

OFFSHORE WIND WEBINAR WEEK

WEBINAR

FRIDAY 26 SEPTEMBER
14:00-15:00 BST

Powering up: from demonstration to commercialisation of offshore charging

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Offshore Wind
Journal

PANELLISTS



Gavin Forward

Fleet Newbuild Director

Bibby Marine



Dimitri DeGunzbourg

CTO

Charge Offshore



Stephen Bolton

BD & Strategy
(external part time)

Charge Offshore



Efraim Kanestrøm

SVP – Global Segment Offshore

Corvus Energy

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Enabling commercialisation of Offshore Charging

An introduction to Corvus Energy's
newest marine energy storage system





Corvus Energy
2009



1300+
Projects



>10 Million
Running hours



1200+
MWh sold



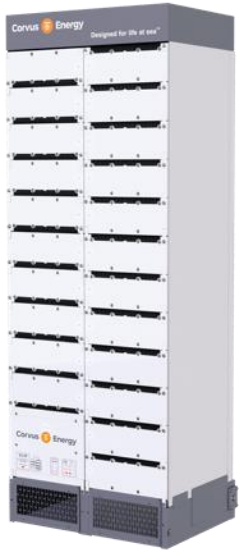
Strong Industrial Ownership



Angel
Investors

Corvus Energy Storage Systems (ESS)

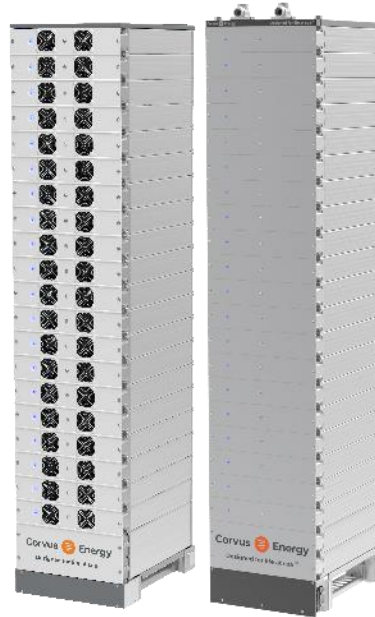
Fuel Cell System (FCS)



**Corvus
Orca**



**Corvus
Blue Whale
NxtGen**



**Corvus
Dolphin Energy
NxtGen**



**Corvus
Dolphin Power
NxtGen**



**Corvus
Pelican
Hydrogen Fueled**



Example

*photo credit SY Obsidian



Corvus Blue Whale NxtGen ESS

Optimized LFP Solution

Sales Release November 2025



Rack-free, modular design
maximizes use of available
battery room space



Key features remain

- **Safety** – Passive single-cell thermal runaway insulation, integrated TR gas exhaust system, safe surfaces free from exposed cables
- **Security** – Best practice cyber security
- **Sustainability** – Strong ESG focus in sourcing and operations
- **Digital solutions** – Advanced remote monitoring and diagnostic
- **Service program** – 24/7 Global service support
- **Design** - optimized for maximum energy density in large installations
- **Lifetime analysis** -Accurate lifetime calculation tools, trustworthy sizing and service life
- **Dynamic cell balancing** – Advanced dynamic cell balancing is essential for LFP ESS
- **Lifetime performance** – Performance warranties for life
- **SoH testing** – Advanced SoH analysis methods avoid unnecessary downtime for testing

