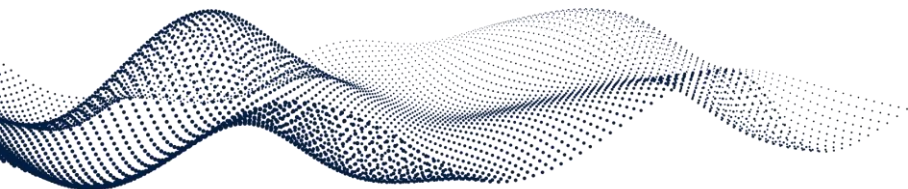


# Scandlines' Press Kit

2023



# Table of contents

<b>Welcome to the world of Scandlines</b>	3
It all begins with the ferry	4
Scandlines' management	5
Route map	6
Key figures 2021	7
Milestones in Scandlines' history	8
<b>Scandlines' green agenda</b>	9
The journey towards zero direct emissions	10
Zero direct emissions freight ferry	11
The UN Sustainable Development Goals	12
Other green initiatives	13
<b>The world's largest hybrid fleet</b>	
Hybrid ferries with rotor sail on Rostock-Gedser	14
Danish hybrid ferries on Puttgarden-Rødby	15
German hybrid ferries on Puttgarden-Rødby	16
Freight ferries	17
Scandlines' ports	18
BorderShop	19
<b>Technical specifications of Scandlines' green solutions</b>	
The hybrid system	21
How does the hybrid system work?	22
New thrusters on Puttgarden-Rødby	23
Rotor sail on Rostock-Gedser	24
Scandlines' closed-loop scrubber system	25

# Welcome to the world of Scandlines

Dear reader,

On the following pages, we have gathered a range of information about Scandlines.

The press kit consists of four parts:

- In the first section you will find information about our management team, key figures and Scandlines' history.
- In the second section we present an overview of how we work with sustainable solutions at sea and on land with the goal of emissions free ferry operations.
- In the third section we present our ferries, ports and BorderShops.
- The fourth section is for readers who would like to have a detailed understanding of the technical solutions used in Scandlines, such as the hybrid system, thrusters, rotor sail and scrubber system.
- You will find our [photo bank](#) and press releases on our [press site](#). Here you can also sign up to receive our press releases.

If you want to know more, visit our website or contact me.

Kind regards,

Anette Ustrup Svendsen

Head of Corporate Communications

anette.ustrup.svendsen@scandlines.com  
+45 26 777 000 (cannot receive text messages)







# It all begins with the ferry

With the motto 'It all begins with the ferry', we transport around 7 million passengers across the Baltic Sea on the Puttgarden-Rødby and Rostock-Gedser routes every year.

Scandlines is a modern and innovative ferry operator with a green vision for the future. We have a proud culture based on a strong German-Danish cooperation and a maritime history dating back to 1872.

Scandlines operates two ferry routes with a high capacity and frequency. Six of our ferries are hybrid ferries and two are fitted with an innovative rotor sail – which contributes to making our ferries greener.

In 2024 our first zero direct emissions ferry, which is currently under construction, will become operational on the Puttgarden-Rødby route.

Our core business is to provide an efficient and reliable transport service for both passengers and freight customers. The focus for all our activities – on board the ferries as well as in our BorderShops – is to give our customers a great experience.

With more than 41.500 departures on seven ferries, Scandlines transports over 7 million passengers, 1,7 million cars and approx. 700,000 freight units per year.

# Scandlines' management



Carsten Nørland,  
CEO



Jesper Mikkelsen  
Heilbuth, CFO



Michael Guldmann  
Petersen, COO



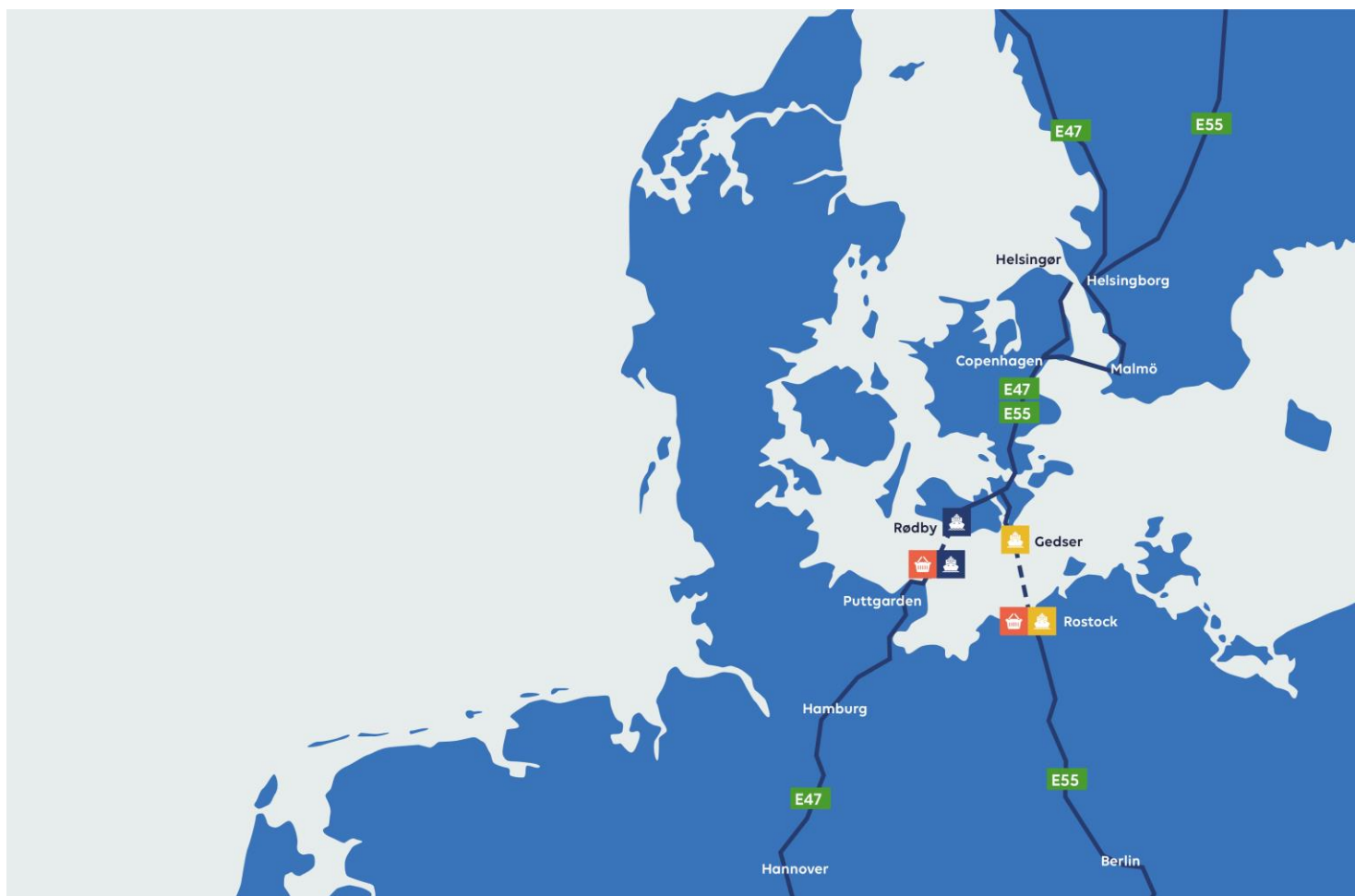
Heiko Kähler, direktør  
(Managing Director)



