ERMATECH GROUP

Electrification solutions for cargo vessels

Hybrid systems, peak shaving and emission-free port stays

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The ERMA TECH GROUP

A global Leader in sustainable maritime technology that delivers integrated, turn-key solutions across critical areas of maritime operations, combining decades of proven expertise with exceptional service throughout the entire vessel lifecycle.

One Trusted Partner for All That Matters

- **Energy Efficiency & Decarbonization**
- **Regulatory Compliance**
- **Lifetime asset Support**

Collective expertise with proven track record

ERMA FIRST · RWO · ecochlor · epe Engineered to Respond · metis · HASYTEC PART OF ERMA TECH GROUP

Global operations

HQ in **Greece**, with global presence across:

- Europe (**Germany**)
- Middle East (**UAE**)
- The Americas **(USA)**,
- Asia–Pacific

>50	Operational points worldwide	9	Spare parts Stock Points	2	Training Centers
>70	Field Engineers	>450	Full-time Employees		

>4.100	BWTS Fitted vessels	>3.500	STP System Installations	>23.000	OWS Installations

Electricity at berth is becoming mandatory

01

FuelEU Maritime

In force since January 2025. From 2030, container and passenger ships of 5,000 GT and above must use shore power at berth in AFIR ports, and in every OPS-equipped EU port from 2035.

02

AFIR

By 2030, TEN-T ports must provide shore power for at least 90% of container and passenger ship calls. The sockets are coming.

03

EU ETS

Shipping CO_2 is now priced in full: from 2026, allowances must cover 100% of emissions. Every tonne burned at berth has a cost.

04

IMO & CII

Net-zero GHG by or around 2050 under the 2023 IMO Strategy, while CII ratings tighten year on year.

The gap is large, and 2030 is close

21%

of the shore-power connections needed by 2030 are installed or contracted — 93 of 448[1]

11%

of required container-ship connections are in place — 34 of 294[1]

54%

of European ports report grid-connection challenges for shore power[2]

Ports are building the sockets. Ships need the plug.

Every vessel calling at an AFIR port needs certified, reliable shore-connection equipment — and owners need a partner who can retrofit it within drydock windows.

[1] *DNV for Transport & Environment, "Status for onshore power supply in selected EU ports" (July 2025), 31 TEN-T ports.*
[2] *ESPO, EcoPorts Insights 2026 – Environmental Report (October 2026), 73 ports in 17 countries.*