**some features are optional*





Corvus Battery Management System

Industry-proven state-of-the-art BMS

Key Benefits

Supports system safety, lifetime and operational predictability



Safety Disconnect



Supports Lifetime

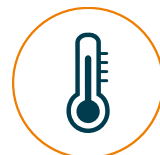


Secure Cyber Connect

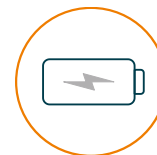


Dynamic Cell Balancing

Monitors



Cell Temperature



Charge / Discharge Limits



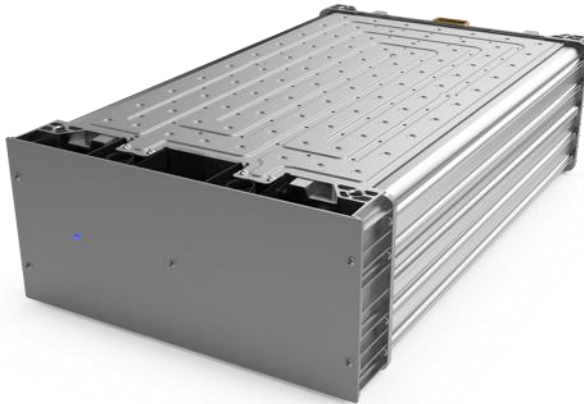
Voltage



Current


Corvus Blue Whale NxtGen ESS

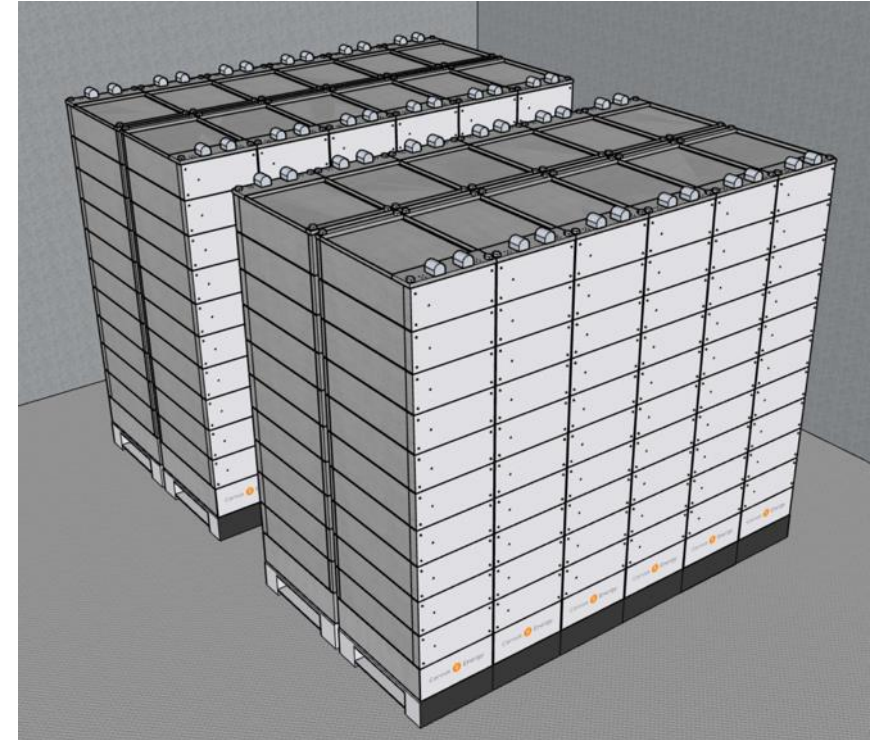
Overview




 Battery Module



 Module Stack
Flexible Height



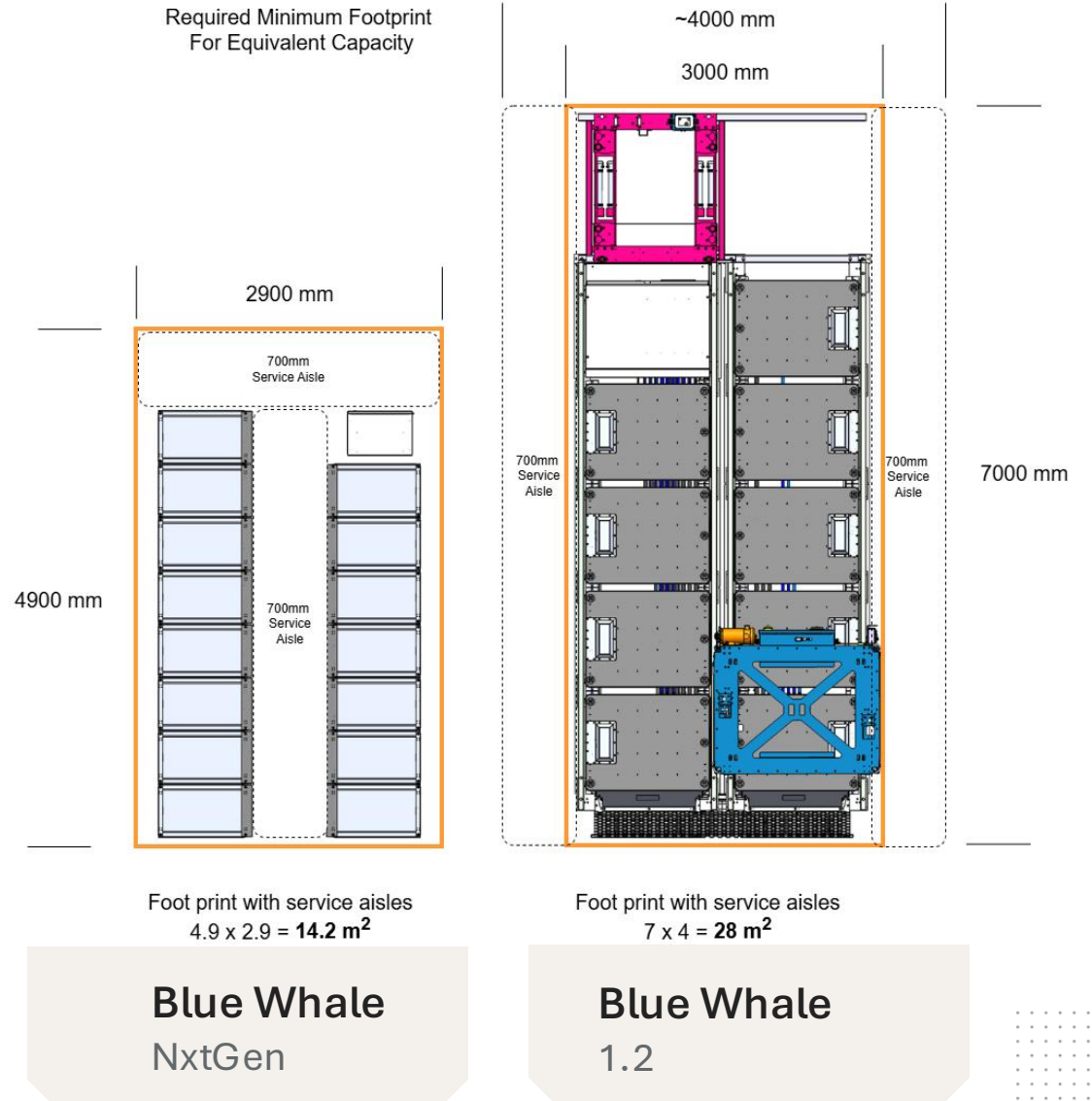
 Battery Room
Multiple Stacks
Flexible configurations
for different room sizes and heights

Increasing System-level Energy Density

Example: Blue Whale 1.2 vs NxtGen

Energy Densities	1.2	NxtGen
Wh/kg	113	129
Wh/L	136	185

Same Height



Corvus Blue Whale NxtGen ESS

Cell Selection

Two Cell Options

- Both cells have the same capacity and C-rate capabilities.
- Selection is dependent on application.



The Options

Blue Whale NxtGen S

- Cost optimized
Standard
- 9,000 cycles

Blue Whale NxtGen E

- Premium technology
for **Extended** life
- 12,000 cycles

Note

Cell aging is heavily dependent on system usage conditions!

Corvus Blue Whale NxtGen ESS

314 Ah Cell Selection



Battery Module Specifications

Battery Cells	Prismatic LFP
Size/ Increments	24.12 kWh / 87.6 VDC
Module Weight	185 kg
Capacity	314 Ah
C-Rate	0.7C
C-Rate - Peak	1C for 25 Minutes
Ingress Protection	IP66
Cooling	Liquid

Blue Whale NxtGen

- Reduced product price
- Reduced system price
- Reduced cost of ownership
- Reduced weight
- Reduced footprint
- Reduced complexity
- Reduced installation time
- Increased scalability
- Easier installation
- Increased flexibility
- Improved performance
- Improved cell balancing
- Extended service life
- Improved life time analysis



**some features are optional*

Thank you!



