

# The wind carries a shipping revolution

Nautiska Föreningen

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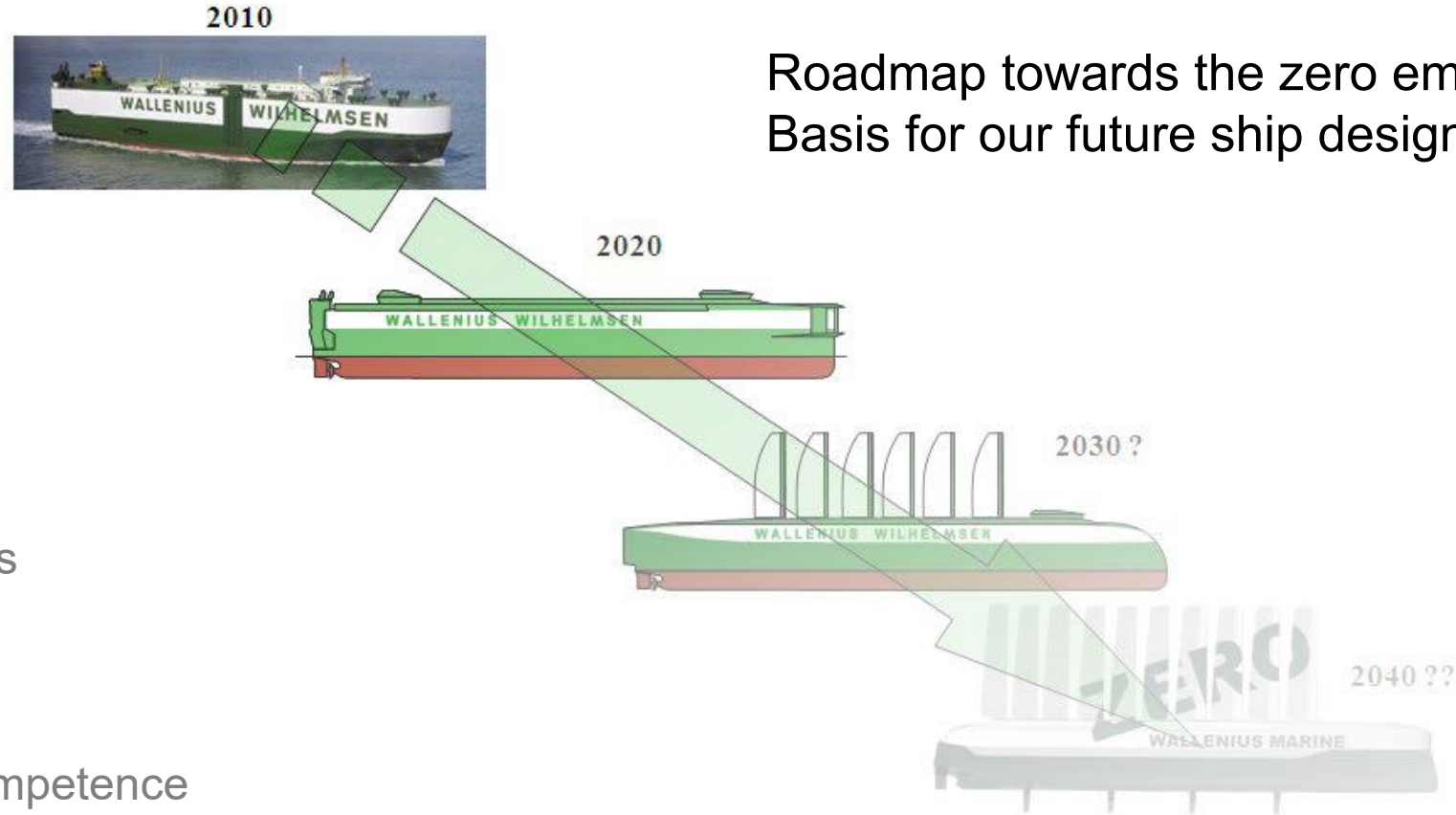
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# ZERO – Zero Emission ROro

Road map for....:

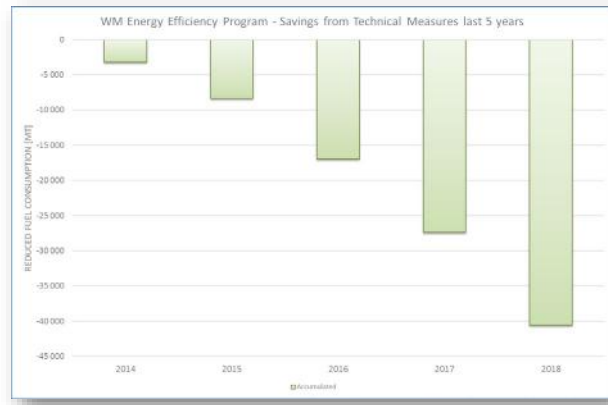
- operation
- energy carriers
- technology
- Wallenius' ship designs
- energy consumption
- emissions
- Wallenius Marine's competence