WHY ERMA FIRST

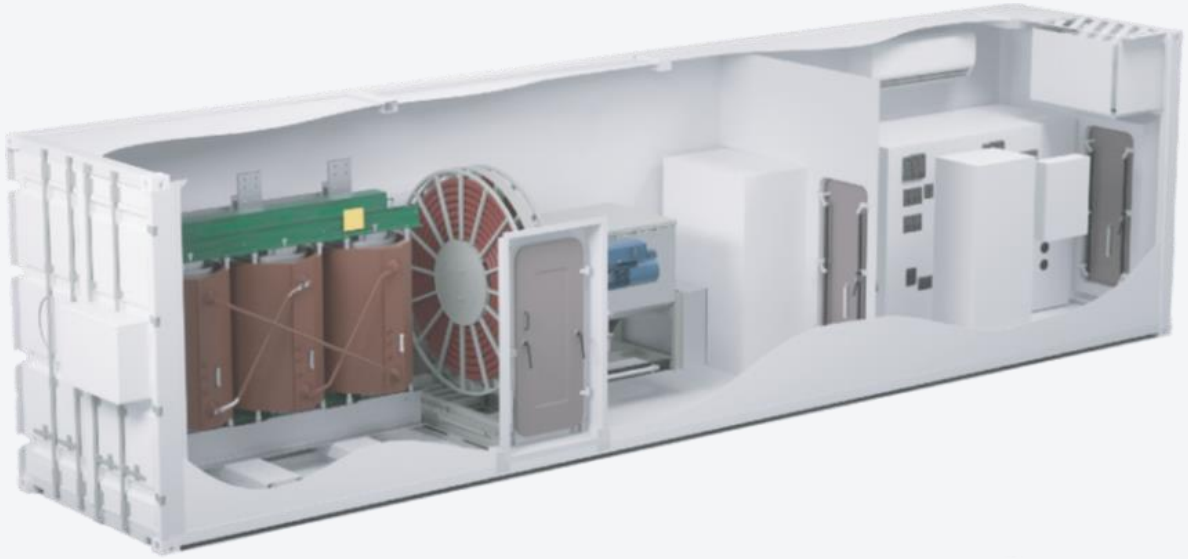
Electrification is a natural next step

Energy efficiency is the next compliance wave — the same kind of challenge our customers trusted us with on ballast water.

Electrical know-how	Retrofit DNA	Global 24/7 service	BWTS track record
Our electrolysis-based BWTS already run demanding electrical systems on vessels worldwide.	Tight engine rooms, class approval and drydock windows are what we work with every day.	Representatives worldwide and large service stations in key areas, including South Korea and China.	4,100+ ballast water treatment systems delivered worldwide

WHERE WE STARTED

BLUE CONNECT Alternative Maritime Power



Shore power connects the vessel to the port's electrical grid, so its diesel generators can be switched off at berth — cutting noise and emissions of particulate matter, NOx, SOx, CO_2 and VOCs.

Vessels above 1 MVA connect at high voltage (6.6 kV or 11 kV), with equipment built to international rules and port requirements.

Available for: Ro-Ro/Ro-Pax, PCTC, ferries, containerships, cruise ships and tankers

47
AMP contracts

180+ MVA
capacity delivered

DNV
Recognised as an energy-saving device (ESD) for its positive impact on CII

Bureau Veritas
Approval in Principle (AiP)

Standards & rules
Built to IEC/IEEE 80005-1; FuelEU Maritime and CARB compliant

Step one of the MES journey: zero emissions at berth.

Electrifying marine power & propulsion

We are **rising to** a marine electrical systems integrator designing and delivering **complete electrical and hybrid power and propulsion solutions**, from concept to commissioning, enabling **cleaner, more efficient and compliant vessel operations** for all types of **retrofit**, **conversion** and **newbuild** projects.

What we do:

01
Electrical power generation and distribution systems

02
AC and DC switchboard systems (AC/DC grids)

03
Hybrid and electric propulsion integration

04
Shaft generator systems (PTO/PTI)

05
Energy storage and battery systems

06
Shore connection (cold ironing)

07
Advanced energy management and control

From berth to voyage

One upgrade path, owners can enter at any stage:

01 At berth

Shore connection

- BLUE CONNECT AMP, high or low voltage (6.6 / 11 kV)
- Zero emissions at berth, generators off
- IEC/IEEE 80005-1; FuelEU and CARB compliant

02 Hybrid

Hybrid (AC or DC solution)

- Batteries on board + shore connection
- Batteries + shore connection + shaft generator (PTO/PTI)
- Zero emissions in harbour and at anchor
- Lower fuel, ETS cost and emissions

03 Full electric

Full electric (AC or DC solution)

- Complete electric propulsion chain
- Zero-emission sailing on suitable routes
- Future-proof for any zero-emission source

From concept to commissioning

Four steps. One partner.

1 Evaluate

Understand the vessel

- Load profiles and operating requirements
- Electrical demand, switchboard and power-management needs
- Berth time, port infrastructure and grid capacity

2 Engineer

Design the system

- Electrical and hybrid system architecture, AC or DC
- System design responsibility
- Class approval

3 Integrate

Integrate on board

- Drives, energy storage, controls and automation
- Integration with the ship's power and alarm management
- Project management through one interface

4 Deliver

Commission & support

- Installation, acceptance tests and commissioning
- Turnkey retrofit or newbuild, limiting time out of service
- Warranty, service and lifecycle support

Proven in practice: the same delivery behind 47 BLUE CONNECT AMP contracts and 180+ MVA.

WHERE WE FOCUS

The right scope for each market

Different scope for different markets.