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DECARBONISING BY ELECTRIFYING



First in class electric-CSOV



Introducing a game-changing innovation in the offshore industry

Setting a new benchmark in the offshore Walk-to-Work market - **delivering unmatched reductions in emissions and energy consumption**

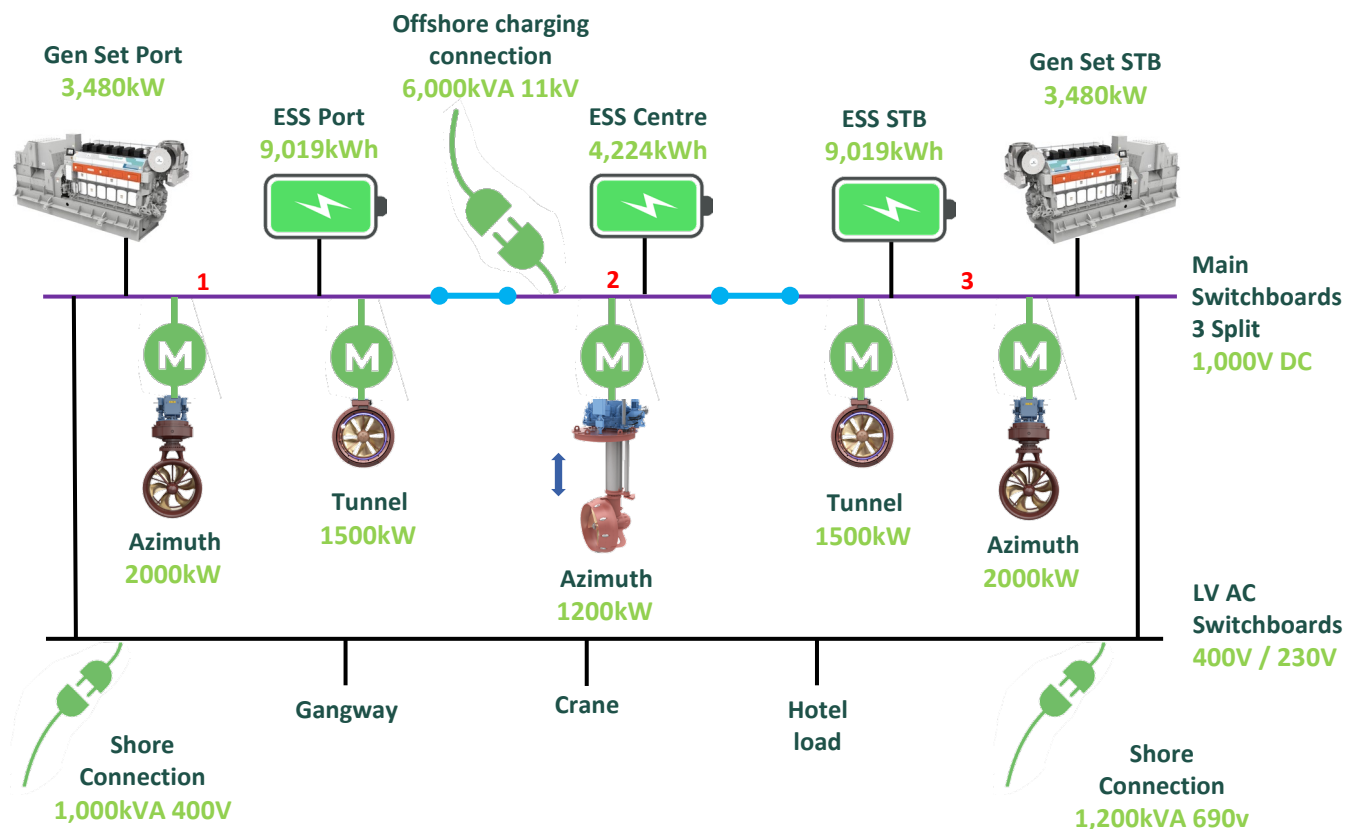
Equipped with a market-leading battery system and a new power management system, **it will be the world's first truly zero-emission offshore supply vessel** of operating on battery power alone for extended periods.

Designed from the ground up for zero-emission operation

- **Large 24.4MWh LFP battery**, with a DC power system
- **DP2 capability**, with closed bus-tie qualifier
- **Offshore charging ready**
- **Fully Methanol System** (Commissioned and tested)
- **Premium accommodation and outfitting**
- **Best-in-class mission equipment**
- **'Digital Ready' with AI integration**



'A new power philosophy'



Full performance, with or without offshore charging!

