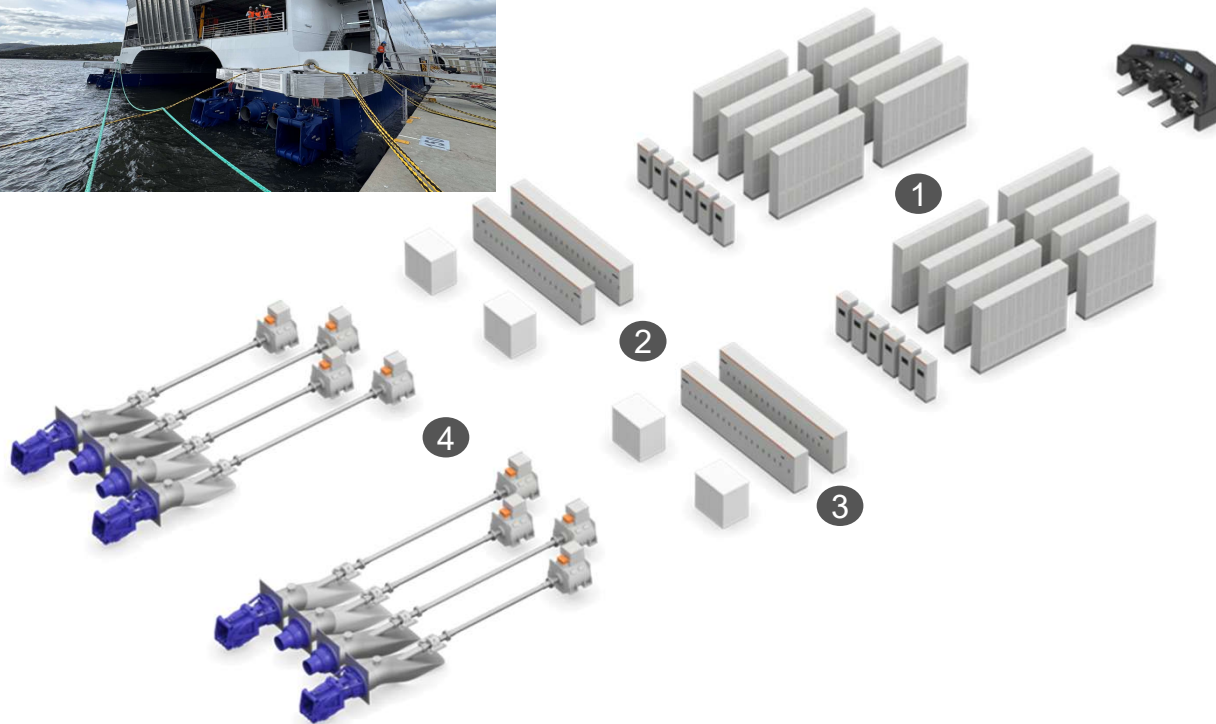
für Neubauten und Retrofits



2. Juni 2026



## CHINA ZORILLA: THE WORLDS BIGGEST ELECTRIC VEHICLE



- 1** 41MWh batteries (>5000 modules)
- 2** 38m long DC switchboard
- 3** 15MW DC charger
- 4** 8 x 2MW PM motors