Gerald Lefold, direktør  
(Managing Director)



# Route map



## Puttgarden-Rødby

This 18.5km crossing takes 45 minutes with departures every 30 minutes, 24/7 throughout the whole year – that means 35,000 departures a year. The route is operated by four hybrid ferries and one diesel-freight ferry. In 2024 the new zero direct emissions ferry will become operational. This route is also called the "beeline".

## Rostock-Gedser

This route is 42 km long and the crossing time is two hours. There are departures every two hours resulting in 6,500 departures every year. Two of the world's largest hybrid ferries have been operating this route since 2016: M/V Berlin and M/V Copenhagen. A rotor sail has been installed on both ferries in 2020 and 2022 respectively. The hybrid ferries have double the capacity compared to our previous ferries on this route.



# Key figures 2021



**Passengers**  
3,6 million



**Employees**  
1,250



**Departures**  
38,000



**Ferries**  
7



**Cars**  
950,000



**Owned ports**  
3



**Freight units**  
720,000



**BorderShops**  
2



**Buses**  
9,600



**EasyMarked**  
1

Results for the year to 31 December 2021	
Revenue	328 MEUR
EBIT	85 MEUR
EBITDA recurring	133 MEUR
Investments	22 MEUR



# Milestones in Scandlines' history

**1903**

Bilateral co-operation between Germany and Denmark starts with the first rail ferry link between Warnemünde and Gedser.

**1963**

The "beeline" opens between Puttgarden and Rødby.

**1993**

Merger of the ferry services of the two German rail companies into "Deutsche Fährgesellschaft Ostsee GmbH" (DFO).

**1997**

Outsourcing of DSB Rederi A/S and change of name into Scandlines Danmark A/S.

**1998**

Scandlines AG is established through the merger of DFO and Scandlines Danmark A/S.

**2007**

Scandlines is sold to Allianz Capital Partners (ACP), 3i Group plc (3i) and Deutsche Seereederei (DSR).

**2012**

Baltic freight routes are sold to Stena Line and Swedish Orient Line.

**2013**

50th anniversary of the "beeline" Puttgarden-Rødby.

3i becomes sole owner of Scandlines ApS.

**2014**

All passenger ferries on Puttgarden-Rødby are now hybrid ferries.

**2015**

The route Helsingør-Helsingborg is sold to First State Investments.

**2018**

Scandlines is sold to an investor consortium consisting of Igneo Infrastructure Partners, Federated Hermes and 3i.

**2016**

Two new hybrid ferries begin operations on Rostock-Gedser.

**2020 & 2022**

The hybrid ferries M/V Copenhagen and M/V Berlin are equipped with a rotor sail.





# Scandlines' green agenda

## We are bound for emission free ferries

**Scandlines is a pioneer in green ferry operations. Since 2011 Scandlines has worked on a green company strategy that includes the goal of emissions free ferries. In 2022, we committed ourselves to zero direct emissions before 2040. Our Puttgarden-Rødby route will already not generate any direct emissions in 2030. Our first zero direct emissions ferry will start operating in 2024.**

The conversion of our ferries into hybrid technology in the years 2013-2016 was the first step towards emissions free ferry operations. Scandlines' hybrid system combines traditional diesel power with electric battery power and as the first shipping company in the world we could store large amounts of excess energy in batteries on board. The hybrid system optimises the propulsion of the ship's engines, ensuring maximum fuel efficiency.

Today, six out of Scandlines' seven ferries are hybrid ferries, thus Scandlines owns and operates the world's largest hybrid fleet.