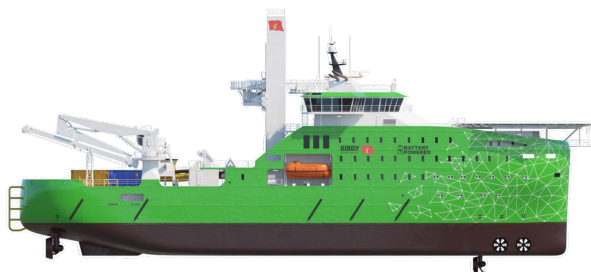
Configuration

- Purpose designed power system for maximum flexibility and efficiency
- ESS designed as primary power source
- Dual Fuel Methanol Gen sets operate at constant speed/load to charge ESS - Optimal efficiency
- Designed to operate in closed Bus-tie configuration
- Open Bus-tie operation possible with no loss of capability or fuel consumption
- Battery packs are electrically and physically divided into a three-way split for enhanced redundancy and safety.





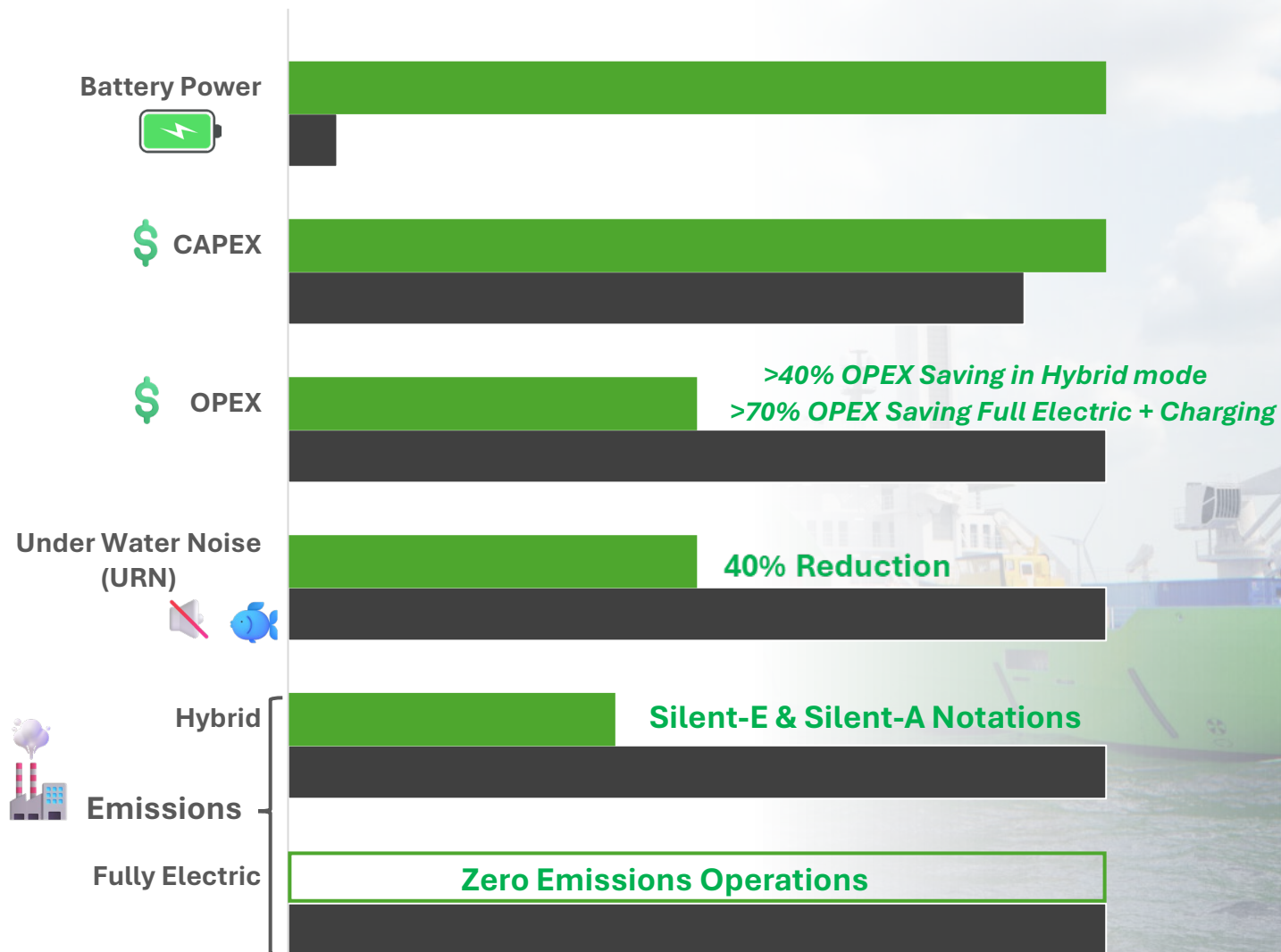
'A new power philosophy'



