

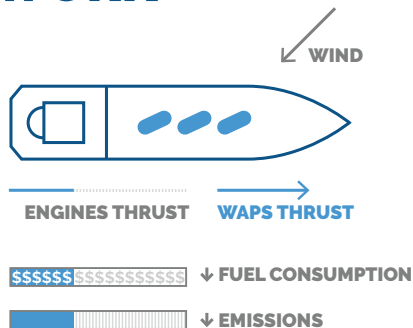
eSAIL®

**MAKING SUSTAINABILITY
GOALS PROFITABLE**



bound4blue

HOW WAPS WORK

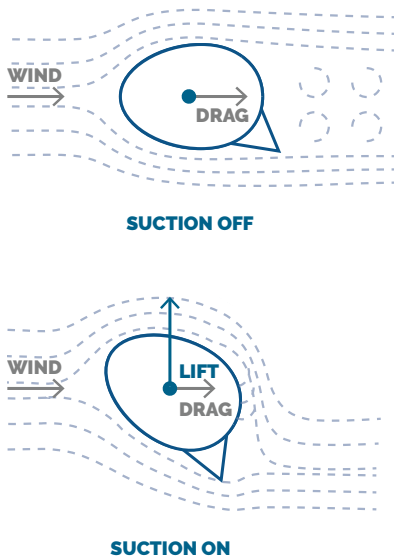


Merchant vessels rely on the thrust delivered by their main engine for propulsion. These engines burn enormous amounts of fuel, resulting in high fuel costs and pollutant emission levels.

Wind-Assisted Propulsion Systems (WAPS) take advantage of the available wind to generate clean forward thrust, reducing the engine thrust required and consequently cutting down fuel consumption and pollutant emissions.

If WAPS are operated effectively to maximise forward thrust under any sailing condition, double-digit percentages in fuel and emission savings can be achieved.

SUCTION SAIL



The eSAIL[®] is a type of WAPS based on active boundary layer control using suction.

When exposed to wind, with the suction turned off, it only produces drag as with any other non-lifting structure.

However, when the suction is activated, a small amount of air is sucked in, which re-adheres the airflow to the sail, generating enormous amounts of lift with low drag.

The eSAIL[®] produces six to seven times more lift than a conventional sail or, in other words, it is able to deliver the same propelling force with six to seven times less surface. All this with minimal power consumption and no mechanical complexity (no inertial loads, vibrations, constant movement, etc.).

When installed on a vessel, bound4blue's eSAIL[®] technology is designed so that its high-lift ability maximises fuel savings in a cost-efficient way.

eSAIL®

MAIN PARTS



1 SUCTION FAN

Electric axial fan to control suction.

2 SUCTION AREA

Area specifically designed to avoid flow stall, ensuring high-performance aerodynamics.

3 MAIN STRUCTURE & SKIN

Generates aerodynamic shape, contains all elements and provides mechanical strength.

4 FLAP

Variable asymmetry of the eSAIL® shape, maximising aerodynamic performances.

5 ORIENTATION SYSTEM

Slew-bearing and electric motor to adapt eSAIL® orientation to any prevailing wind direction.

6 FLANGE DECK CONNECTION

Standard bolted flange connection to vessel deck.

Operation performed autonomously by the eSAIL® control system, maximising achieved savings while ensuring safety.

PORTFOLIO – TECHNICAL SPECIFICATIONS

Our eSAIL® is a cost-efficient, proven and reliable technology available in three models:

	MODEL 1	MODEL 2	MODEL 3
Width	2.85 m	4.5 m	6 m
Various heights	12 - 17 m	18 - 26 m	24 - 36 m
Example vessels	Fishing vessel, General Cargo, Multipurpose, Feeder	Handysize, MR, LR1, Panamax, Ferry, Ro-Ro	LR, Aframax, Suezmax, Kamsarmax, Capesize, VLCC/OC

Optional: ATEX - Tilting System

REASONS TO INSTALL

With our eSAIL[®], both newly-built and existing vessels can unlock significant fuel savings while complying with international regulations.

REDUCE FUEL COST

Imagine a kind of fuel which is free so there is no price volatility, abundant and infinite, and that doesn't require any onboard storage because it is supplied at point of use.

Look no further, such a fuel is wind.

With bound4blue, ships can harness the power of wind and turn it into profit.

REGULATORY COMPLIANCE

Our eSAIL[®] helps shipowners and ship operators to comply with the International Maritime Organisation (IMO) regulations and the European Union directives focused on reducing the GHG emissions and improving energy efficiency across vessels in a cost-efficient way.

If preferred, there is the possibility to split up the investment according to each year's regulatory compliance targets.