In addition, Scandlines owns two of the world's largest hybrid ferries, M/V Copenhagen and M/V Berlin, operating the Rostock-Gedser route. The two ferries were equipped with a rotor sail in 2020 and 2022 respectively, which further reduces the CO<sub>2</sub>-emissions on the route.

For a number of years, Scandlines has cooperated with NABU, the German Nature And Biodiversity Conservation Union (Naturschutzbund Deutschland e.V.). The cooperation has resulted in the continuous development of the company's green initiatives. Among other things, NABU has advised Scandlines regarding the transition from traditional diesel propulsion to hybrid propulsion.

The goal for both parties: Zero emissions ferries within a few years.

Scandlines is also working on reducing the negative impact on the environment in other areas and is committed to supporting five United Nation's Sustainable Development Goals working for a sustainable future.



Scandlines is a member of the Public Private Partnership for innovation and demonstration of technologies and methods that make shipping more environmentally friendly.



# The world's largest hybrid fleet

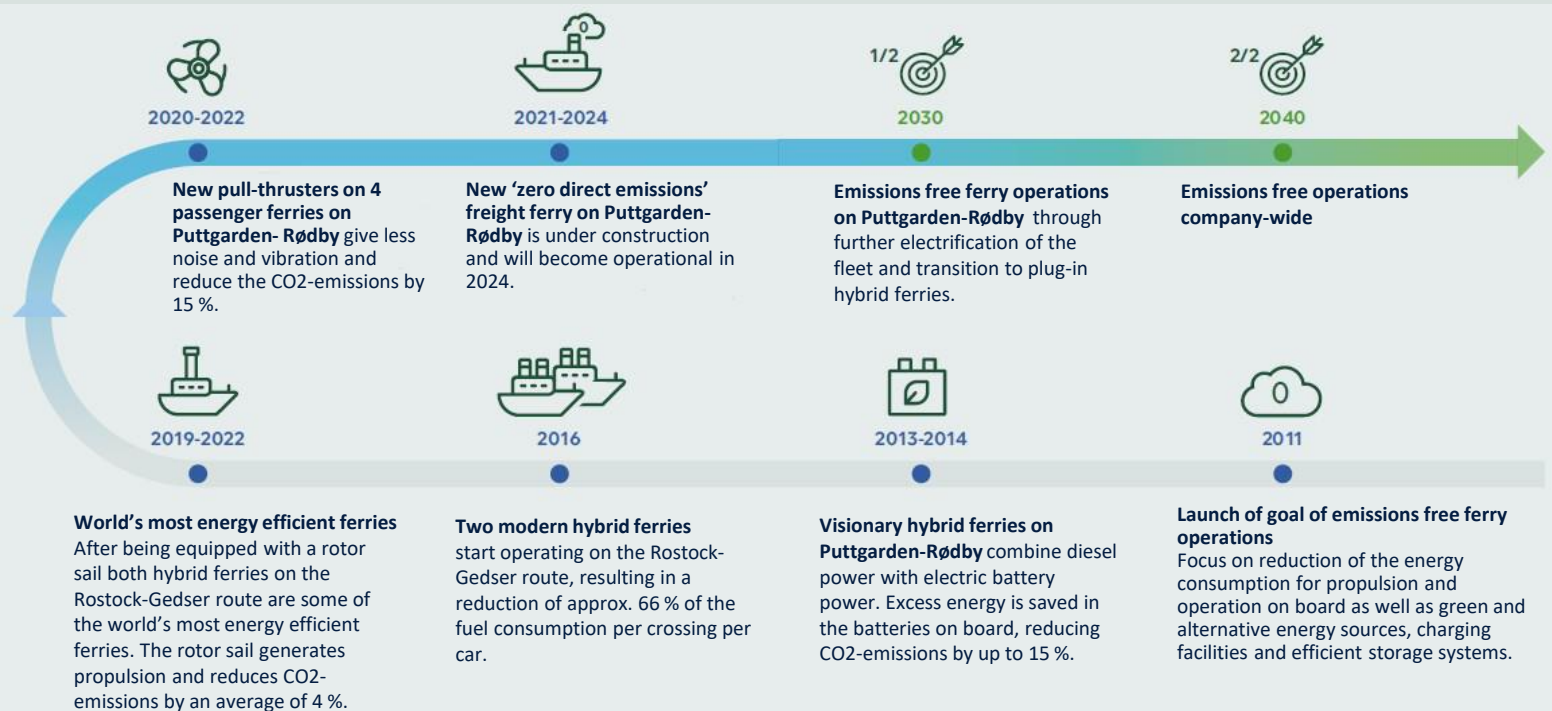
 **Scandlines**



# The journey towards zero direct emissions

## From hybrid ferries to emissions free ferries

Scandlines is committed to achieving our company-wide zero direct emissions vision by 2040. Our Puttgarden-Rødby route will already be emissions free in 2030. We aim to lead the way on the transformation of climate neutral activities. Our expected green investments of 400 MEUR between 2013-2024 remove direct scope 1 and 2 emissions. This will display our technological progress in order to secure our position as a true pioneer in green ferry operations. The illustration below shows the most important milestones on our journey so far and our objectives for 2030 and 2040.



## The world's largest hybrid fleet



# Zero direct emissions freight ferry for Puttgarden-Rødby

In 2024, the freight ferry with the working title PR24 will become operational on the Puttgarden-Rødby route. With a crossing time of 70 minutes, the ferry is emissions free which supports our goal to operate the route without direct emissions by 2030.

PR24 is being built at the Cemre Shipyard in Turkey where the first steel plate was cut in February 2022 and the keel laying took place on 30 August 2022.