Primary : **Large Battery Pack**
Secondary : **Offshore Charging**
Engines : **Dual Fuel Methanol**



Primary : **Combustion Engines**
Secondary : **Small Peak Shaving Battery**
Engines : **Methanol Ready**



■ Diesel CSOV Vessel
■ eCSOV Vessel



Zero Emission Operation



24 Hour battery endurance 1.5Hs

>20 Hours @ 2.5Hs

>15 Hours @ 3.5Hs

Full charge = transits over 130NM @10kts

Dual Fuel Engines for Charging & Emergencies

Fully prepared for offshore charging

11kv AC charging, *industry standard*

6MVA at 50Hz, *industry standard*

Charging DP Mode



**Full Charge
4-5 hours**



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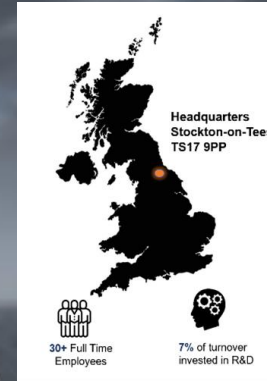
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SOV and CTV Electrification Why Not??



Delivering marine electrical, power & automation system and services to the maritime, offshore & energy sectors for over 25 years.

Sister Co. ELSYS, focusing on productised marine control systems & electrical engineering.
Spin out Co. Charge Offshore, focusing of productised & proven offshore charging systems



Marine Automation

Integrated Machinery Automation and Control/Vessel Platform Management Systems for Ship, Deck and Subsea Equipment. [read more](#)

Propulsion Drives & Control

Diesel Electric, Hybrid, and Fully Electric Power & Propulsion solutions for all types of retrofit, conversion and newbuild projects. [read more](#)

Service, Inspection & Testing Services

A comprehensive range of marine field services, supporting vessel owners and operators worldwide. [read more](#)

Mobilisation & Demobilisation

Engineering & Installation support for mobilisation of project-specific deck spreads. [read more](#)

Containerised Offshore Power & Control

Bespoke Power & Control Vans for Deck and Subsea Equipment. [read more](#)

Hybrid Power Systems

Hybrid power plant packages, with common DC or AC bus and integrated power and energy management systems for retrofit, conversion and newbuild projects. [read more](#)

Offshore Charging & Power

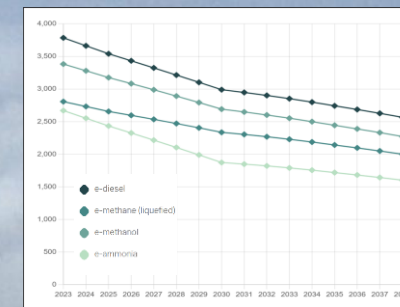
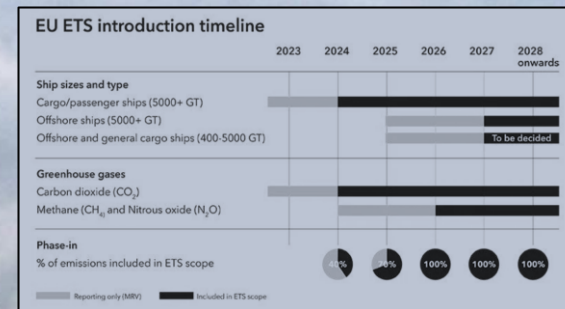
Safe, reliable and cost-effective Offshore Power & Shore Power solutions. [read more](#)

AQUARIUS ECO: up to 2MW*
AQUARIUS PLUS: up to 8MW
(standardised offshore charging)
QUAYPOWER & QUAYENERGY
(standardised onshore charging)