Land side power conversion

# The world's largest battery driven vehicle

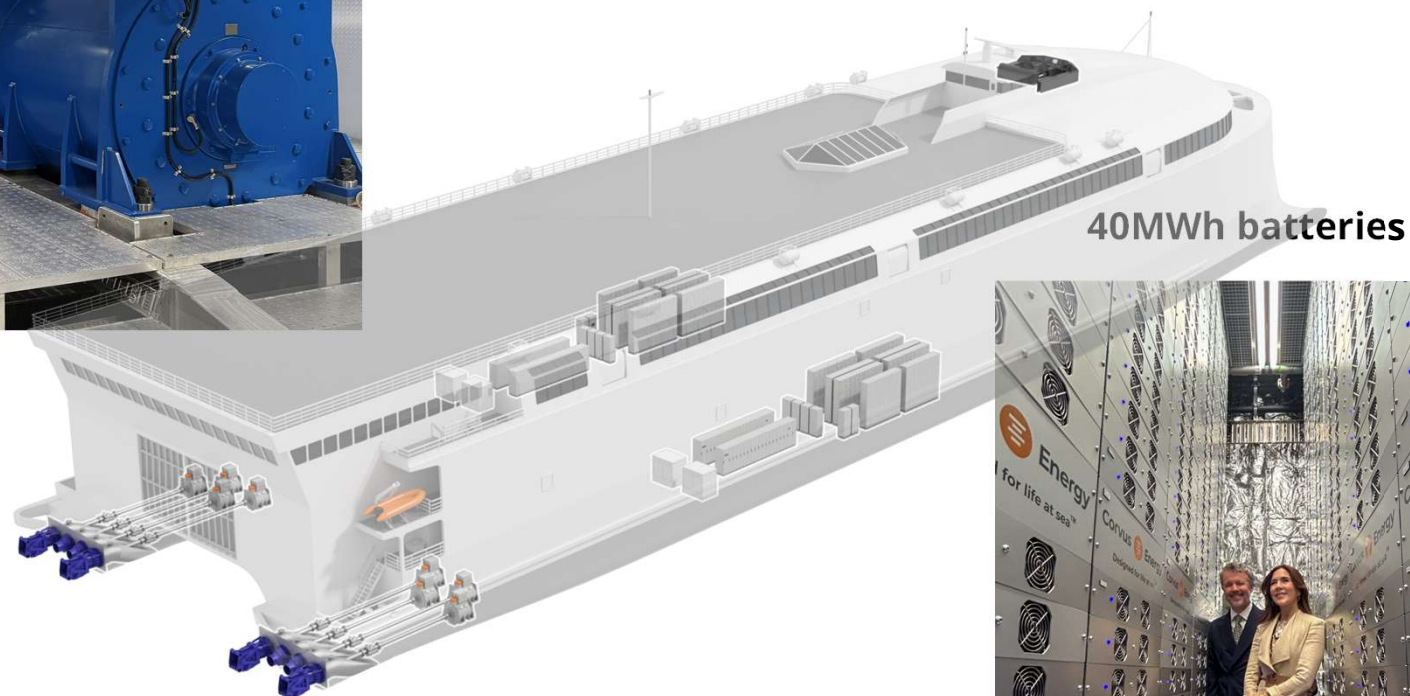
- LOA 130m lightweight aluminium catamaran
- 100% battery power
- Powered by 8 x 2200kW waterjets
- Capacity
  - 2100 passengers
  - 225 cars
  - 3000 sqm tax free
- Cruise speed 25Knot
- Class DNV
- Yard Incat Tasmania







**8x2200kW high efficiency  
permanent magnet electric motors**



**40MWh batteries**

## China Zorilla

**Largest battery driven vehicle  
of the world**

**And even bigger ordered:  
3 ships for Molslinjen  
54MWh battery, 55MW charging, 8x6500kW,  
2026**

*Photos and footage courtesy of Incat Tasmania*



## RECORD BATTERY SHIPS



- Full electric fast ferry (25kn) with 40MWh battery (Buquebus)
- 16MW propulsion power via 8 waterjets
- 2h trip in shallow water (<4m) with 90 min in port
- DC charging at both ends
- Bigger full electric once on the horizon



- Biggest hybrid ship sailing
- Battery upgrade from 2 to 12MWh
- 2 battery makers onboard integrated into one propulsion system
- Exchange of hybrid control system to Wartsila one from 3rd party
- Converter control upgrade



- Was biggest hybrid ship sailing for 2 years
- BF/Stena (11.5MWh ESS hybrid) allows full-power maneuvering on batteries only
- 97% of all turnarounds full electric
- IEC shore power for charging



- Will be biggest electric ship in 2027:
- 3 Molslinjen full electric catamarans
- 54MWh batteries, 40kn, 40MW propulsion power
- 50MW charging (AC Medium Voltage)
- 6 split DC Grid to 8 waterjets