The ferry will be equipped with a 10 MWh advanced battery system from the Swiss company Leclanché.

## Data

- Freight capacity: 66 units
- Lane metres: 1,200 m
- Max. numbers of passengers: 140
- Length: 147.40 m
- Breadth: 25.40 m
- Design draft: 5.30 m
- Service speed: 10 kn
- Charging time in port (Rødby): 17 min.



# Scandlines and the UN Sustainable Development Goals

Scandlines has a clear vision – **green** ferry operations

To expand our Green Agenda, we have developed commitments across our entire organisation in support of five United Nations' Sustainable Development Goals for a sustainable development.



## THE GLOBAL GOALS For Sustainable Development

### 3 GOOD HEALTH AND WELL-BEING



We commit to being a positive and inclusive workplace with a holistic approach to health and safety that extends to all employees, customers, contractors and visitors.

### 12 RESPONSIBLE CONSUMPTION AND PRODUCTION



We commit to integrating sustainability into our purchasing decisions, reducing waste and improving our waste recycling.

### 13 CLIMATE ACTION



We commit to protecting the climate by building a resilient and sustainable infrastructure throughout the business.

### 14 LIFE BELOW WATER



We commit to being Stewards for the sustainable use of the Baltic Sea and the integrity of all marine biodiversity.

### 15 LIFE ON LAND



We commit to protecting, restoring and promoting the sustainable use of terrestrial ecosystems. We will do so by the renaturalisation of land and soil and supporting biodiversity in the regions in which we operate.

# Other green initiatives

Besides working on ambitious goals for emissions free ferry operations, Scandlines is also working on making other areas of its business more sustainable. Hence we are continuously launching other initiatives to, for example, reduce food waste, increase well-being at work, offer our BorderShop customers easy charging of their electrical cars and increase biodiversity through more green areas in the port of Puttgarden.

Below you can see two examples of our green initiatives.



## Reduce food waste

We reduce food waste by serving individual portions made to order, putting out smaller quantities of food at the buffet and by having a slightly smaller selection to choose from. We use the same principles in our mess and canteens as in our restaurants on board.



## Green port in Puttgarden

In the Port of Puttgarden, we work on measures to improve sustainability and increase green areas. A grass area of 1 hectare has been turned into a colourful field of wild flowers. More than 40 nesting places for bats and swifts have been provided as well as the construction of insect hotels.



# Hybrid ferries with rotor sail on Rostock-Gedser

## M/V Berlin



Construction year & ship yard	2016 Fayard A/S Denmark
Port of registry/flag	Rostock/German
Gross tonnage	22,319
Engines	4 pc. MaK, type 9M32CCR 1 pc. MAN
Energy Storage System	1 pc. Siemens 1,500 kWh
Rotor sail	30 x 5 m (hxd)
KW	19,500
Length	169.5 m
Breadth incl. fender	25.4 m
Service speed	21 kn
Capacity	460 cars or 96 freight units, 1,300 passengers

## M/V Copenhagen



Construction year & ship yard	2016 Fayard A/S Denmark
Port of registry/flag	Gedser/Danish
Gross tonnage	22,319
Engines	4 stk. MaK, type 9M32CCR 1 stk. MAN
Energy Storage System	1 stk. Siemens 1.500 kWh
Rotor sail	30 x 5 m (hxd)
KW	19,500
Length	169,5 m
Breadth incl. fender	25.4 m
Service speed	21 kn
Capacity	460 cars or 96 freight units, 1,300 passengers

# The world's largest hybrid fleet



# Danish hybrid ferries on Puttgarden-Rødby

## M/V Prinsesse Benedikte



Construction year & ship yard	1997/2003 Orskov Yard Denmark
Port of registry/flag	Rødby/Danish
Gross tonnage	14,822
Engines	2 pc. MaK, type 8M32 1 pc. MAN, type 8L32/44CR 1 pc. MAN, type 6L32/44CR
Energy Storage System	1 pc. Siemens 1.600 kWh
Scrubber	SOx closed-loop-scrubber 1 x 4,500 kW
KW	17,440
Length	142 m
Breadth incl. fender	25.4 m
Service speed	18.5 kn
Capacity	364 cars or 60 freight units, 1,140 passengers

## M/V Prins Richard



Construction year & ship yard	1997/2003 Orskov Yard Denmark
Port of registry/flag	Rødby/Danish
Gross tonnage	14,822
Engines	3 pc. MaK, type 8M32 1 pc. MaK, type 9M32CCR
Energy Storage System	1 pc. Siemens 1.600 kWh
Scrubber	SOx closed-loop-scrubber 1 x 4,500 kW
KW	17,440
Length	142 m
Breadth incl. fender	25.4 m
Service speed	18.5 kn
Capacity	364 cars or 60 freight units, 1,140 passengers

The world's largest hybrid fleet

# German hybrid ferries on Puttgarden-Rødby

## M/V Deutschland



Construction year & ship yard	1997/2003 Van der Giessen de Noord, Holland
Port of registry/flag	Puttgarden/German
Gross tonnage	15,187
Engines	2 pc. MaK, type 8M32 1 pc. MaK, type 9M32CCR 1 pc. MaK, type 6M32
Energy Storage System	1 pc. Siemens 1,600 kWh
KW	15,840
Length	142 m
Breadth incl. fender	25.4 m
Service speed	18.5 kn
Capacity	364 cars or 60 freight unit, 1,200 passengers

