



# WE Tech Solutions

CREATING SAVINGS



**Zero Emission Shipping**



**WE Tech Solutions are substantially improving energy efficiency and reducing emissions in shipping. Our vessel energy solutions are based on DC-link power distribution and variable speed power generation.**

”

WE Tech brings future-best energy solutions to the shipping industry. We bring together experience with innovation, state-of-the-art technologies with first-class services and make your fleet of vessels future proof.”

Mårten Storbacka  
CEO and founder of WE Tech Solutions Oy

## Benefits

**WE Tech's market leading energy solutions creates savings in both OPEX and CAPEX. Please visit [wetech.fi/references](http://wetech.fi/references) to access our full reference list.**

### LOWER CAPITAL EXPENDITURE

- Less installed power
- Smaller weight and footprint
- Simplified vessel machinery design and installation

### LOWER OPERATIONAL EXPENDITURE

- Savings in electric power generation with variable speed generator technology
- Savings from reduced fuel and maintenance costs with minimised Auxiliary Generator operation
- Savings from optimised machinery operations

### REDUCED ENVIRONMENTAL FOOTPRINT

- Improved efficiency of propulsion machinery, power generation and energy distribution reduces emissions from operations
- Electrical power generated via zero emission operated main engine.

### SHORE CONNECTIVITY

- Shore power connection always when available at port
- Auxiliary Generator operations reduced to absolute minimum
- Zero emission port operations.

### BETTER DESIGN FLEXIBILITY

- Vessel operations profiled and solution design matched accordingly
- Variable speed power generation and DC-link based energy distribution removes traditional design limitations
- Propulsion machinery, cargo handling and energy distribution always operated optimally

### ENERGY STORAGE SOLUTIONS

- Battery based energy storage systems implemented according to operational profiling and feasibility studies
- Further reduced operational costs
- Energy back-up and redundancy of operations



We offer project services and lifecycle support with expertise and responsibility to suit customer's individual requirements.

# Services



GLOBAL



TAILORED



FAST



CERTIFIED



EXPERIENCED



OEM

- LIFE CYCLE SERVICES
- MAINTENANCE
- SPARE PARTS
- ASSET MANAGEMENT
- REMOTE DIAGNOSTICS
- OPERATOR TRAINING

Cover photo ©VesselFinder.com



## ENSURING RELIABILITY & EFFICIENCY THROUGH ALL SEAS

🌐 [mtcs.eu](https://mtcs.eu) | ✉ [info@mtcs.eu](mailto:info@mtcs.eu) | 📞 +49 40 325 12 30 50



# Solutions

## WE Tech Shaft Generator Solutions

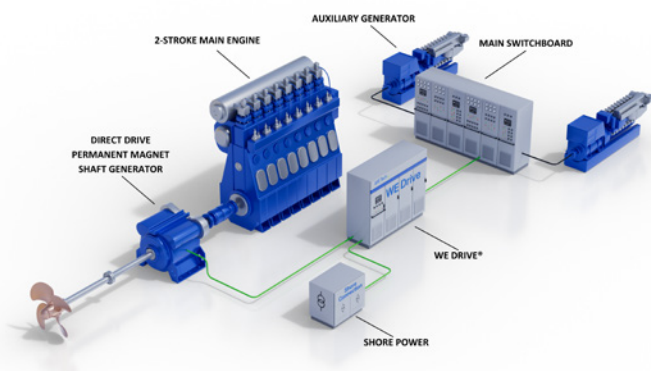
### Towards Zero Emission Shipping

Our solutions build on widely proven technologies and are applicable to most ship types and propulsion machinery e.g., slow speed (2-stroke Main Engine) direct driven propeller or medium speed (4-stroke Main Engine) via reduction gear driven propeller.

With the WE Drive and direct-drive permanent magnet shaft generator in PTO mode, the ship's electrical power is generated by the fuel efficient 2-stroke Main Engine operating in variable speed. Solutions One to Five are available for vessels with 2-stroke or 4-stroke Main Engine.