SIMPLE STEPS TOWARDS A BLUE FUTURE

- 1 | Contact and preliminary study
- 2 | Detailed study and selection of optimal sails arrangement
- 3 | Sails installation design and approval
- 4 | Vessel preparation
- 5 | bound4blue sails installation
- 6 | Welcome to blue efficiency



KEEP IN TOUCH

HEADQUARTERS

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R&D FACILITIES

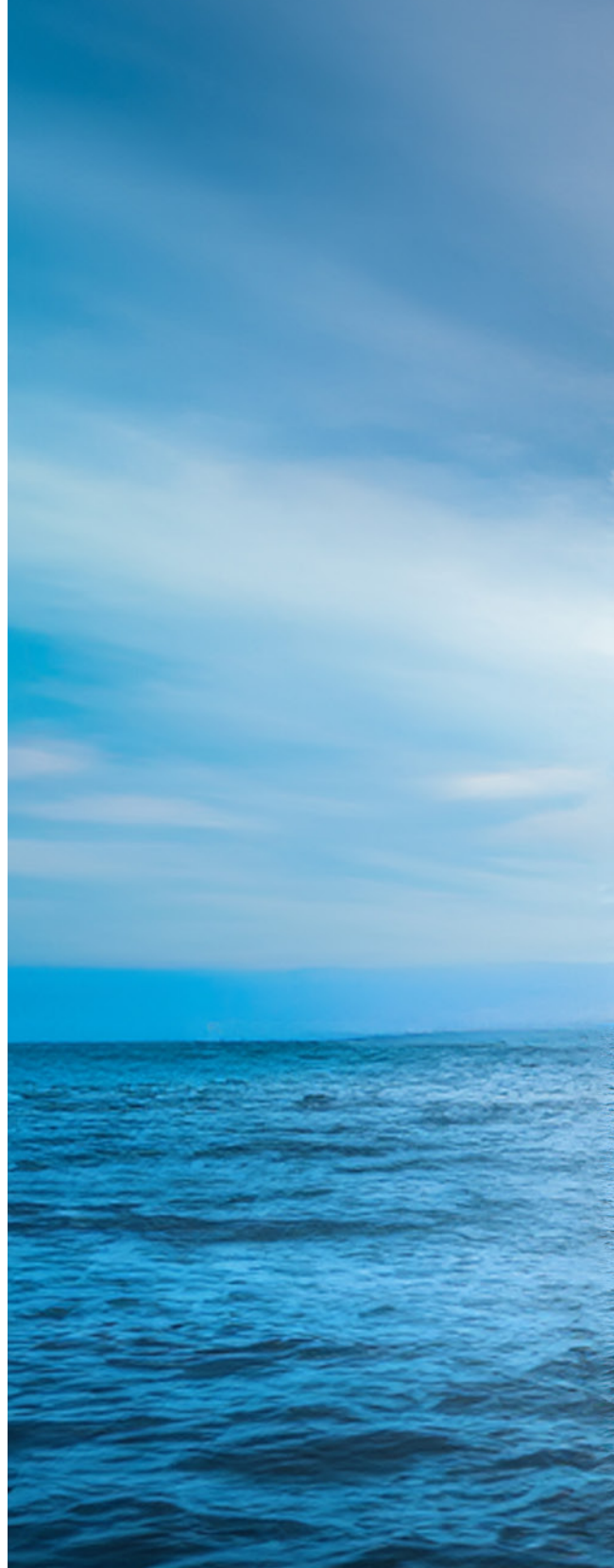
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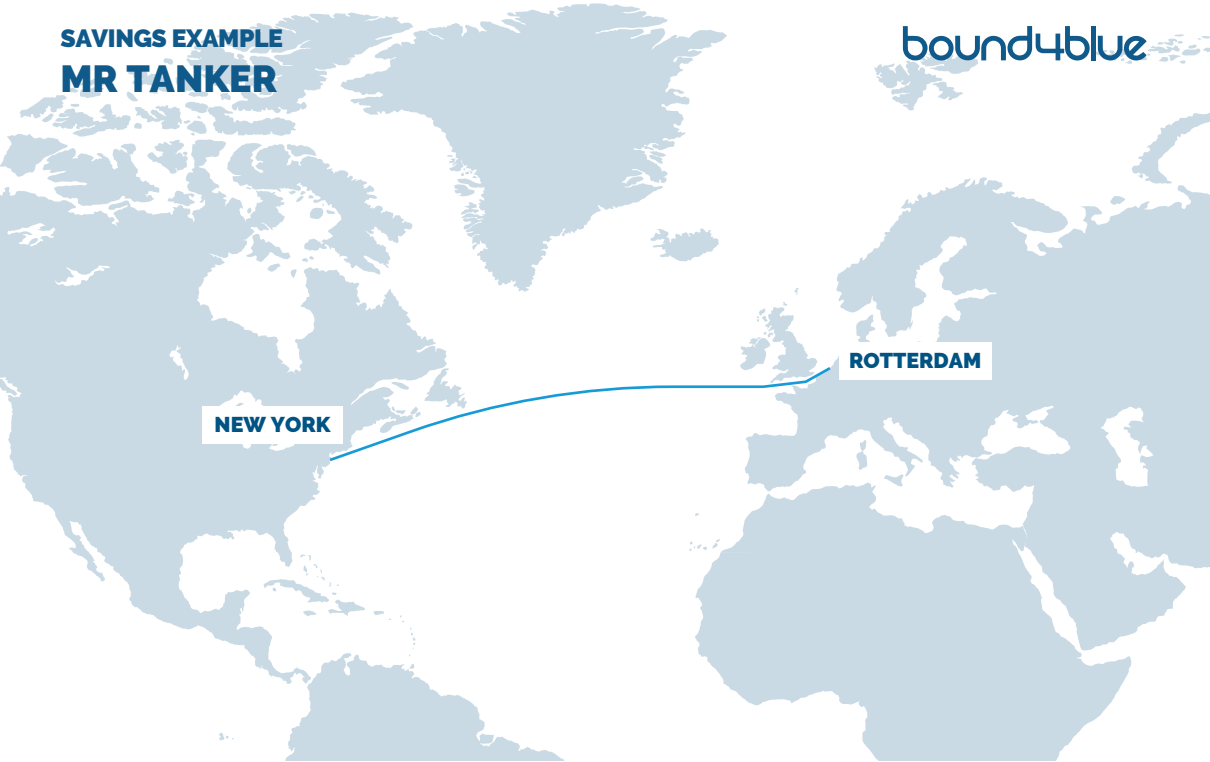
For more information contact us at
enquiries@bound4blue.com

