

# Current and Developing Trends in Ferry Propulsion Systems

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Main Engine + e-Machine + Battery

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# Hybrid [hɑi.bɹɪd]

Something that is formed by combining two or more things

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Ship Owner + Market + Lawmakers

Technical + Procurement + Operations

Equipment + Infrastructure

Ship + Fleet

Newbuild + Retrofit

Evolutionary + Revolutionary

Ship Owner + Ship Designer + Ship Yard + OEMs + Integrator

# Wartsila is a leading global marine electrical system integrator



Shaft generator systems (1000 vessels)



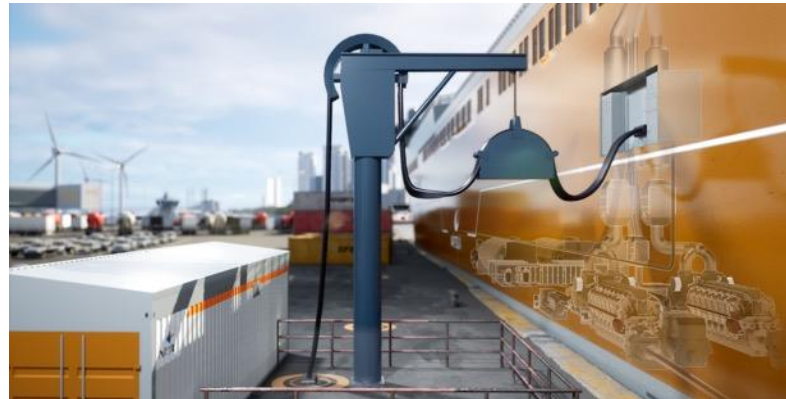
Diesel-electric propulsion (400 vessels)



Hybrid propulsion (400 MWh batteries)



Full electric ships  
(largest and fastest vessels)



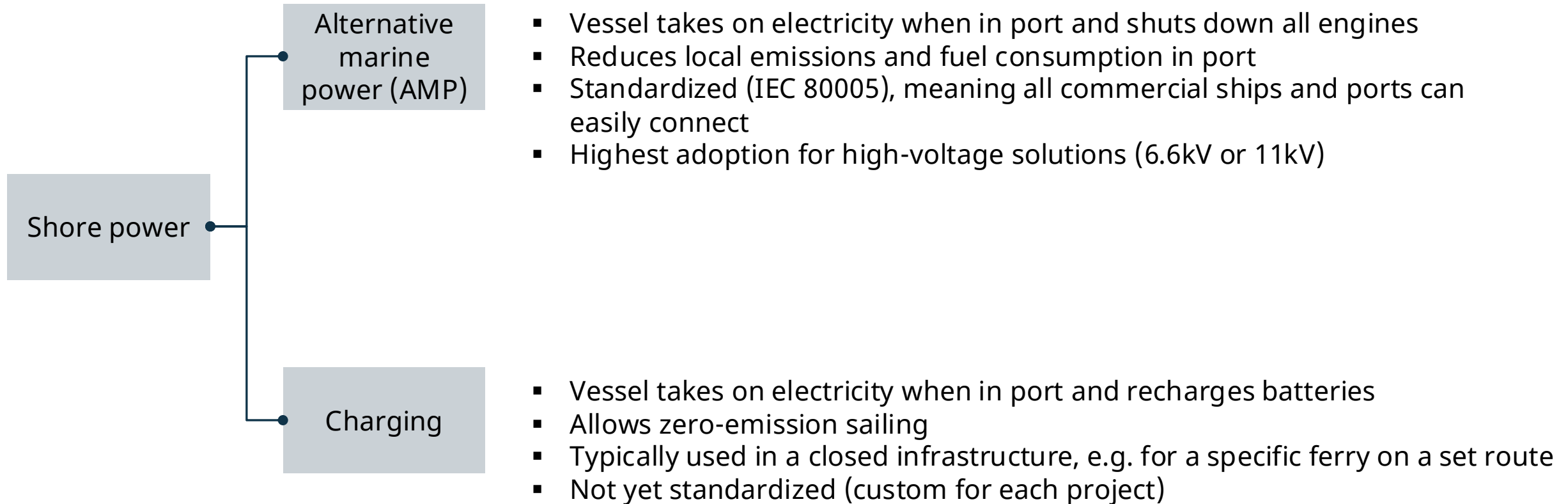
Shore power (150 vessels)