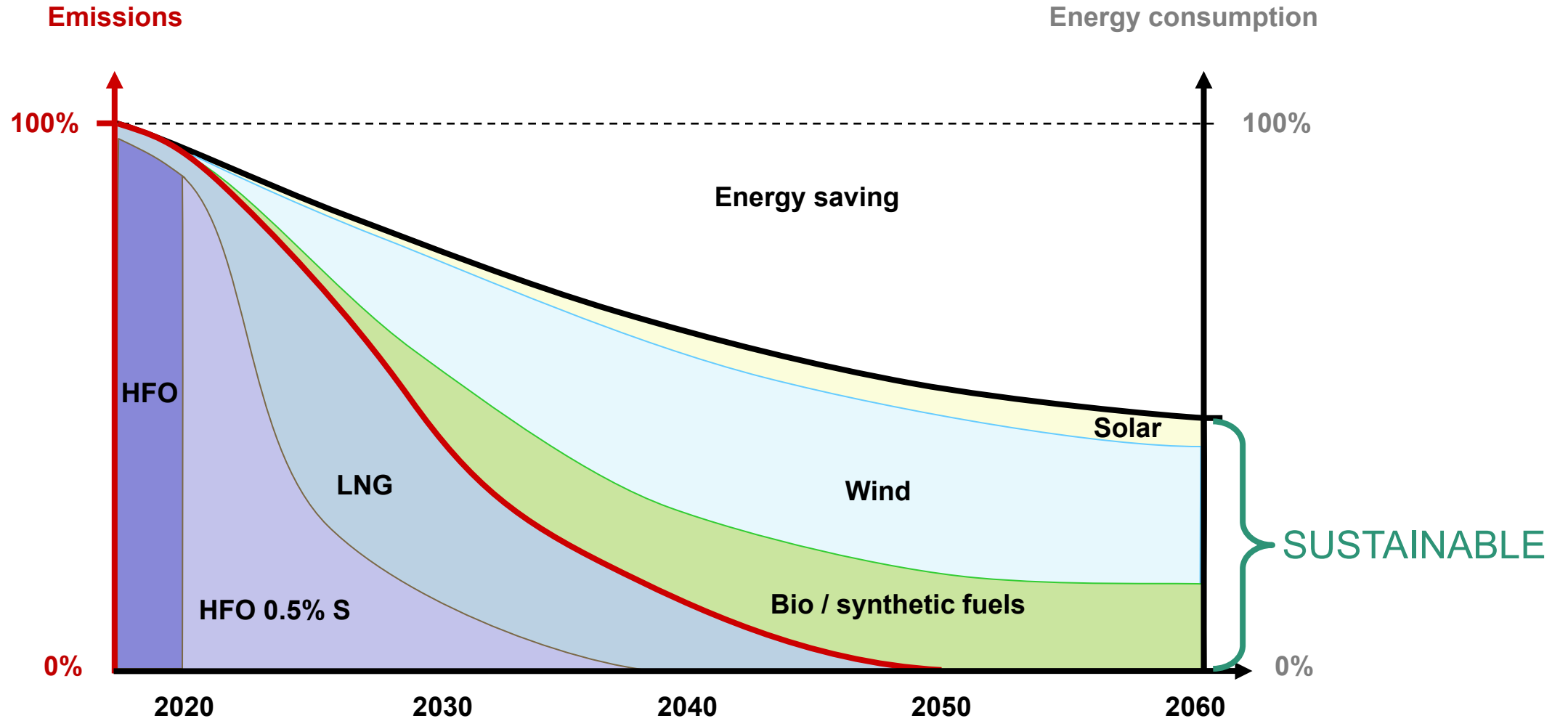
# Conclusions

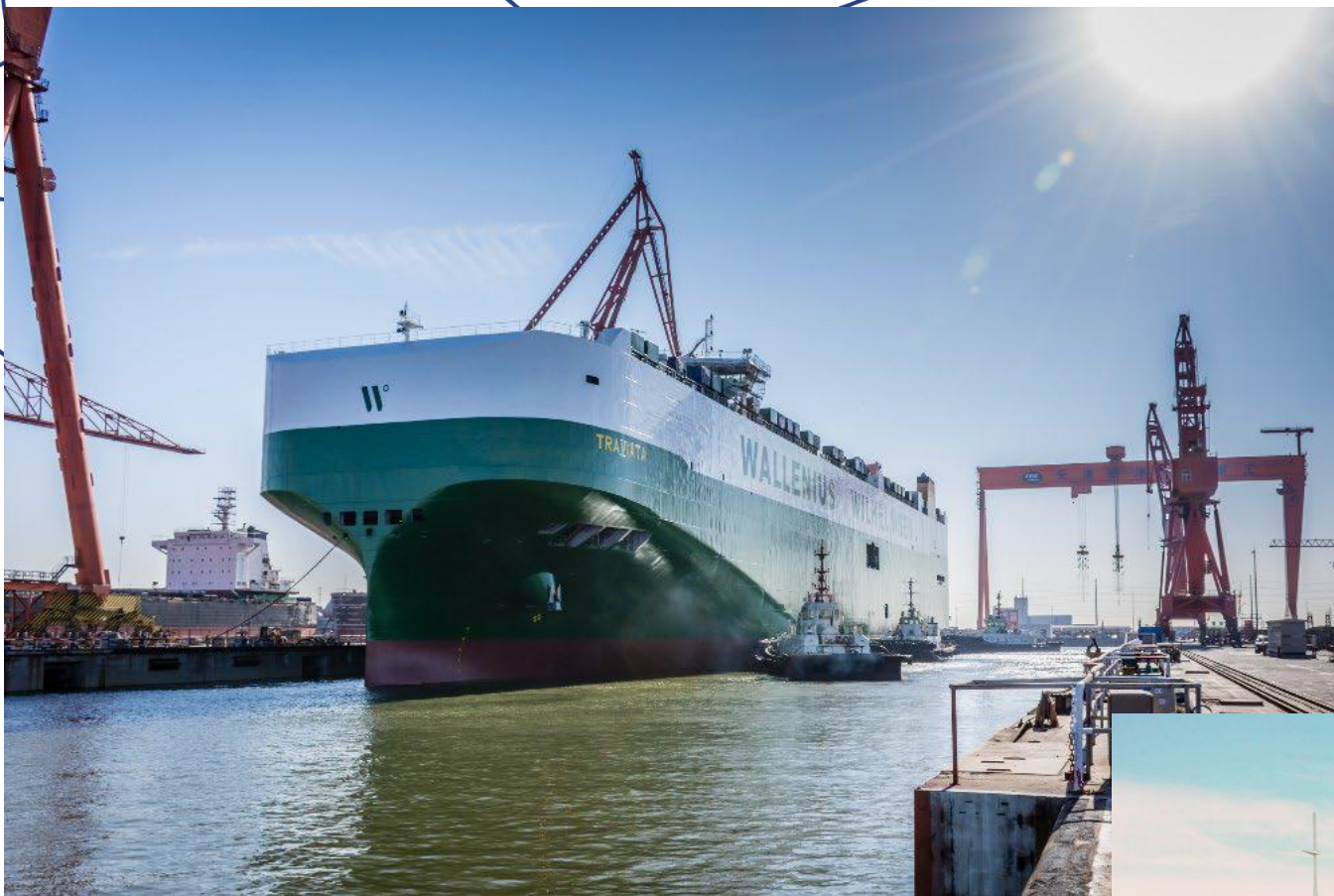
The emission free ship can be realized only through a combination of:

- Reduced energy consumption
- Emission free energy sources (Wind, sun, waves)