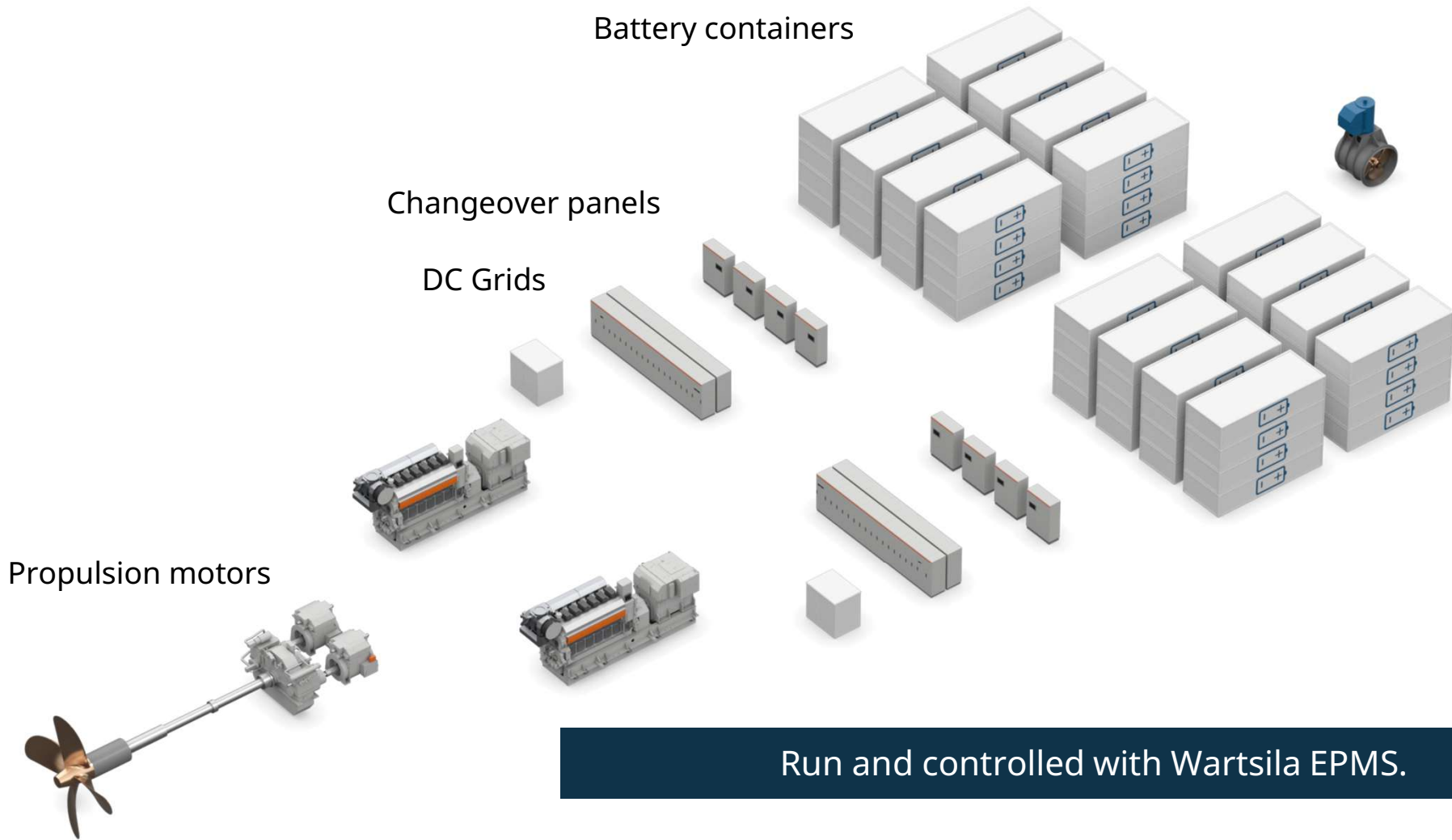


- 2 x engine-driven ferries for Scandlines to become fully electric,
- 12MWh energy storage, power conversion, and shore charging
- In commissioning currently

## Whats next?

- full electric feeder?