bound4blue.com



SAVINGS EXAMPLE
MR TANKER

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VESSEL TECHNICAL SPECIFICATIONS

Length oa	183 m
Deadweight	40,000 DWT
Service Speed	14 kn

eSAIL SYSTEM TECHNICAL SPECIFICATIONS

# of eSAILS	4
Height	22 m
Width	4.5 m

FUEL SAVINGS

812

Tn/year

TOTAL SAVINGS

30.2 %

PAYBACK

<2yr

⁽¹⁾ Considering 220 sailing days and historical wind data 2010-2022

⁽²⁾ Considering a propulsive power of 5,350 kW

⁽³⁾ Total savings and payback are calculated considering fuel consumption reduction and the avoidance of Fuel EU and EU ETS penalties

⁽⁴⁾ NO weather routing is considered in the numbers above

⁽⁵⁾ Half of the total savings are attributed to regulatory compliance

SAVINGS EXAMPLE
GENERAL CARGO

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VESSEL TECHNICAL SPECIFICATIONS

Length oa	90 m
Deadweight	2,850 DWT
Service Speed	12 kn

eSAIL SYSTEM TECHNICAL SPECIFICATIONS

# of eSAILs	1
Height	22 m
Width	4.5 m

FUEL SAVINGS

163 Tn/year

TOTAL SAVINGS

15.6 %

PAYBACK

<5yr

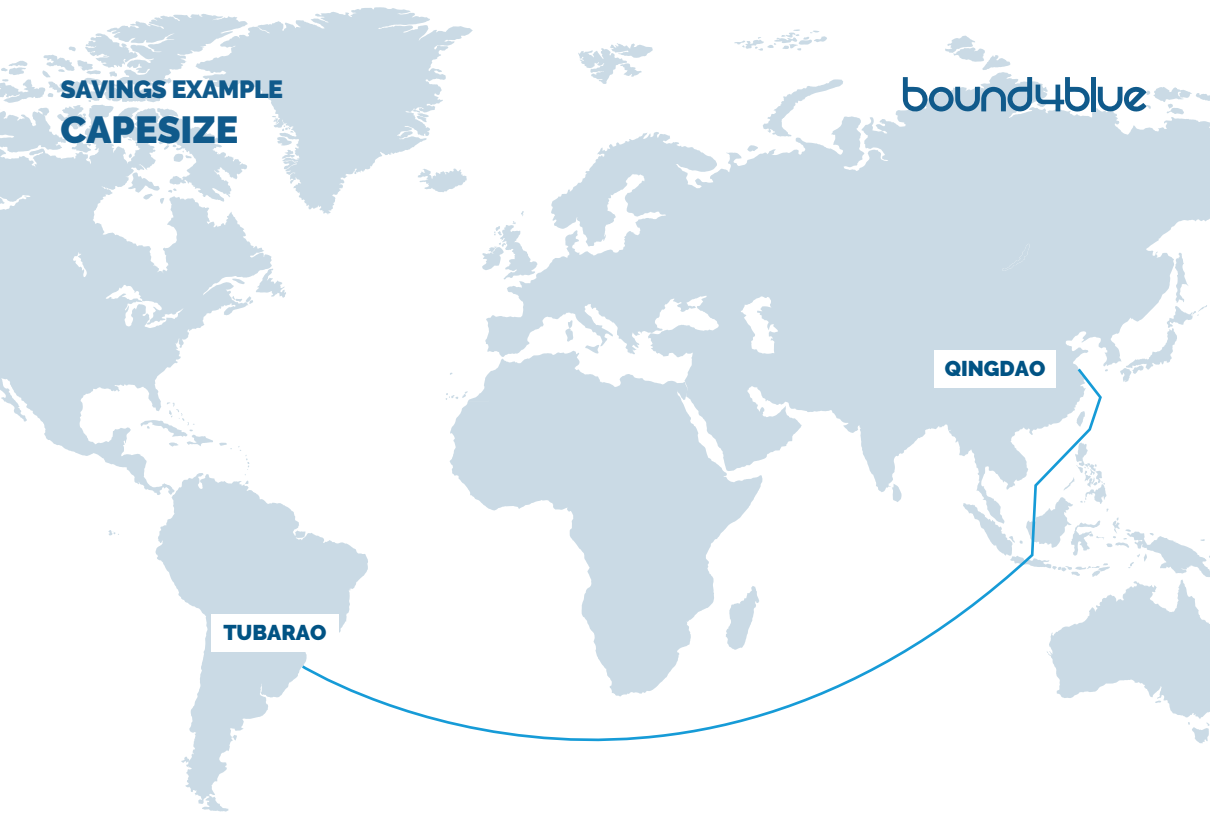
⁽¹⁾ Considering 220 sailing days and historical wind data 2010-2022.
⁽²⁾ Considering a propulsive power of 5,350 kW

DISCOVER THE FUEL
AND EMISSION SAVINGS
FOR YOUR FLEET

Contact us at sales@bound4blue.com for a free-of-charge preliminary study. We will estimate potential fuel savings and impact on regulatory compliance for your selected vessel/s.

SAVINGS EXAMPLE
CAPESIZE

