Corvus Energy

Innovation in Practice

Mariko, Leer, 2nd of June 2026

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Corvus Energy

About Corvus Energy

The leading provider of marine battery systems

1,300+
Projects

>10 Million
Running hours

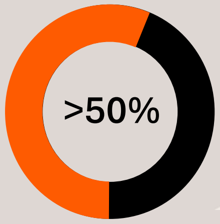
10.9 Billion
Kilograms of CO_2 prevented

4.4 Billion
Liters diesel fuel saved

15 Offices
Europe, Asia, Americas

3 Factories
Norway, Canada, USA

Corvus Market Share



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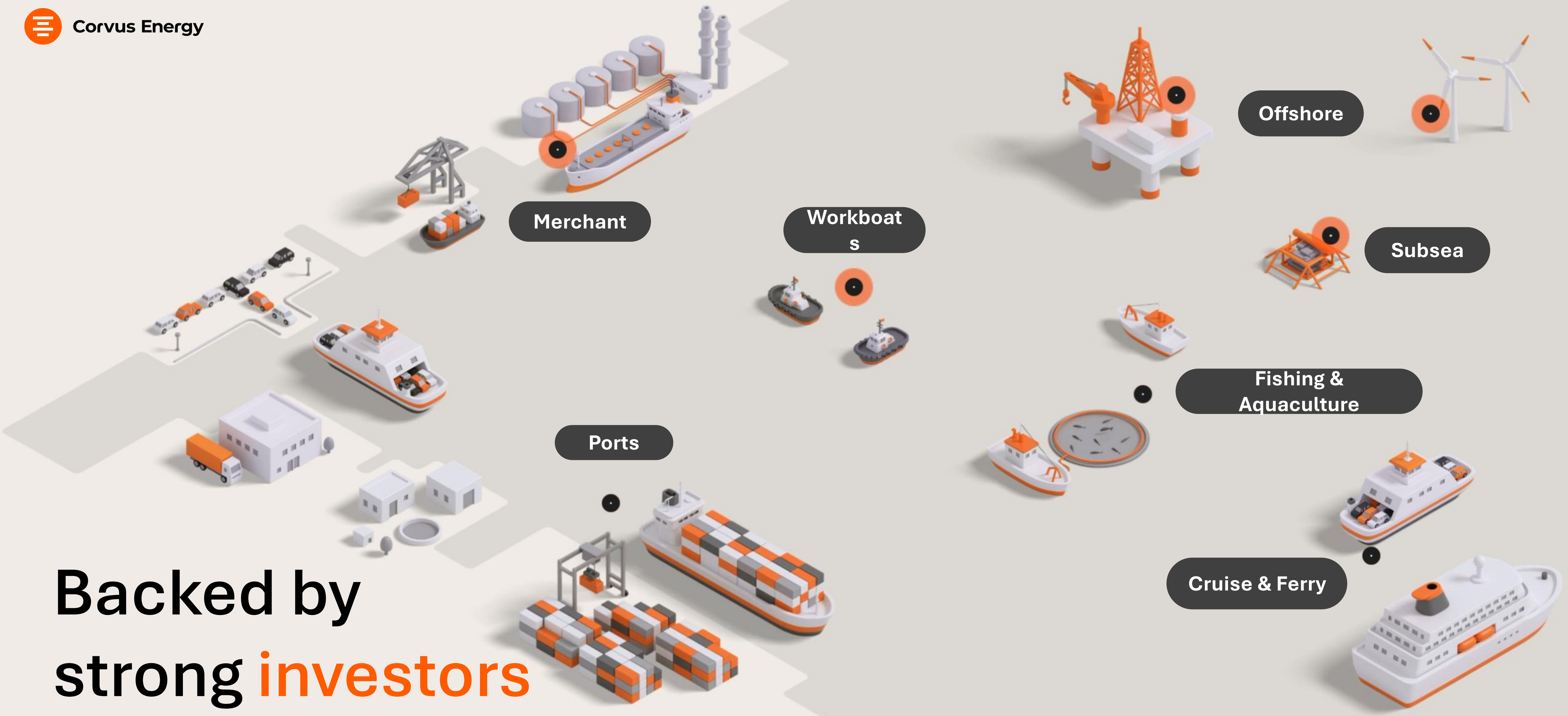