Ferries and yachts

Full scope

- Ferries newbuild and retrofit
- Yachts newbuild and retrofit
- Complete power and propulsion systems

Workboats

Full scope

- Tugs and similar workboats, newbuild and retrofit
- Complete power and propulsion systems

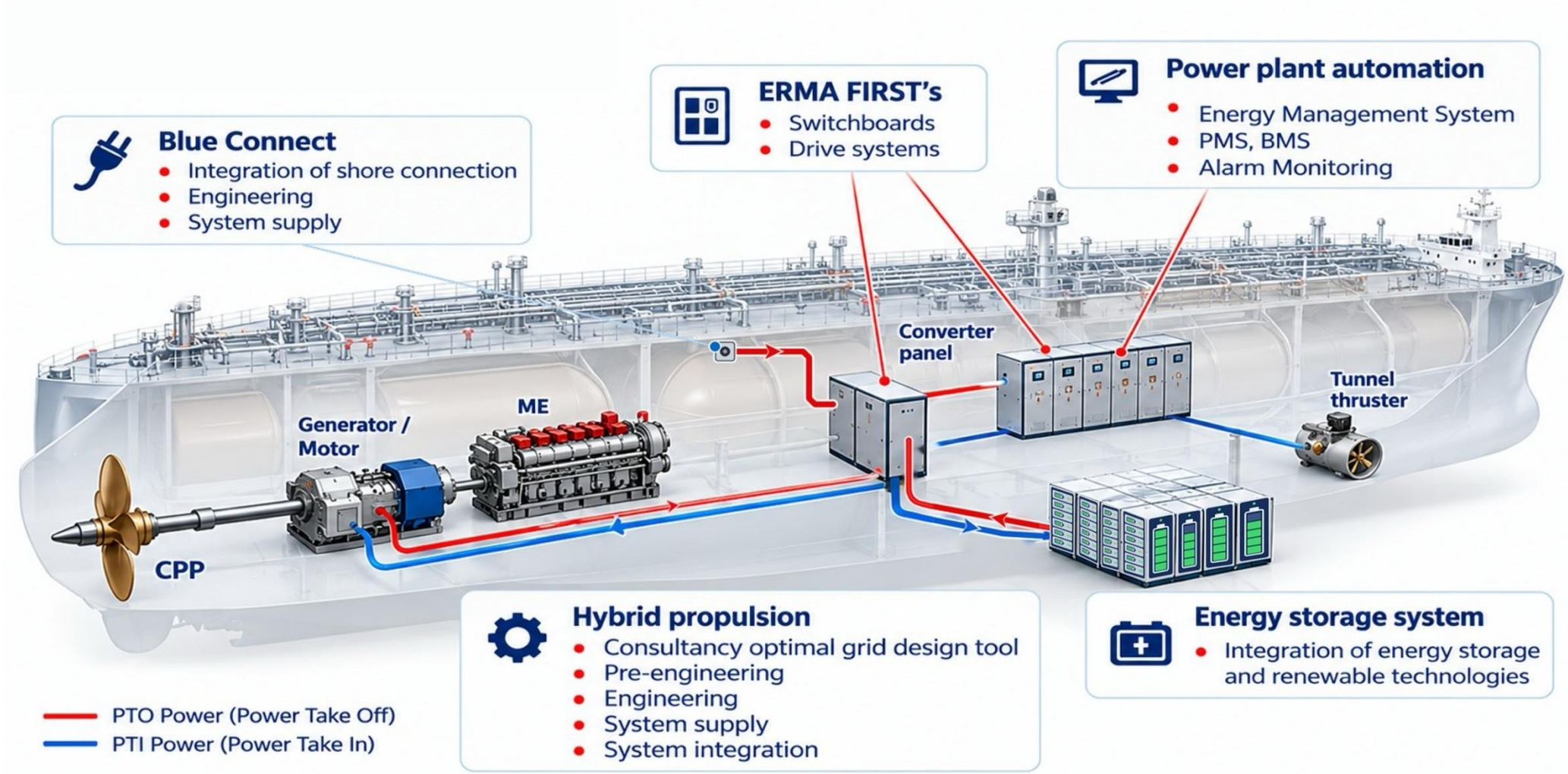
Deep-sea vessels

Mainly retrofits

Integrated solutions

- Shaft generator systems (PTO/PTI)
- Energy storage systems (batteries etc.)
- Shore power — BLUE CONNECT
- All ocean-going vessel types

Deep sea going vessels



USE CASE

Dry bulk carrier/ Kamsarmax vessel

What can batteries, and batteries with BLUE CONNECT, save on an existing deep-sea vessel?