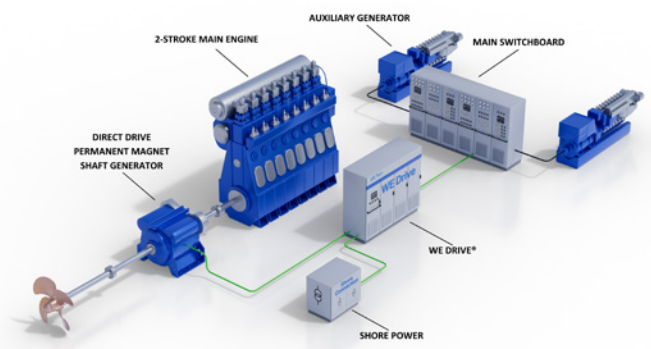
#### SOLUTION ONE – ECONOMICAL OPERATIONS

Solution One is a PTO (Power Take Out system) that enables propulsion machinery to operate in variable speed. Solution One can also be used for upgrading of existing vessels.



#### SOLUTION TWO – TAKE ME HOME

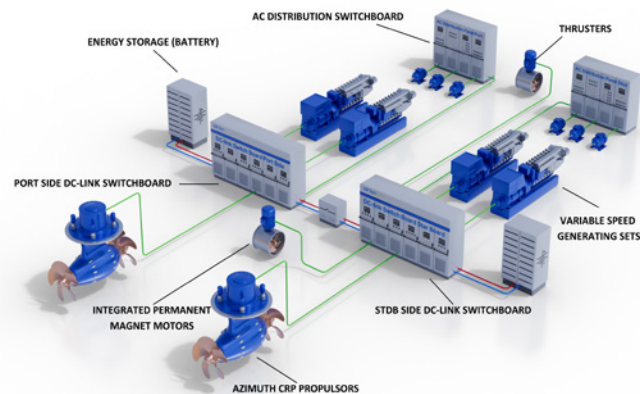
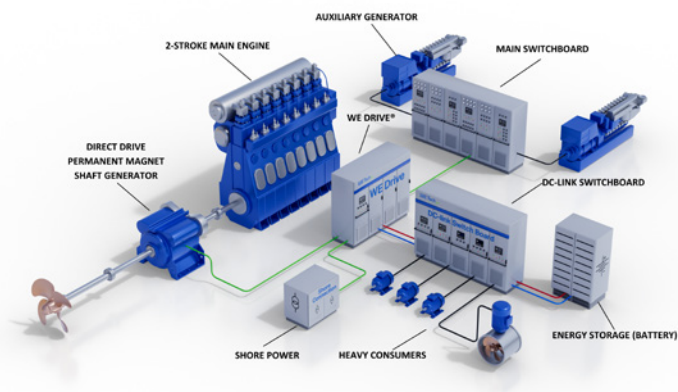
Solution Two is a PTI (Power Take In system) used for Take Me Home/Take Me Away operations. In PTI mode the shaft generator is operated as an electric motor.



#### SOLUTION THREE – BOOST MODE

Solution Three is a PTI Boost system. The shaft generator is utilised as an electrical motor, driven by the WE Drive and provides additional torque to the propeller alongside the Main Engine. Boost mode allows for low-load optimisation of the Main Engine in normal conditions.





## SOLUTION FOUR – EFFICIENT POWER DISTRIBUTION

Solution Four utilises the DC-link of the WE Drive thus enabling energy-efficient and economical methods to distribute power. Energy storage systems and large consumers are controlled with our dedicated Energy Management System.

## SOLUTION FIVE – DC ELECTRIC PROPULSION

DC Electric Propulsion uses all the energy-efficient features of Hybrid Propulsion Machinery plus a ship-wide DC-link power distribution system. Hybrid DC Machinery includes variable speed Auxiliary Generators, energy storage and Permanent Magnet technology. The need for large switchboards and bulky transformers are omitted which means substantial savings in space and weight as well as far better total efficiency.