Backed by strong investors

equinor

Shell

woven capital

Morgan Stanley INVESTMENT MANAGEMENT

J. LAURITZEN

JUST CLIMATE by generation

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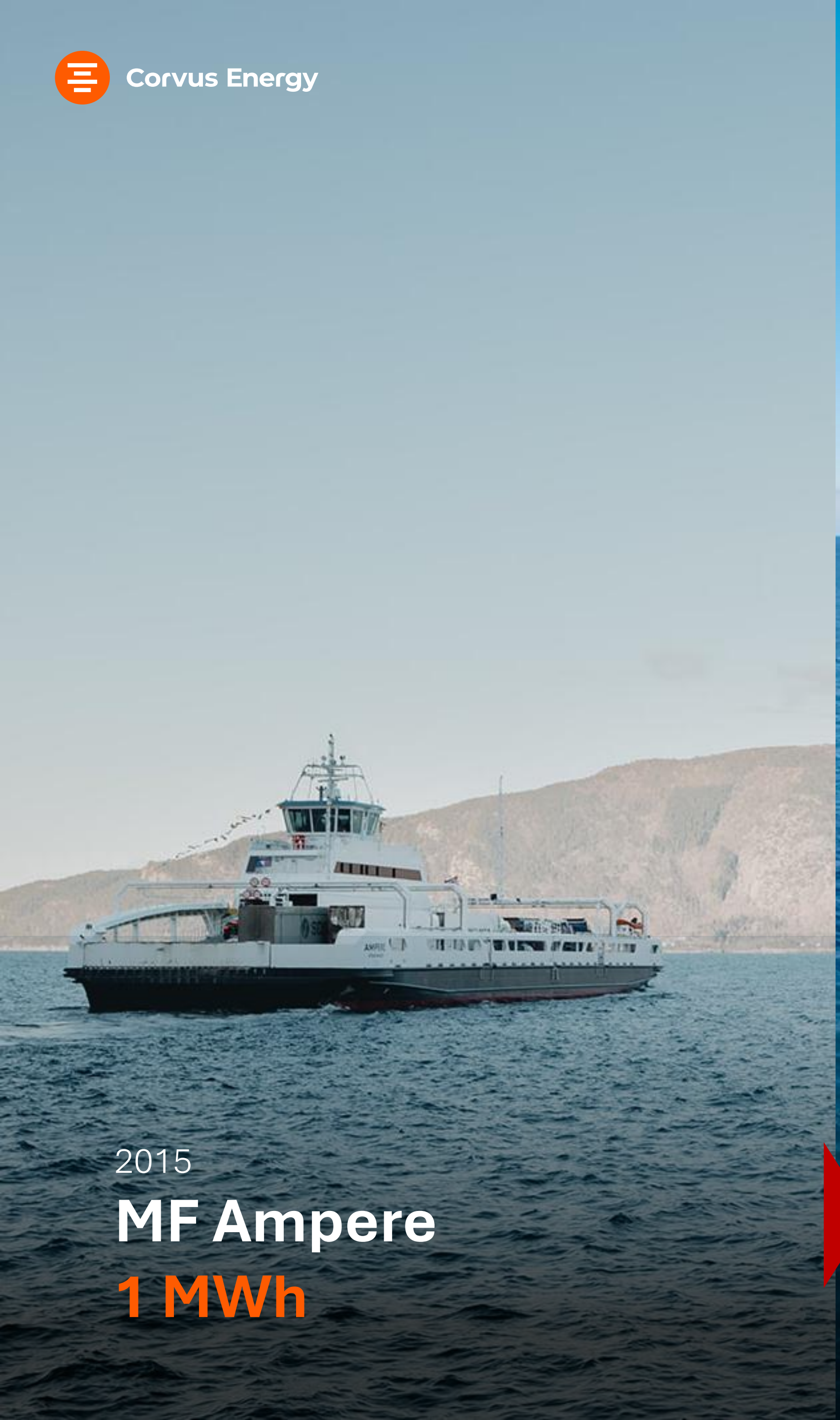