Power plant
3 × 550 kW diesel generators, 440 V / 60 Hz

Measured period
30 days, 1 May – 1 June 2026

Annual estimate
30-day results × 12

Port time
40 days at berth per year

OPTION 1

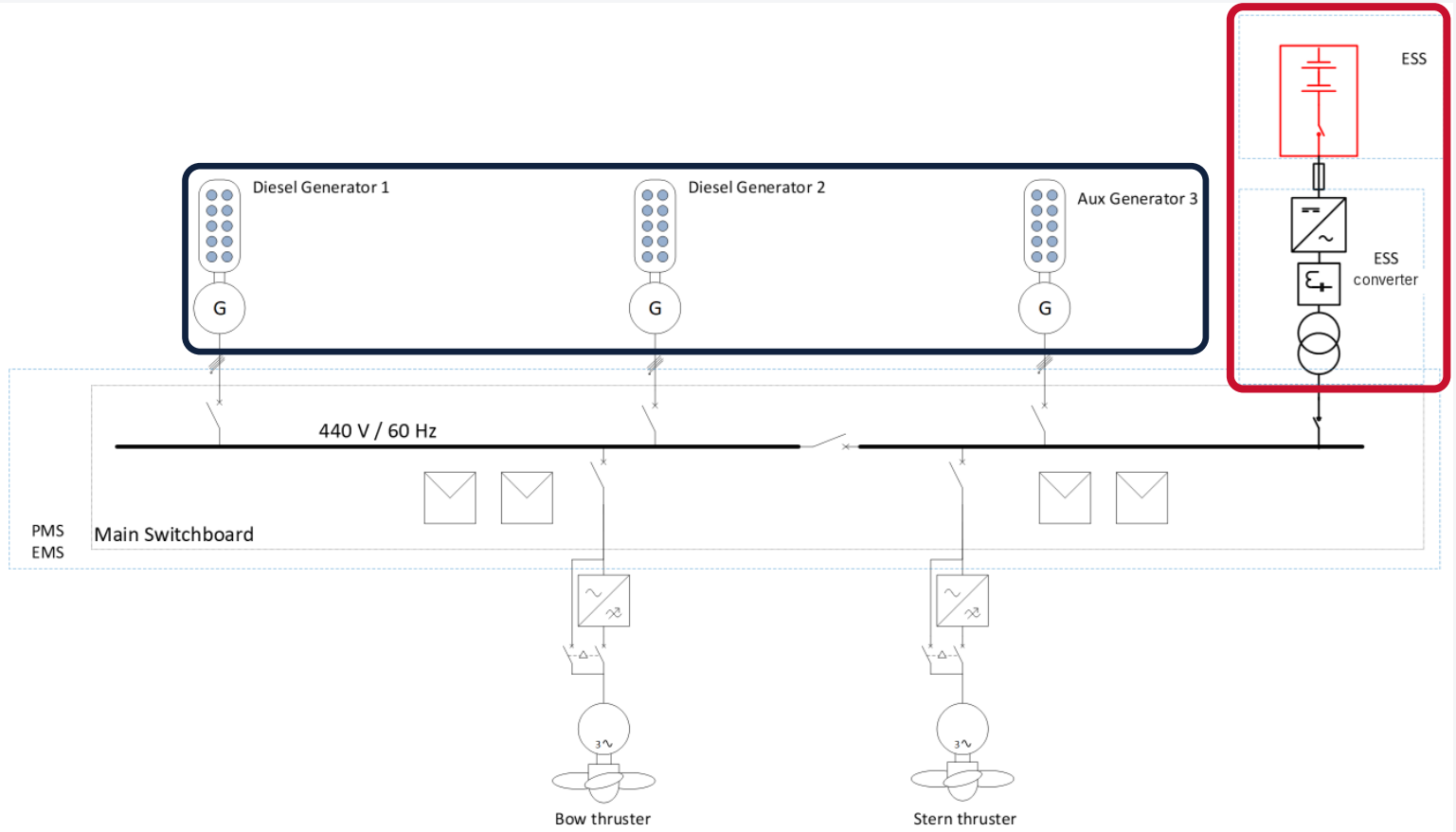
Batteries on board

OPTION 2

Batteries + AMP (BLUE CONNECT)