## Electric feeder system overview



Run and controlled with Wartsila EPMS.

## What are the most important when designing a vessel like this?

Understand your operation profile and power requirements for all operations

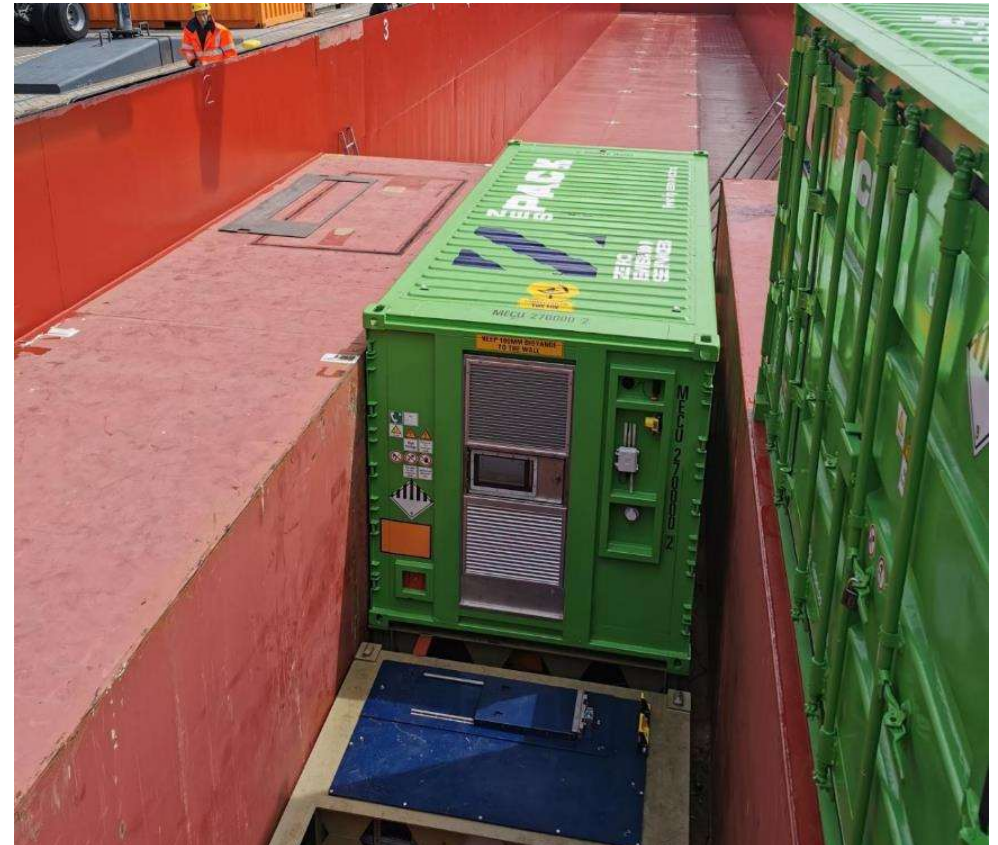
Can you alter the operational profile? Speed, charging time?

Know the shore charging capabilities.