**Newbuild solutions**

**Retrofit solutions**

**Lifecycle services**

## Two shore power routes exist today



An IEC connection can be used for charging e.g. a RoPax ferry



**Molslinjen**  
Pure Electric high-speed catamaran



**Isle of Man Steam Packet Company**  
Electric Hybrid - Diesel



**STENA/Marine Atlantic**  
Mechanic Hybrid - Gas



# EXPERIENCE FROM PURE ELECTRIC FERRY TO THE LARGEST HYBRID ROPAX



**Balfour ferry, western pacific**  
Electric Hybrid - Diesel



— NEXT GENERATION MED —

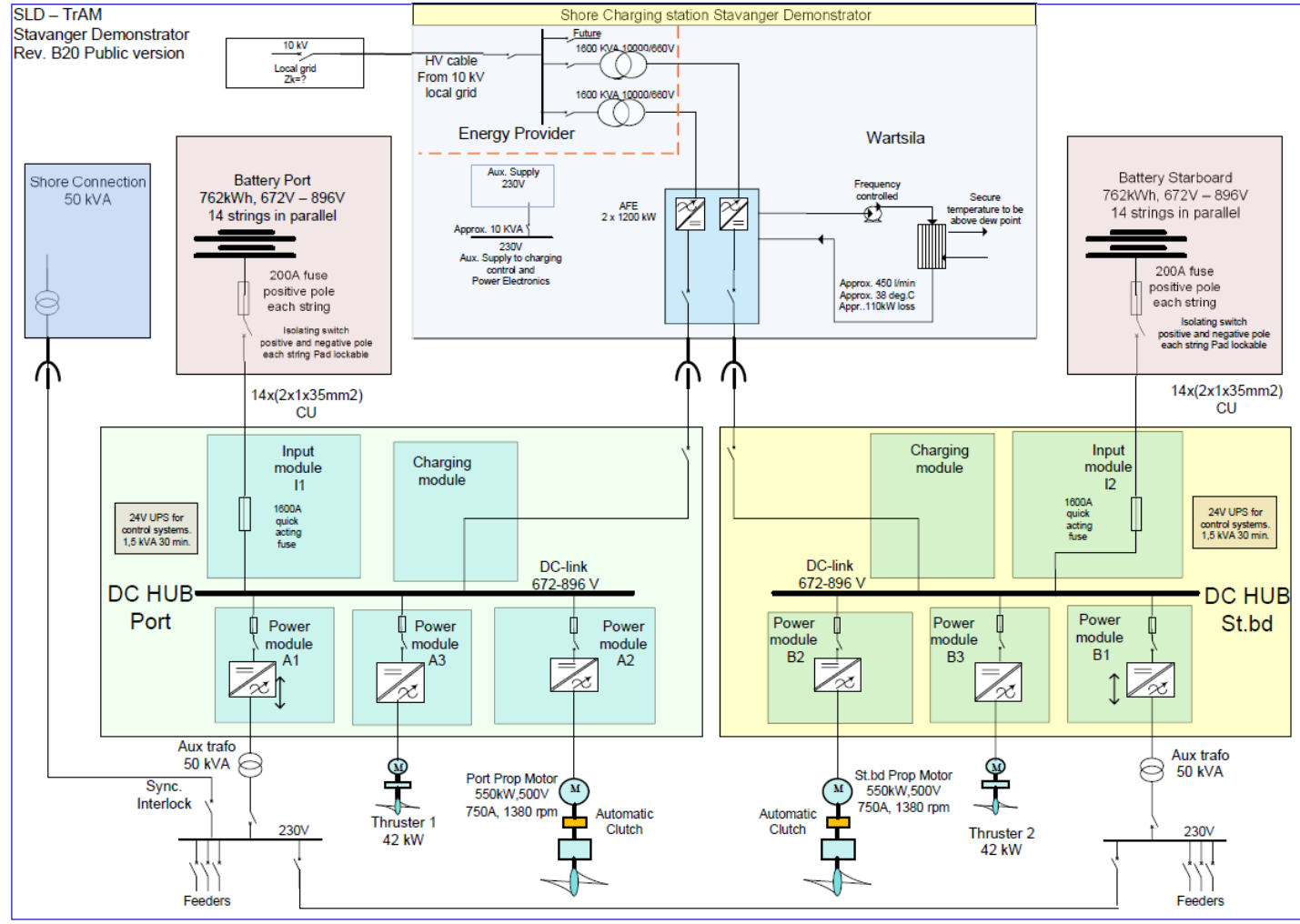
**Grimaldi / Finnlines / Minoan 9 ROPAX**  
Mechanic Hybrid - Diesel