OPTION 1

Battery on the main switchboard



1 **Batteries on the main switchboard**

ESS with converter and transformer on the 440 V bus.

2 **Explored: peak shaving**

The battery covers load peaks, so one generator runs near 80% load instead of two.

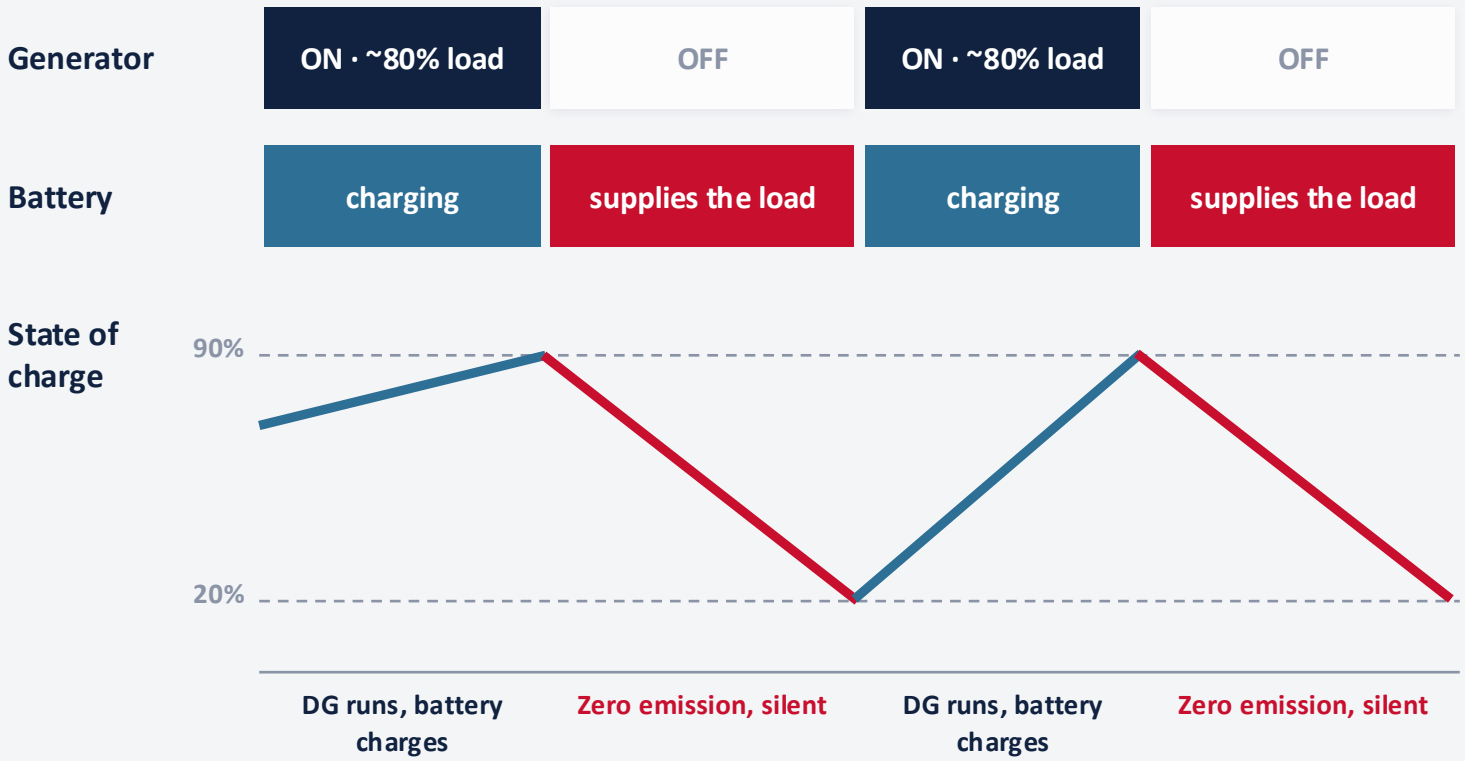
3 **Explored: peak shaving + battery cycling**

The generator also switches off and the battery carries the load.