Look at a complete system, handling power from the grid to the propeller



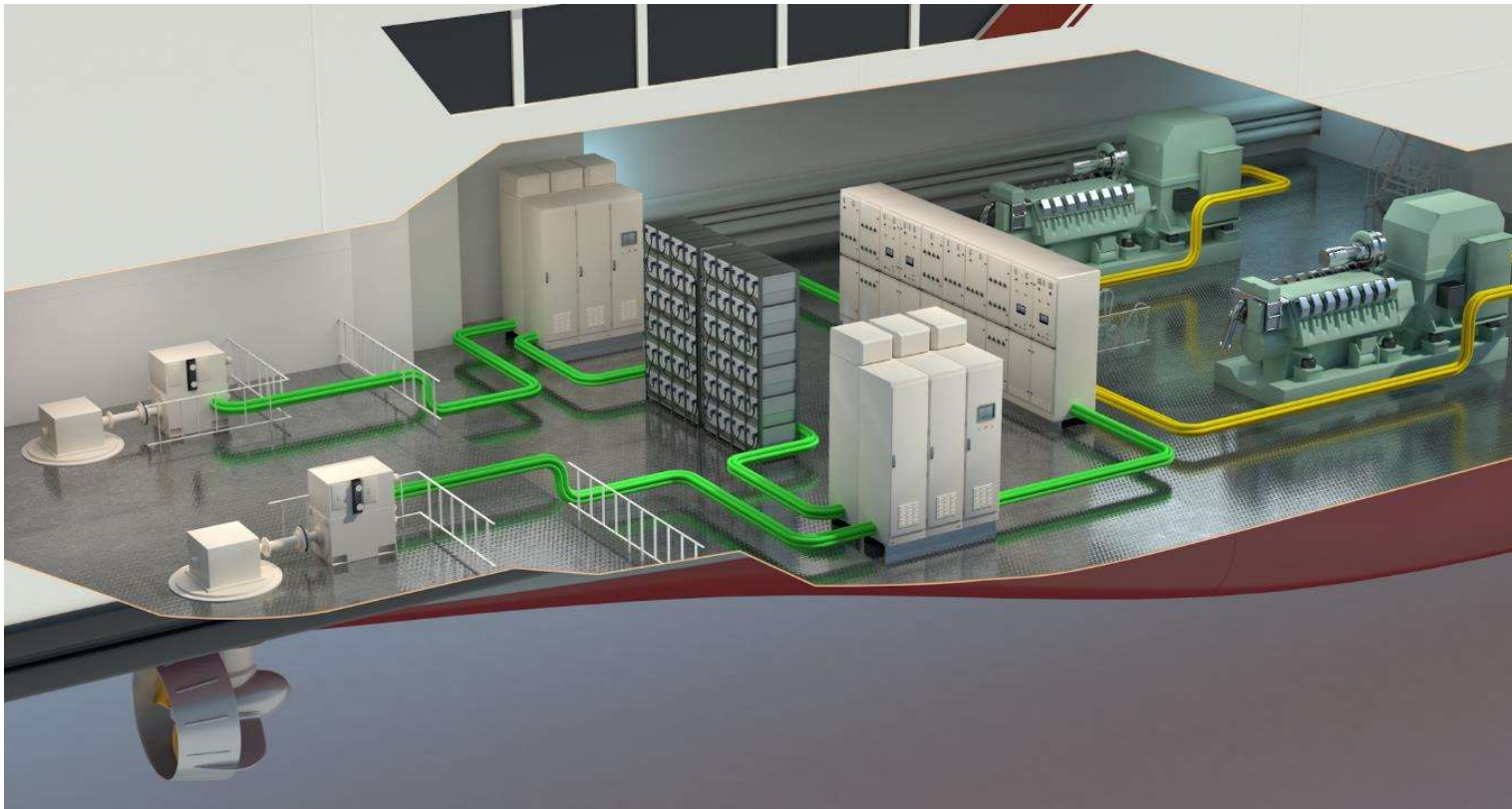
## ZERO EMISSION / FULL ELECTRIC VESSELS: WHAT CAN FULLY ELECTRIFY WILL, DUE TO HIGH EFFICIENCY OF FULL ELECTRIC PROPULSION