## M/V Schleswig-Holstein



Construction year & Ship yard	1997/2003 Van der Giessen de Noord, Holland
Port of registry/flag	Puttgarden/German
Gross tonnage	15,187
Engines	2 pc. MaK, type 8M32 1 pc. MaK, type 9M32CCR 1 pc. MaK, type 6M32
Energy Storage System	1 pc. Siemens 2,600 kWh
KW	15,840
Length	142 m
Breadth incl. fender	25.4 m
Service speed	18.5 kn
Capacity	364 cars or 60 freight units, 1,200 passengers

# The world's largest hybrid fleet

# Freight ferries on Puttgarden-Rødby

Besides our six hybrid ferries, Scandlines also owns the freight ferry, M/V Kronprins Frederik for the transport of freight units and classified goods on the route Puttgarden-Rødby. By doing so, we can increase the capacity on our hybrid ferries for the benefit of our car and freight customers. This ferry also functions as replacement ferry on the Rostock-Gedser route. In 2024, a new freight ferry, designed to operate 100 percent emissions free, will start operating on the "beeline".

## M/V Kronprins Frederik



Construction year & ship yard	1981/1998/2004 Nakskov Shipyard Denmark
Port of registry/flag	Rostock/German
Tonnage	16,071
Engines	4 pc. MaK, type 8M32 2 pc. MaK, type 6M32C
KW	22,000
Length	152 m
Breadth incl. fender	23.7 m
Service speed	21 kn
Capacity	40 freight units, 133 passengers

## PR24 (under construction)



Construction year & ship yard	2022-2024 Cemre, Tyrkey
Energy Storage System	10 MWh Leclanché
Length	147.4 m
Breadth incl. fender	25.4 m
Service speed	10 kn
Capacity	66 freight units, 140 passengers



# Scandlines' ports



Scandlines owns the port areas in Rødby, Gedser and Puttgarden. With 6 million passengers every year, the port in Puttgarden is one of the most important ferry ports in Germany. In Rostock port, Scandlines uses the local facilities. One of Scandlines' BorderShops is situated in Rostock and the other one is in Puttgarden.



## Rødby Port

Buildings	60
Under roof m <sup>2</sup>	10,922
Land m <sup>2</sup>	421,990
Ferry berths	4



## Gedser Port

Buildings	38
Under roof m <sup>2</sup>	8,077
Land m <sup>2</sup>	134,481
Ferry berths	3



## Puttgarden Port

Buildings	27
Under roof m <sup>2</sup>	28,380
Land m <sup>2</sup>	401,705
Ferry berths	4
BorderShop	1



# BorderShop

Scandlines owns and runs BorderShops in the ports of Puttgarden and Rostock. The two BorderShops have a unique “taste, look and feel” environment. It means that customers not only have the opportunity to look and feel our products. They can also taste them – every day, there are lots of tastings in Scandlines' BorderShops. In addition, the BorderShop in Puttgarden holds special events such as Whisky&Rom Festival with tastings of exclusive brands, music and fun. Customer service is a high priority. Therefore, our customers have the ability to pre-order their goods online and pick them up in BorderShop. We also offer cheaper ferry tickets for cross-border shopping in Germany.



BorderShop Puttgarden opened in 2001. Due to its more than 6,000 m² sales area and over 1 million customers per year, it is one of the world's largest cross-border shops – and at the same time the only floating one in the world. Here you will find a huge range of different kinds of beers, soft drinks, sweets, wine and whisky. There are more than 600 different kinds of whisky in the store, among others in the exquisite whisky lounge. Within the wine selection, you will find more than 1.000 different varieties to choose from and knowledgeable wine experts, for example sommeliers, help our customers with everything concerning the world of wine.



Easily accessible and centrally located, BorderShop Rostock also offers a wide range of international and regional high quality products which are very popular, especially among Scandinavians. Scandlines' BorderShop in Rostock was established in 2011.