OPTION 1

Battery cycling + peak shaving

560 kWh battery: the running generator now also switches off



Illustrative operating profile

1 Second generator hardly needed
The battery covers the load peaks.

2 Generator runs only at optimal load
Around 80% load, carrying the ship and charging the battery to 90%.

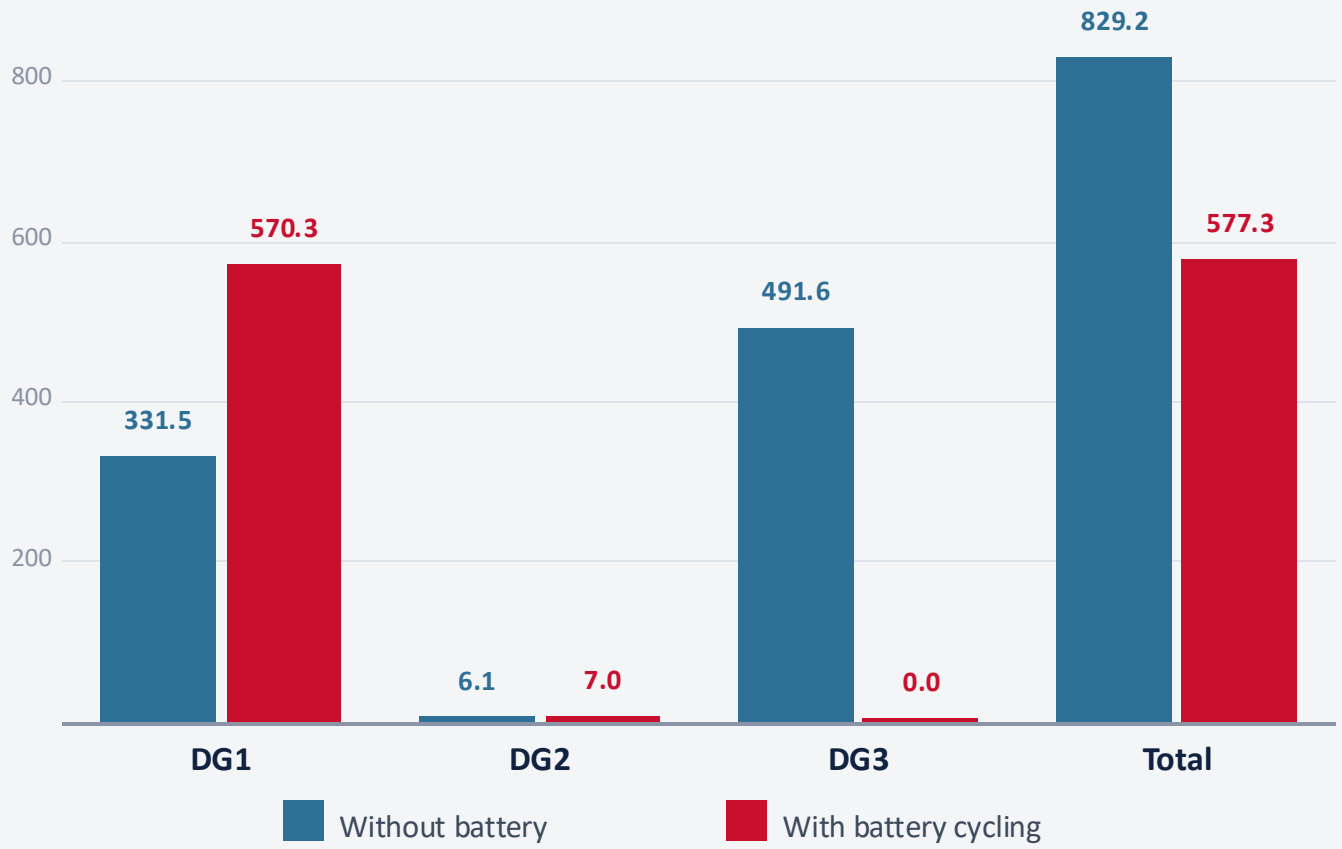
3 Then it switches off completely
The battery carries the full load until it reaches 20%, then the generator restarts.