2015

MF Ampere

1 MWh

2020

Aida Prima

10 MWh

2025

China Zorilla

42 MWh

Cruise References

Aida Prima
Large Cruise

Havila Kystruten
Costal Cruise – 4 ships

Le Commandant Charcot
Exploration Cruise

Le Ponant

Ponant
Exploration Cruise

Roald Amundsen
Exploration Cruise

Fritjof Nansen
Exploration Cruise

AMAN Cruise
Sama

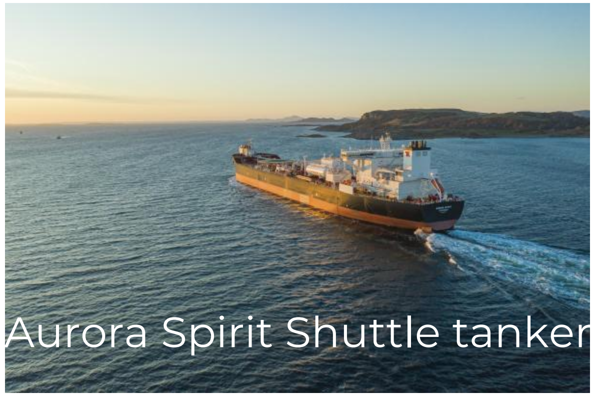
A-Rosa Sena
River Cruise

MS Annika
River Cruise

ViVa 1 & 2
River Cruise

Scenic Eclipse

Tanker and cargo vessel references


Aurora Spirit Shuttle tanker


Hannah K-Chemical tanker


Sten Odin-Chemical tanker


Misje – Bulk carrier


Terntank - cargo ship


Container ship


Donsø - Cargo ship


Terntank - new cargo ships

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The future?

Fully electric or diesel assist
50-100k GT

450-600NM range

500-1000 MWh ESS

100 ports with shore power
In Europe by 2030

16MW charging becoming new standard

Project Vision
by Meyer Werft

System Solutions

Emission Savings

A battery is a natural element for any power system aimed towards fuel saving and lower emission. It has a great impact on any scale from hybrid operation to fully electric.

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Use Cases

Hybrid and electric solutions with battery energy storage

Spinning Reserve

- Backup energy source
- Reduce number of engines running
- Fuel efficiency
- Reduce engine hours

Peak Shaving

- Reduce power peaks
- Engine load optimization
- Fuel efficiency
- Reduce engine hours
- Load levelling

Zero-emission

- Zero emision in port
- Zero emission manouvering
- Zero emission transit
- Silent operation

Blackout prevention

- Instant power available
- Energy for Hotel load
- Electric Power for Propulsion

Compliment to Fuel Cell

- ESS optimize fuel cell function
- Used together, they extend zero-emissions operations

Shoreside Charging

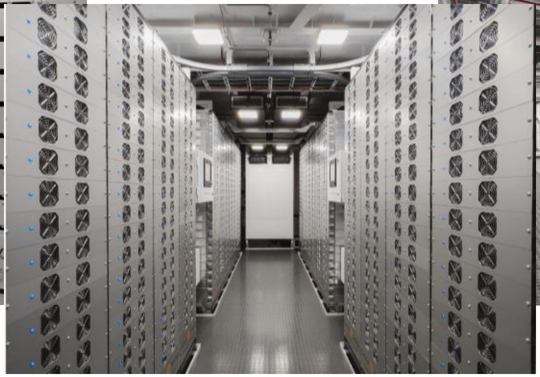
- Plug-and-play battery room
- Reduce costs by drawing grid power during off-peak times