SOLUTION FIVE	We Drive	Shaft Generator Motor	Hybrid Machinery	Ship wide DC Bus Power Distribution
SOLUTION FOUR	We Drive	Shaft Generator Motor	Hybrid Machinery	DC-Link Power Distribution
SOLUTION THREE	We Drive	Shaft Generator Motor	Boost Mode	
SOLUTION TWO	We Drive	Shaft Generator Motor	Take Me Home	
SOLUTION ONE	We Drive	Shaft Generator	ENERGY EFFICIENCY	
Economical Operations			Hybrid Machinery	Efficient Power Distribution
				Hybrid DC Machinery



### Global chartering and S and P brokers

MONACO SHIPPING SERVICES  
"Le Panorama" bloc A-6th floor  
57, rue Grimaldi  
MC 98000 MONACO

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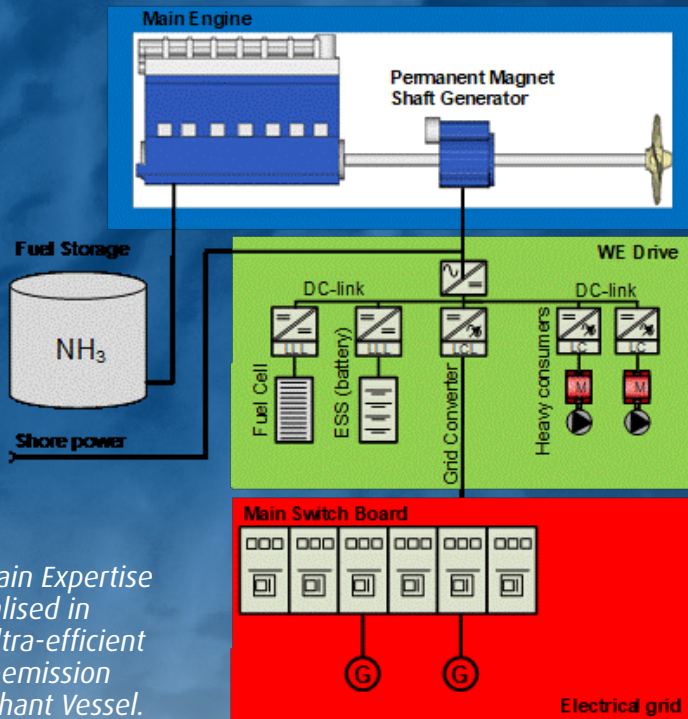
### Marine Technical Solutions

Via Madonna del Mare, 12 tel. +39 040 660076  
I-34124 Trieste • ITALY mob. +39 335 234667

[www.gamap.it](http://www.gamap.it) | [info@gamap.it](mailto:info@gamap.it)

# Domain Expertise

WE Tech Solutions domain expertise is based on decades of experience in the shipping industry. Combined with today's industry grade digital platforms we have brought energy management and system control to the next level.



Domain Expertise visualised in an Ultra-efficient Zero-emission Merchant Vessel.

## ME-SG-PROPELLER SHAFT DOMAIN

Propulsion drive-train expertise

Main Engine load curve expertise

Shaft Generator mechanical expertise

Shaft Generator electrical expertise

## WE DRIVE / DC-LINK DOMAIN

WE Drive switchgear expertise

WE Drive / power electronics cooling expertise

WE Drive system control expertise

DC-link switchgear inverter unit expertise

DC-link power distribution expertise

DC-link Energy Storage System expertise

## ELECTRICAL GRID DOMAIN

Vessel Electrical grid / power distribution expertise

Vessel Electrical grid / Auxiliary Generator expertise

Vessel Energy Management System expertise

# MP CREATIVE METAL

CREATIVE SOLUTIONS FOR THE INDUSTRY AND MARINE

[www.mpcreativemetal.fi](http://www.mpcreativemetal.fi)

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# WE Tech Solutions

CREATING SAVINGS

WE Tech Solutions Oy  
Vaasanpuistikko 19, FI-65100 Vaasa, Finland

Tel.: +358 20 786 1680  
[solutions@wetech.fi](mailto:solutions@wetech.fi)

[www.wetech.fi](http://www.wetech.fi)



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