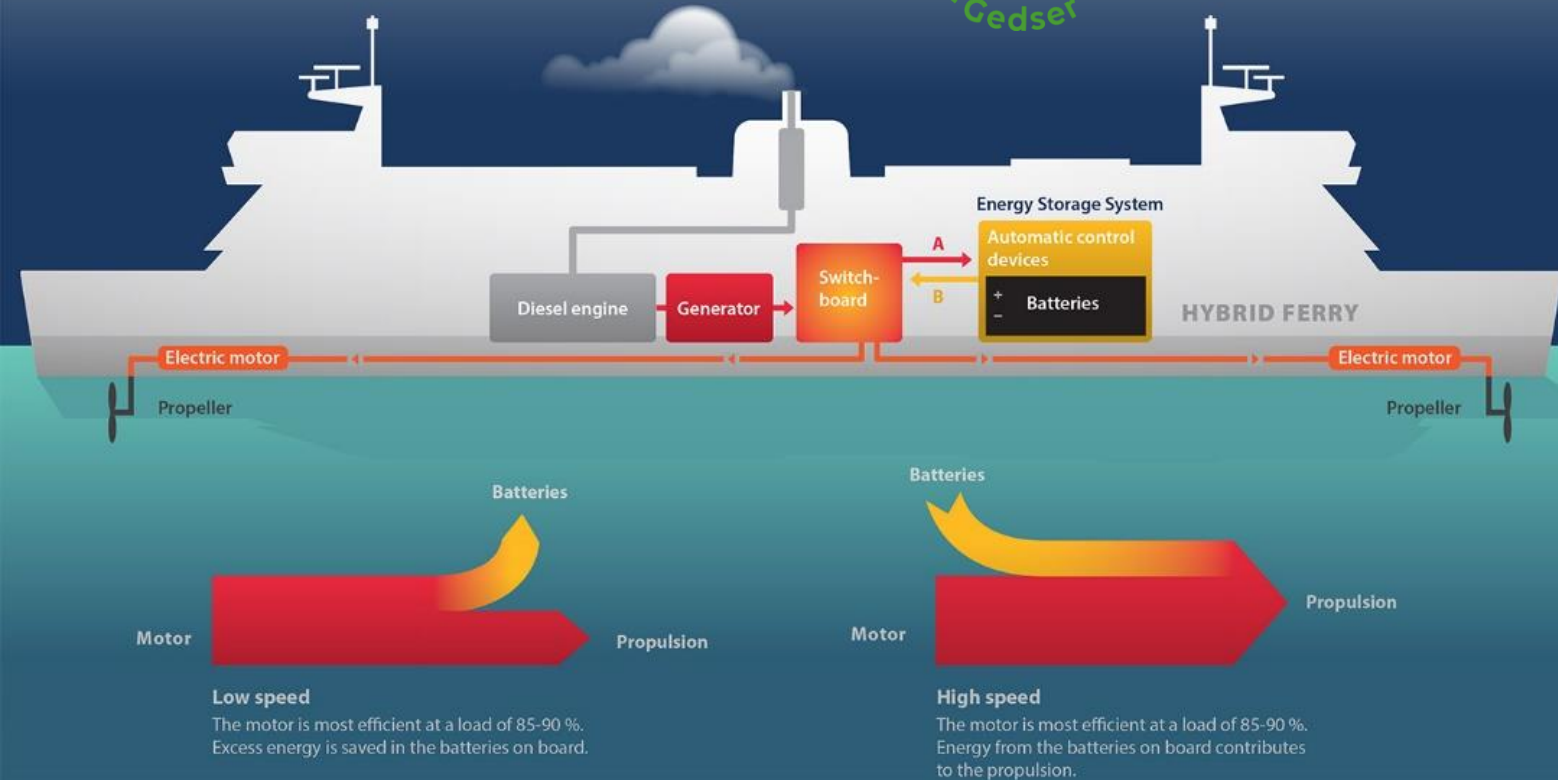




# Technical specifications of Scandlines' green solutions



- A** The generator produces energy to the Energy Storage System via the switchboard.
- B** The Energy Storage System supplies energy to the switchboard.



# The hybrid system

In normal service, only two or three of the ferry's original five diesel engines are working, at a load of 40-55 % offshore and of 8-10 % when the ferry is in port. Nevertheless, the engines work most efficiently at a load of 85-90 %. By replacing one of the five diesel engines with a battery of 1.6 MWh, corresponding to approx. 182 Toyota Prius hybrid cars, and using this battery simultaneously with the diesel engines, the engines are working at the optimum level of load which is 85-90 %. This reduces partial strain and idleness and protects the environment.

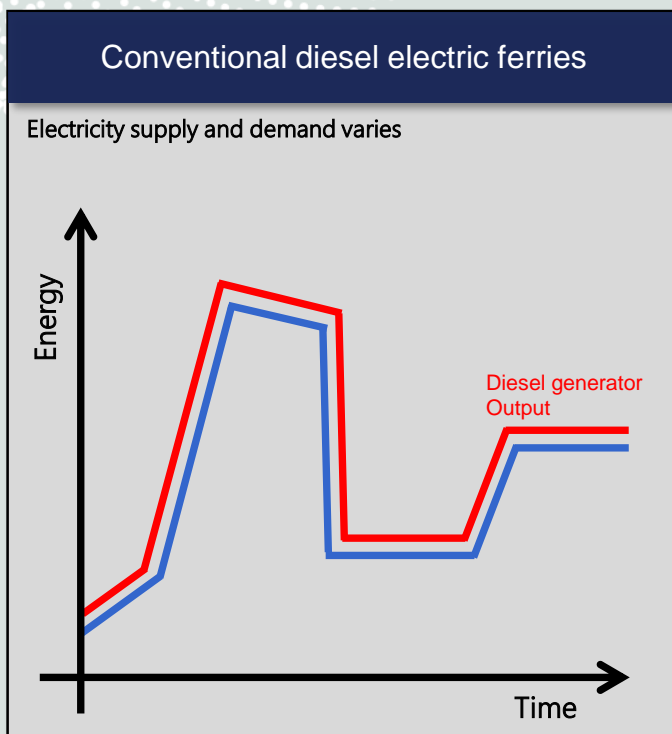
In 2013, Scandlines was the first shipping company in the world to make large-scale use of a hybrid propulsion system which stores energy in batteries on-board. Scandlines' hybrid system combines traditional diesel power with electric battery power. When the engine needs more energy than the diesel generator can supply, it uses the batteries' energy – and when there is less need for energy, excess energy is saved in the batteries.

## Hybrid ferries on Rostock-Gedser

In 2016, Scandlines added two hybrid ferries on the Rostock-Gedser route, M/V Berlin and M/V Copenhagen. The route was strengthened with improved logistics and double capacity. Compared to the previous ferries on the route, fuel consumption was reduced by two thirds per crossing per car. The investment per ferry was 130 MEUR.