**STENA/Brittany Ferries**  
Mechanic Hybrid - Gas

# Medstraum Ferry

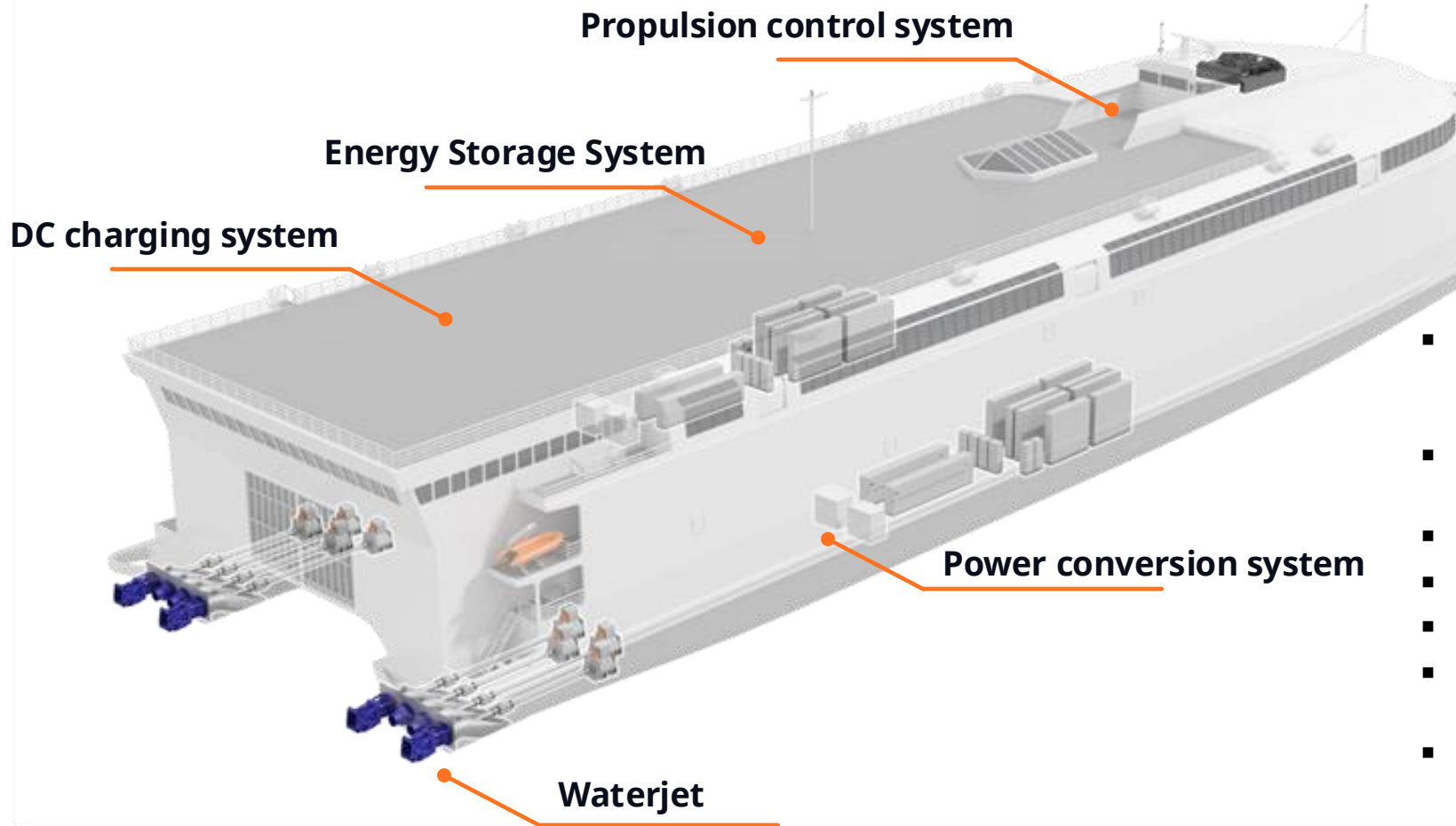
## Vessel runs in fully electric mode between Stavanger and the outer islands



- Cruising speed during operation: 23kn, max speed: 27 kn
- Length: 30 meters. Width: 9 meters.
- Battery capacity: 1524 kWh
- Electric motors: 2× 550 kW
- Charge capacity: 2,3 MW via 6 CCS chargers



# The biggest battery electric ship ever built has Wärtsilä integrated solution on-board and on-shore



- 130m LOA, capacity up to 2100 Passenger and crew, 225 cars and over 2000 Sqm of duty free shops
- Lightweight high speed aluminum catamaran
- Cruise speed 25 knots
- 1.5 h sailing, 1.5h charging (~20 MWh)
- 41MWh battery
- 8 x permanent magnet electrical propulsion motors, 2200kw (peak 2400kW)
- 4 DC Hubs plus battery short circuit limiters
- 2 x high speed Charging connectors, 15MW

# Large RoPax case



## STENA/Brittany Ferries Mechanic Hybrid - Gas