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VESSEL TECHNICAL SPECIFICATIONS

Length oa	300 m
Deadweight	210,000 DWT
Service Speed	14 kn

eSAIL SYSTEM TECHNICAL SPECIFICATIONS

# of eSAILS	5
Height	36 m
Width	6 m

FUEL SAVINGS

1,954 Tn/year

TOTAL SAVINGS

17.9 %

PAYBACK

<4yr

⁽¹⁾ Considering 220 sailing days and historical wind data 2010-2022.

⁽²⁾ Considering a propulsive power of 5,350 kW

SAVINGS EXAMPLE RO-RO

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YOKOHAMA

LOS ANGELES

VESSEL TECHNICAL SPECIFICATIONS

Length oa	200 m
Deadweight	18,000 DWT
Service Speed	18 kn

eSAIL SYSTEM TECHNICAL SPECIFICATIONS

# of eSAILS	3
Height	26 m
Width	4.5 m

FUEL SAVINGS

1,113 Tn/year

TOTAL SAVINGS

13.5 %

PAYBACK

<3yr

⁽¹⁾ Considering 220 sailing days and historical wind data 2010-2022.

⁽²⁾ Considering a propulsive power of 5,350 kW

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INSTALLATIONS

PROTOTYPING PHASE



Balueiro Segundo | Fishing Vessel
eSAIL® Model 1 - (1x) 12m



La Naumon | General Cargo
eSAIL® Model 1 - (1x) 17m



EXECUTED



Ems Traveller | General Cargo
eSAIL® Model 1 - (2x) 17m



Ville de Bordeaux | Ro-Ro
eSAIL® Model 2 - (3x) 22m





Bow Olympus | Tanker
eSAIL® Model 2 - (4x) 22m



Pacific Sentinel | Tanker
eSAIL® Model 2 - (3x) 22m



MV Atlantic Orchard | Juice carrier
eSAIL® Model 2 - (4x) 26m



Crimson Kingdom | Bulker
eSAIL® Model 2 - (4x) 26m



NA HIRO E PAE | Mixed-cargo
eSAIL® Model 2 - (1x) 22m



Santiago I | Tanker
eSAIL® Model 2 - (4x) 22m