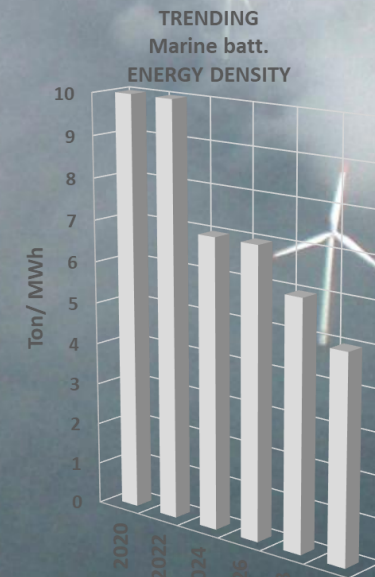
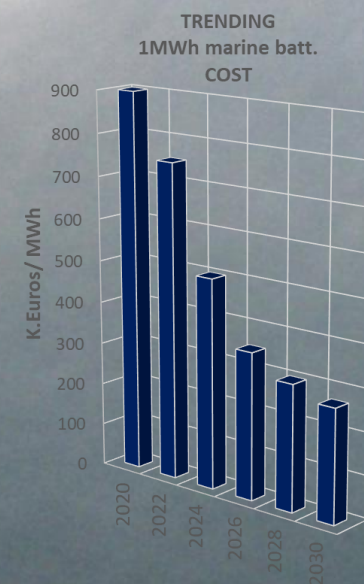
Why Electrify and Charge Offshore

- MGO price volatility
- Existing and forthcoming carbon taxes
 - UK & EU ETS
 - IMO Carbon Tax
- Higher & volatile costs of alternative fuels esp' e-fuels
- E-fuels not available (E-methanol production is currently at c45k tpa in Europe. New plants not yet economical.
- **WHY NOT?**
 - Domestic on location e-fuel
 - Infrastructure costs to "get" fuel - minimal
 - Vessel costs becoming comparative (capex) inc battery
 - Vessel maintenance costs lower (opex)
 - Fits within operating profile of SOV (12-16hrs per day active, 8-12 hrs per day inactive for charging). 6 hrs charging required for 16hrs typical SOV operations
 - Vessel designs being validated – CTV and SOV in build
 - No crew risk (fuel exposure / handling)
 - Offshore charging now proven by MJR / Charge Offshore
 - Lets look at the numbers £\$€



Projected Cost in USD/Ton LFO equivalent (Source: Maersk-McKinney Møller)

Batteries are getting significantly cheaper with energy density rising.



The Business Case

STANDARD SOV Operating on MDO	
Daily Fuel Consumption	5 Ton
Avg bunker price	\$ 800 / Ton
MDO Cost / Day	\$ 4,000 / Day
CO2 equivalent	20 Ton / Day
Daily Carbon taxes cost / Day (ETS, IMO, EU)	\$ 4,100 / Day (2035 cumulative avg basis)
TOTAL ENERGY COSTS	\$ 8,100 / DAY
	\$2,713,500 / YEAR
	\$ 54,270,000 / 20 Year

e- SOV 100% Electrical operations	
Daily Electrical consumption	c.17 MWh
Avg charge power pricing	\$ 1400 / MWh (latest CFDstrike rate)
Energy price / Day	\$ 2,380 / Day
Carbon taxes costs / Day	Nil
TOTAL ENERGY COST	\$ 2,380 / DAY
	\$ 797,300 / YEAR
	\$ 15,946,000 / 20 Year

- Assumptions:**
- Carbon tax rates combination of IMO, Fuel EU and estimated UK ETS
 - Carbon tax based on 2035 cumulative price
 - Conservative rates for electricity Jan 2025
 - Based on 335 days operation
 - Avg. Europe Bunker price for MDO 2025
 - Maintenance savings not considered**



e-SOV Energy Costs savings > 75%
\$ 5,720 / Operational Day
\$ 1,916,200 / 335 Day Year
\$38,324,000 / 20 335 Day Years

WHY NOT???

ARE WE NOT THE LUCKIEST MARINE SECTOR OUT THERE?

For more info locate our White Paper in combination with SPR:
[News](#) | [Charge Offshore](#)

UPCOMING EVENTS

7-8 OCT 2025 • RIO DE JANEIRO

OFFSHORE SUPPORT
JOURNAL CONFERENCE
AMERICAS, BRAZIL



osj offshore support journal

9-10 DEC 2025 • DUBAI

OFFSHORE SUPPORT
JOURNAL CONFERENCE
MIDDLE EAST



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2 FEB 2026 • LONDON

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