Safety – Design – Performance & Simplicity Hand in Hand

2015
AT6500

2015
Dolphin 1.0

2016
Orca Energy

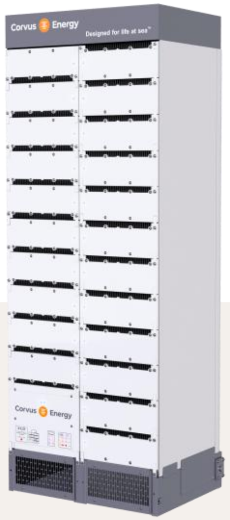


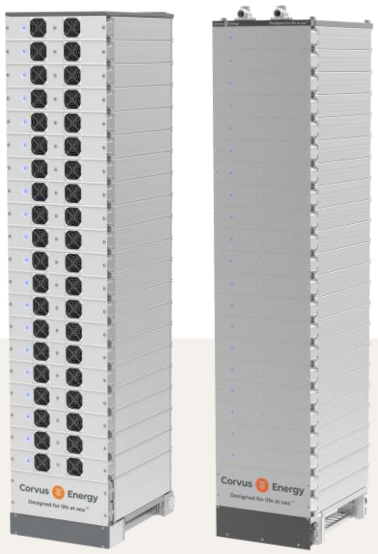
2023
Dolphin NxtGen

2025
Blue Whale NxtGen

Refined through multiple generations of Corvus battery systems, the NxtGen architecture is purpose-built to simplify every stage of the lifecycle — from installation and commissioning to service and repowering — with a future-ready design that protects today's investment and adapts to tomorrow's requirements.

Corvus ESS Products





Orca Energy

- NMC Chemistry
- Pouch Style Cell
- Air Cooled
- Racked Design

Blue Whale
NxtGen Energy

- LFP Chemistry
- Prismatic Cell
- Liquid Cooled
- Rackless Design

Dolphin Energy
NxtGen

- NCA Chemistry
- Cylindrical Cell
- Air or Liquid Cooled
- Rackless Design

Dolphin Power
NxtGen

- NCA Chemistry
- Cylindrical Cell
- Liquid Cooled
- Rackless Design

Example comparing three Corvus ESS systems

Available space: 6.3 m x 15 m x 3 m (Height)