4 Trade-off: more battery cycles
Battery size and chemistry are chosen for the higher cycling.

OPTION 1 RESULTS

30% fewer generator hours

Generator running hours in 30 days



−251.8 h
generator running hours per month (−30%)

4.3 t
fuel saved per month (10.2%)

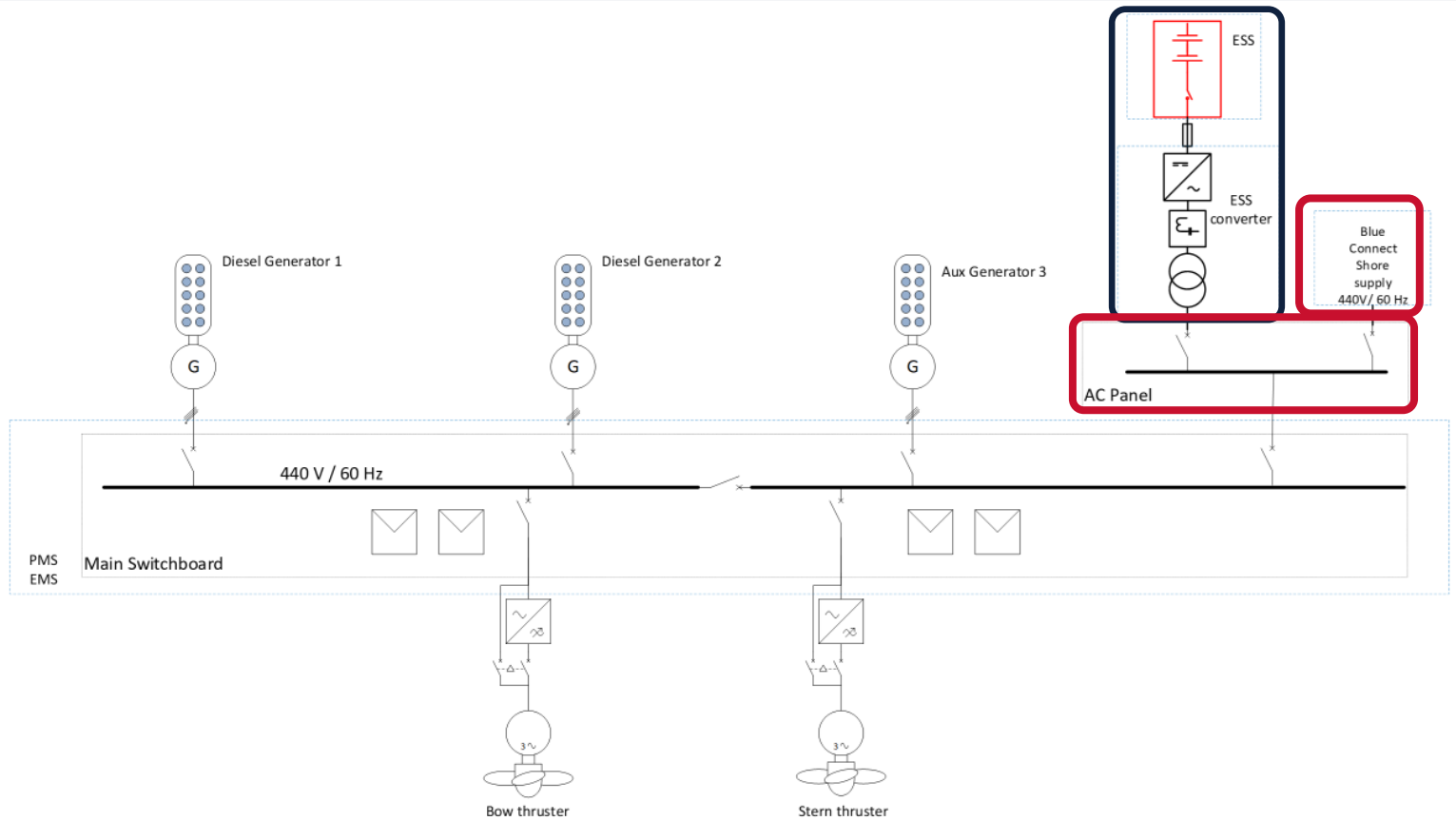
10.16% total fuel saving vs. the reference.