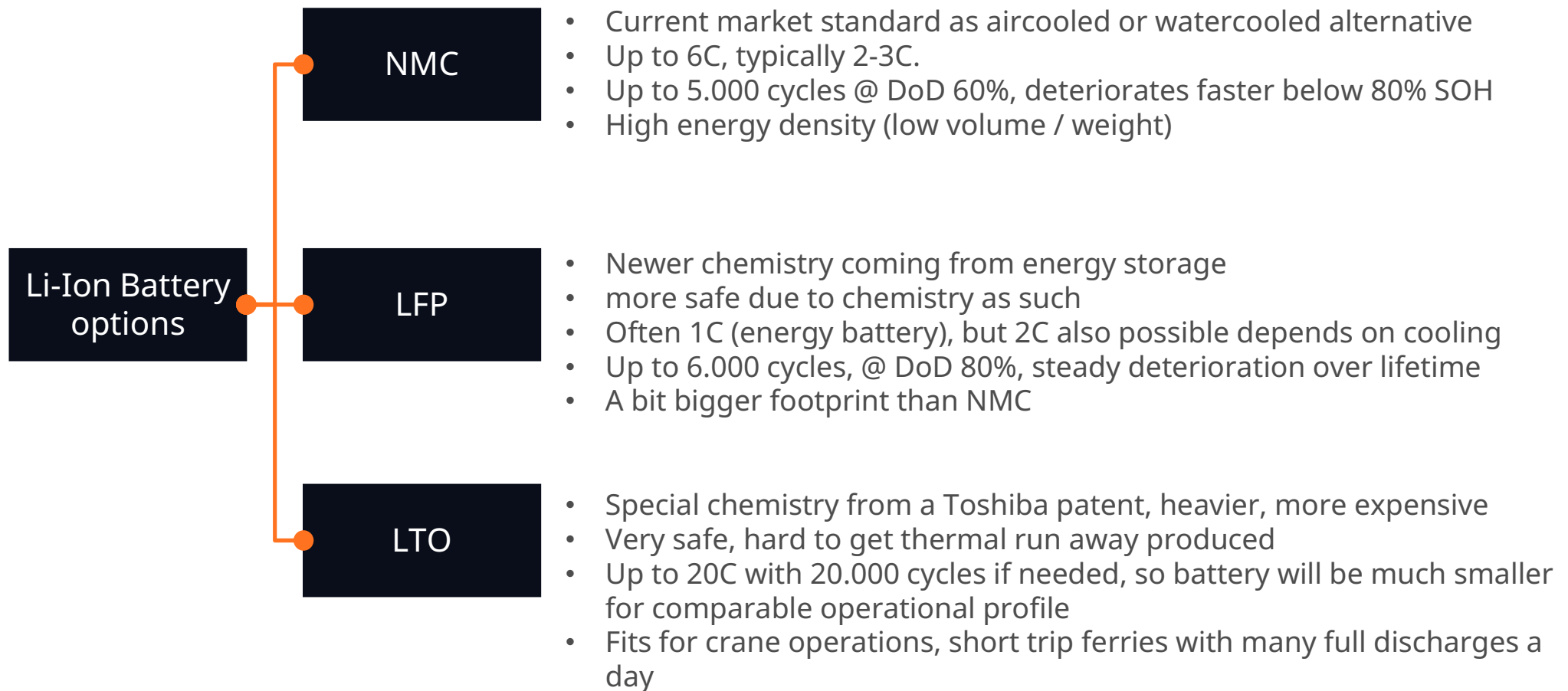


## HYBRID PROPULSION: A FUEL-SAVING TECHNOLOGY

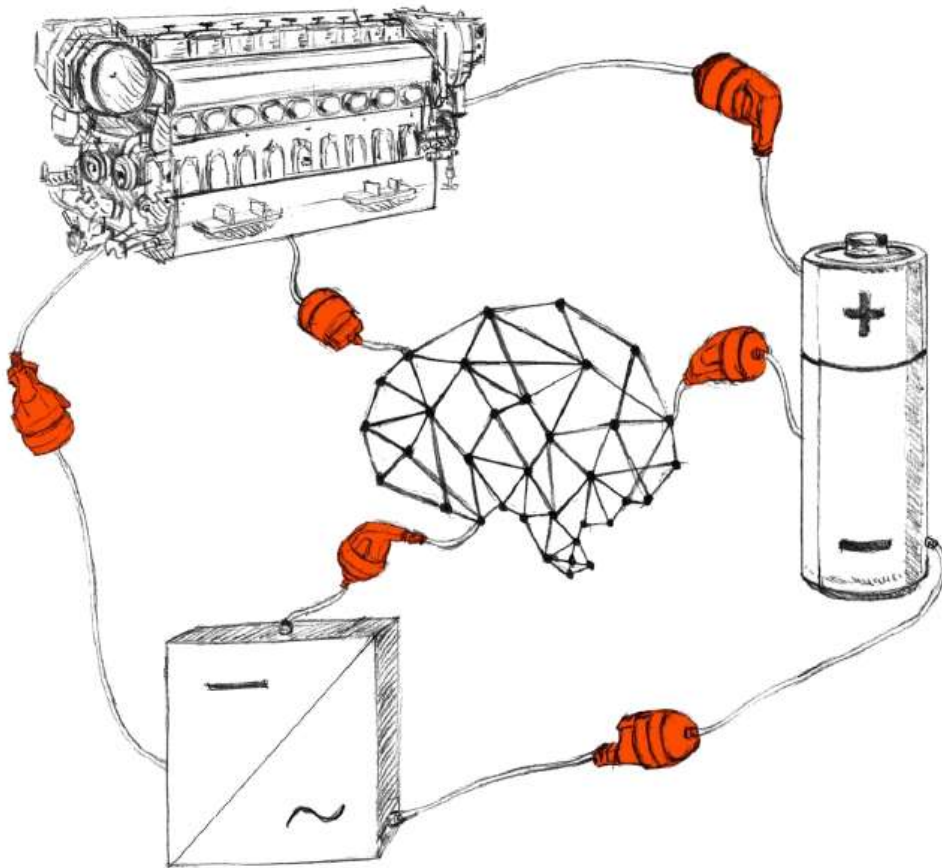
ALL FUTURE FUELS ARE HIGH PRICE. HYBRID REDUCES FUEL CONSUMPTION SIGNIFICANTLY



## There are three marine battery chemistries available – all are Lithium-Ion type



## A HYBRID VESSEL IS NOT DONE BY ADDING A BATTERY TO THE PROPULSION TRAIN

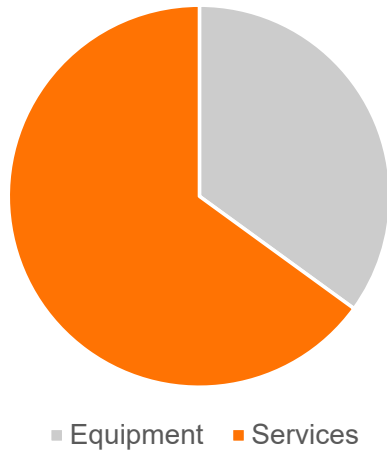


- The hybrid control (= energy management) system give the optimization functionality to the vessel and safeguards battery lifetime
- They are not available on the market, only the experienced hybrid integrators have one
- A normal power mgmt. system can only turn the battery on and off a hybrid vessel and will not deliver its functions
- A normal PMS cannot safeguard charging / discharging speed that is so important to keep battery lifetime as engineered

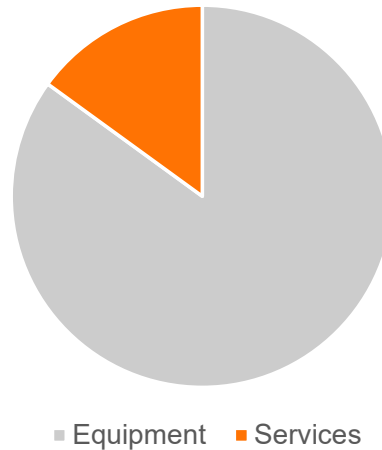


## THE ADVANTAGE OF AN ELECTRIC DRIVEN SHIP IS THE LACK OF MAINTENANCE

Mechanical Business Revenue share



Electrical Business Revenue share



### Preventive Maintenance contract costs

- 15 years
- Incl. all equipment
- Incl. specified wear and tear spares
- Incl. critical spares in warehouse / on board
- Incl. training
- Incl. interface to owners inhouse remote support / performance system?
- **Apx. 15.000 € p.a.**