Orca

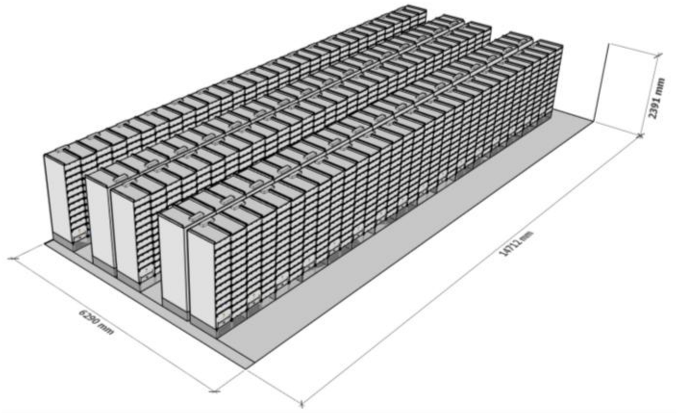
9 941 kWh
130 240 kg
NMC

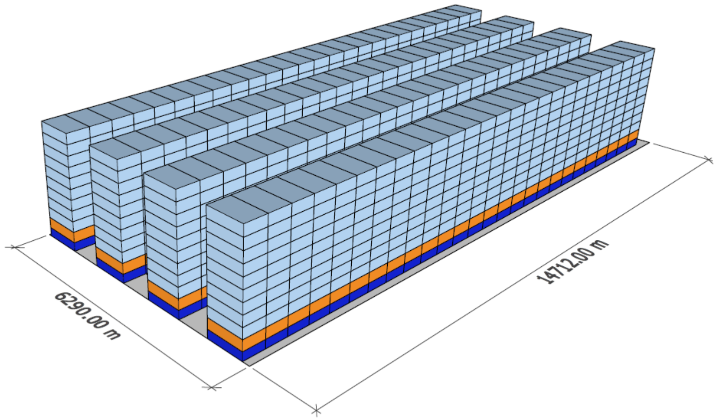
Blue Whale NxtGen

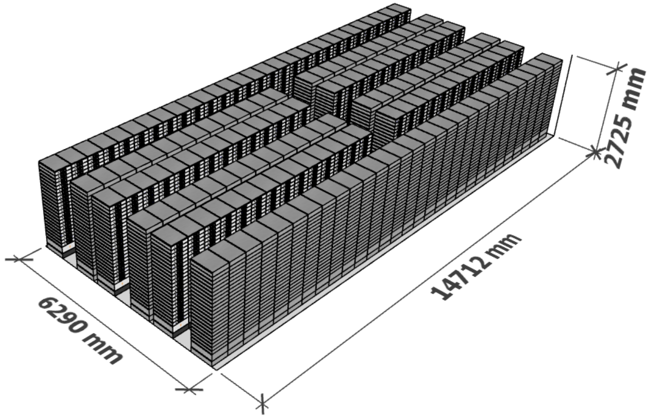
22 576 kWh
181 168 kg
LFP

Dolphin NxtGen

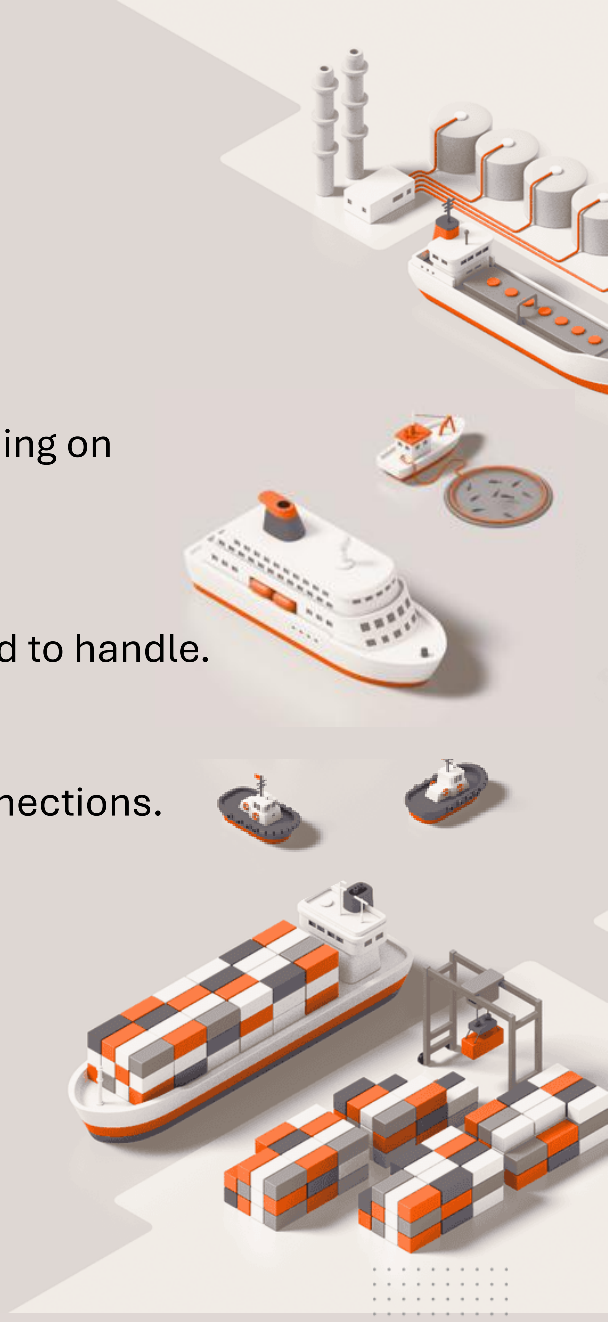
30 698 kWh
182 087 kg
NMC







Challenges of scaling up onshore power supply (OPS)



1. Grid Capacity and Stability

- **High power demand**:
  Large electric ferries can require tens of MW of charging power (e.g., 10–90 MW per call, depending on battery size and turnaround time). Supplying this without destabilizing local grids is difficult.