PER YEAR (× 12)
3,022 running hours avoided
51.6 t fuel saved

OPTION 2

Battery combined with BLUE CONNECT

350 kWh battery: smaller capacity for peak shaving



1 **Same battery, via an AC panel**

The 350 kWh ESS keeps peak shaving at sea.

2 **600 kW BLUE CONNECT shore supply**

440 V / 60 Hz into the AC panel and the main switchboard.

3 **Generators off at berth**

Port load 215.8 kW, peak shore demand 515.8 kW — well within 600 kW.

Zero-emission port stays

Every day at berth on shore power

5,5 MWh
shore energy per day

1,3 t
fuel avoided per day

24 h
generator hours avoided per day

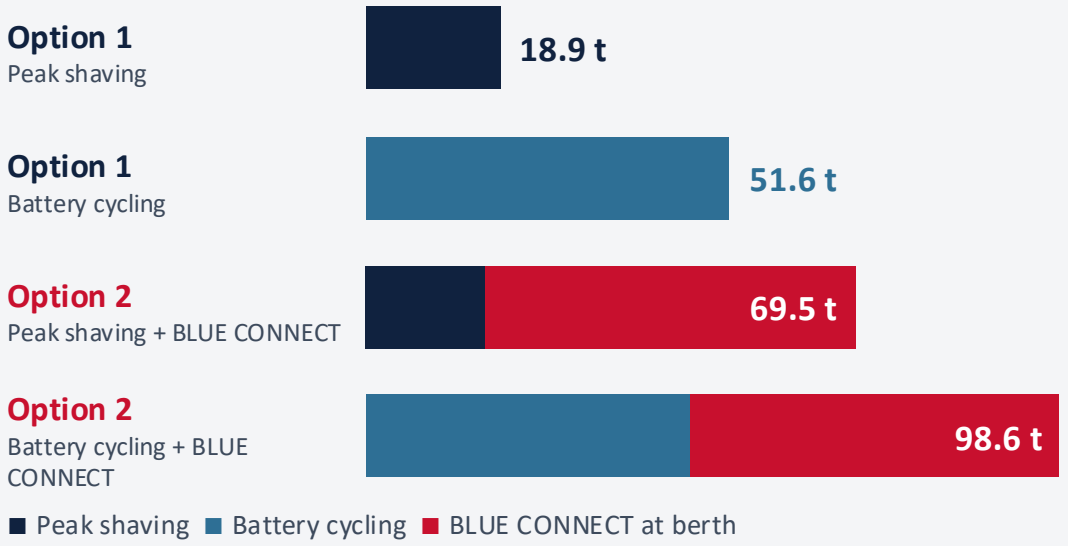
PER YEAR (40 PORT DAYS)

52.6 t fuel · 960 generator hours

222 MWh supplied from shore

Zero emissions, noise and vibration in port, with the generators switched off for the whole stay.

Fuel saved per year



Option 2 per year

Peak shaving + BLUE CONNECT: **≈ 69.5 t fuel · ≈ 2,130 h**

Battery cycling + BLUE CONNECT: **≈ 98.6 t fuel · ≈ 3,650 h**

Battery savings counted for the 325 days at sea (89% of the year), plus BLUE CONNECT for the 40 port days.

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THANK YOU

Contact us:

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