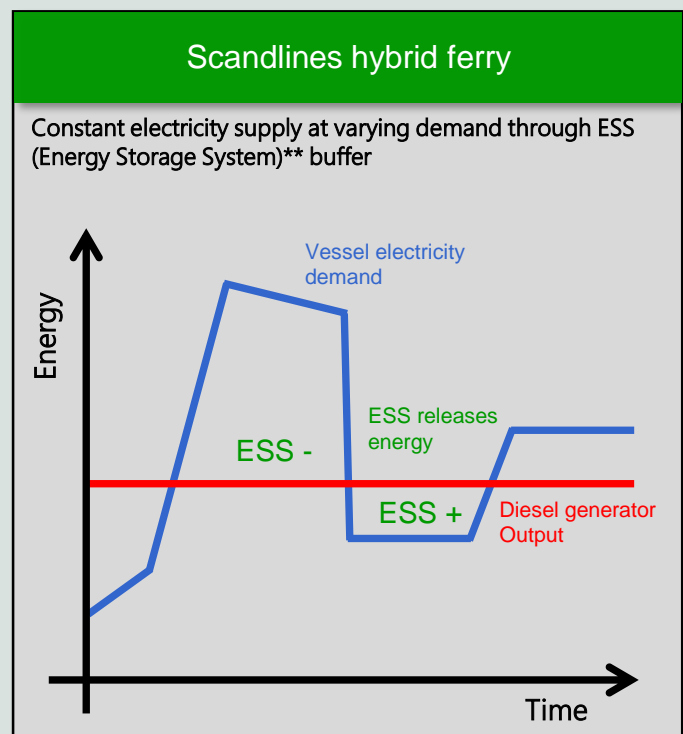


# How does the hybrid system work?



Vessels run with 1-3 diesel generators\* at 40-55% load at sea on average and 8-9% load in ports.

\*) A diesel generator is a so-called GenSet, a combination of a diesel engine and a power generator

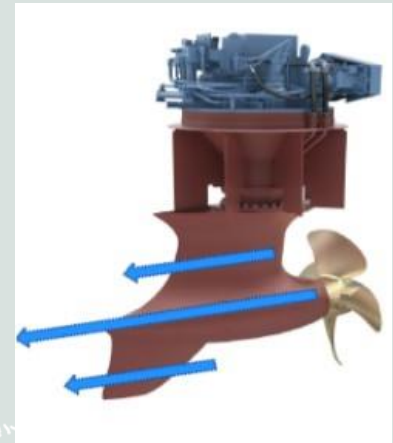


Scandlines' hybrid ferries run with 1 diesel generator at 85-90% load at sea and in port. Optimal engine efficiency is achieved at load factor >85%.

\*\*) An ESS consists of a battery bank and a control system



Previous push thruster



New pull thruster

# New thrusters on Puttgarden-Rødby

**All four hybrid ferries on the Puttgarden-Rødby route have had their thrusters replaced, which both steer and drive the ship forward. The former push thrusters have been replaced with new high-tech pull thrusters.**

On the former push thrusters, the propeller was at the back, so the water needed to pass the thruster before it reached the actual propeller. On the pull thrusters, the propeller is at the front of the thruster.

The new thrusters allow a homogenous water flow, which results in less noise and vibration. The exchange significantly lessens the environmental impact. Reduced underwater noise and less vibration improves the conditions for the marine life in the Fehmarn Belt area – including the harbour porpoises. Furthermore, easier water flow during propulsion ultimately reduces emissions, including CO<sub>2</sub>.

The total investment in the new thrusters is more than 13 million EUR.

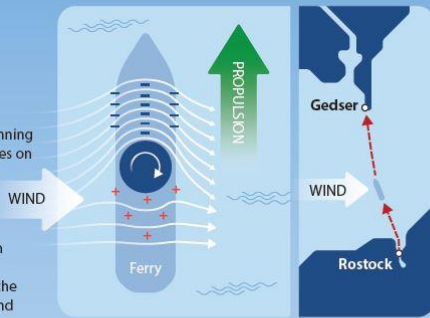


# A ROTOR SAIL WIND POWERS SCANDLINES

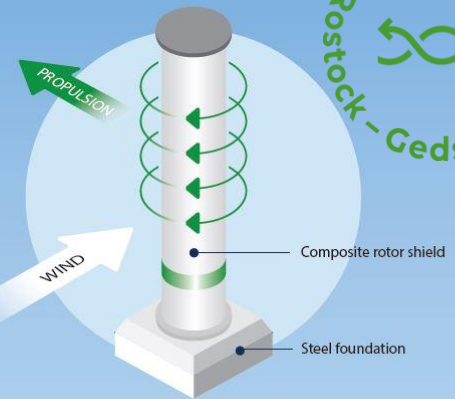
## THIS IS HOW THE ROTOR SAIL WORKS

- 1 The rotor sail uses the Magnus effect for propulsion.
- 2 When the wind meets the spinning cylinder, the air flow accelerates on one side and decelerates on the opposite side.
- 3 The difference in pressure creates a force that helps push the ship through the water. Thereby, the ship can reduce the use of the diesel generators and thus lower CO<sub>2</sub> emission by:

**4-5 %**



Diameter:  
5 m  
Height:  
30 m



Puttgarden - Røddby  
Rostock - Gedser

**Scandlines HYBRID FERRY**

Scan the QR-code to read about the Magnus effect:



**Scandlines**

Interreg  
North Sea Region  
WASP

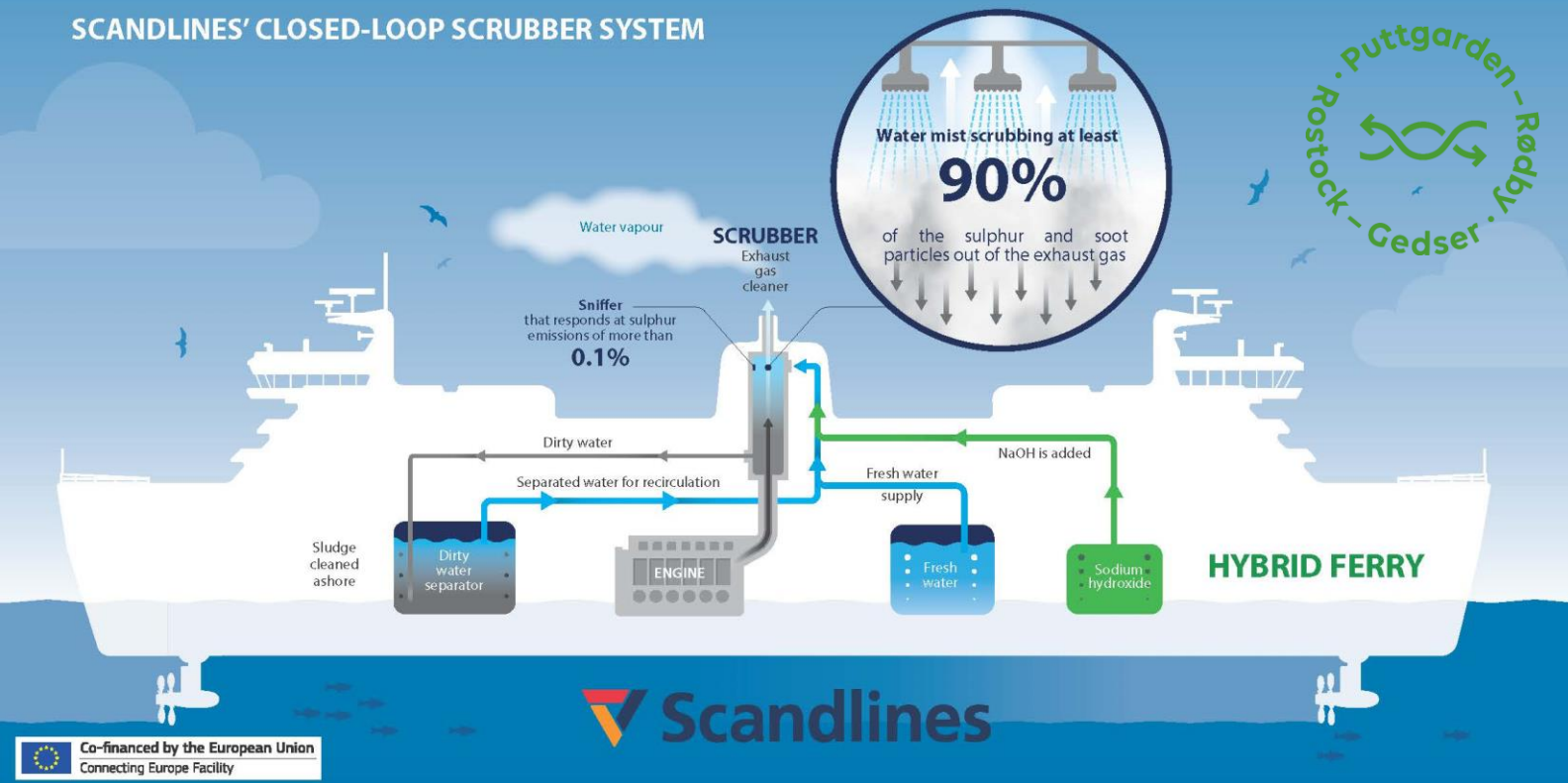
## Rotor sail on Rostock-Gedser

Since 2013, Scandlines has invested 300 MEUR in building and retrofitting ferries from conventional diesel-driven ferries to hybrid ferries. With the addition of the rotor sail – a wind power propulsion technology developed by Norsepower Oy Ltd – the vessel further reduces its emissions.

- The rotor sail is a modernised version of the Flettner rotor – a tall cylinder, rotating around its own vertical axis driven by an electric motor. The technology is based on the Magnus effect: a pressure difference which creates a lift force that is perpendicular to the wind flow direction. The longitudinal component of this force helps to push the ship through the water, thereby reducing the use of the diesel motors.
- The rotor sail has the optimum effect when it is windy and the wind comes from the side. The route between Rostock to the south and Gedser to the north is almost perpendicular to the prevailing wind from the west, giving Scandlines favourable conditions for using rotor sails on the crossing.
- Measurements on M/V Copenhagen since the installation of the rotor sail show, that the expected 4 % reduction of CO<sub>2</sub> emissions has been achieved.
- The rotor sail was installed on M/V Copenhagen in 2020 and on M/V Berlin in 2022.

# WHY DO YOU SEE WATER VAPOUR FROM THE FUNNEL OF THE FERRY?

## SCANDLINES' CLOSED-LOOP SCRUBBER SYSTEM



# Scandlines' closed-loop-scrubber system

In addition to the installation of the hybrid system, Scandlines' ferries are fitted with a closed-loop scrubber. The closed-loop scrubber cleans the engine exhaust streams of pollutants such as sulphur and particulate matter and reduces emissions by at least 90%.

It is a "closed-loop scrubber", which purifies the contaminated water in a centrifuge. Subsequently, the purified water is collected and stored in a tank in order to be pumped ashore. Afterwards, the water is disposed of in an environmentally friendly way by using a treatment and disposal facility. With the installation of the closed-loop scrubber, Scandlines fulfilled the sulphur requirements applicable from 1 January 2015.

Scandlines has invested millions of euros in the installation of the hybrid system and closed-loop scrubbers on its four ferries on the "beeline". The EU has also rubber-stamped Scandlines' innovative green initiatives by co-financing several million euros.



**I am proud to lead a  
shipping company  
with an ambitious  
goal of 100 %  
emissions free ferry  
operations by 2040.**

Carsten Nørland, CEO