- **Peak loads**:
  Charging often happens in short port calls, creating spikes in demand that grids are not designed to handle.

- **Grid reinforcements**:
  Many ports need new substations, higher-voltage connections, or direct transmission-level connections.

2. Standardization and Interoperability

- **Different voltage and frequency needs**:
  Ferries may need medium or high voltage DC/AC, while OPS standards (like CE, IEC/ISO/IEEE 80005) are still evolving.

- **Compatibility across ports**:
  Operators running multi-port routes require uniform connections; otherwise, they face duplicated costs for ship- and shore-side equipment.

3. Port Infrastructure

- **Physical space constraints**:
  Large cable systems, converters, and transformers take significant portside real estate, which is often limited.
- **Harsh environments**:
  Cables and connectors must withstand salt, water, ice, and heavy use.
- **Automation needs**:
  Manual connection of multi-MW high-voltage cables is impractical; automated systems (e.g., robotic arms, cable reels) are expensive and not yet standardized.

4. Cost and Financing

- **High upfront investments**:
  Grid upgrades, substations, and OPS systems can cost tens to hundreds of millions of euros per port.
- **Unclear business models**:
  Who pays—the port, the operator, the energy company, or government subsidies? Many stakeholders = conflict
- **Utilization uncertainty**:
  OPS is cost-efficient only if used frequently; seasonal or low-traffic routes make it harder to justify.
- **Co-Operation**:
  All parties like ports, developer, ship owners, shipyards, grid owners etc need to co-operate to make best use of the investment

5. Safety and Reglatory Issues

- **High-voltage operations in public areas**: Requires robust safety systems, fire protection, and crew training.
- **Certification and class rules**: Ships and ports must comply with evolving class society and IMO regulations.

6. Energy Source and Sustainability

- **Fuel mix**: Without guarantees, OPS could still rely on fossil-fuel-based grid power, undermining climate benefits.
- **Renewable integration**: Supplying large ferries sustainably requires green electricity at scale. Ports may need on-site storage or renewable generation to balance intermittent supply.

In Port Battery Energy Storage Systems can buffer demand and reduce costs

Option 1: Grid Reinforcement

Pros:

- Permanent solution with high reliability
- No on-site storage risks

Cons:

- Very high CAPEX (varies a lot)
- Long permitting and construction time (5–7 years)
- Not flexible for changing ferry schedules

Option 2: Battery Energy Storage System (BESS)

Pros:

- Lower initial CAPEX (€20M for 50 MWh system ?)
- Faster deployment (1–2 years)
- Can provide multiple services (grid balancing, backup)

Cons:

- Technology risk (battery lifespan, safety)
- Requires replacement after 10–15 years
- Complex ownership & revenue models
- Expensive to connect to grid

BESS offers faster, cheaper near-term solution but requires lifecycle and grid planning

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Strategic Considerations

- Policy support and subsidies can shift economics
- Hybrid approach possible (BESS now, grid upgrades later)
- Collaboration needed between ports, utilities, and ferry operators
- Future-proofing: allow scaling to multiple ships and routes

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Mature Technologies

- LFP-Class
  - High level of maturity and continuous performance improvements for Energy cells
  - Power cells have lower level of maturity but are subject to continuous performance improvements
  - High cycle life (10 000 FEC) Energy cells have become «standard»
  - Power cells (2C + capable) available but with lower cycle life (6000-7000 FEC)
  - Pricing remains attractive

  - Phosphate track: LFP/LMFP/LNMO

Mature Technologies

- NMC-Class (including LTO)
  - High level of maturity
  - Still continuous improvements, but not at same rate as for LFP-class chemistries
  - Remains more versatile than LFP-class chemistries
  - Less sensitive to accelerated degradation than LFP-class chemistries
  - More expensive than LFP, but price premium is decreasing

  - Nickel track: NMC/NCA/NMCA/LMNO/LTO

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Thank you!

Contact

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