- Emission neutral energy carriers (Biofuels, synthetic fuels....batteries)



# Energy and emissions roadmap





# Project objectives (2018):

90% less emissions than best-of-the class vessels of today

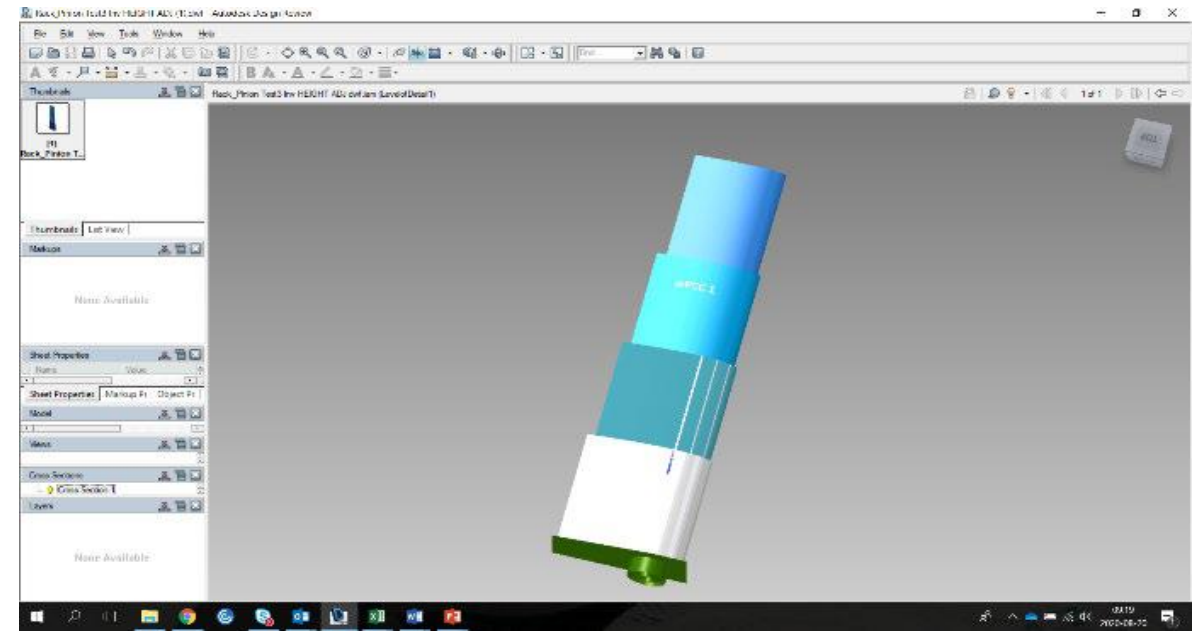
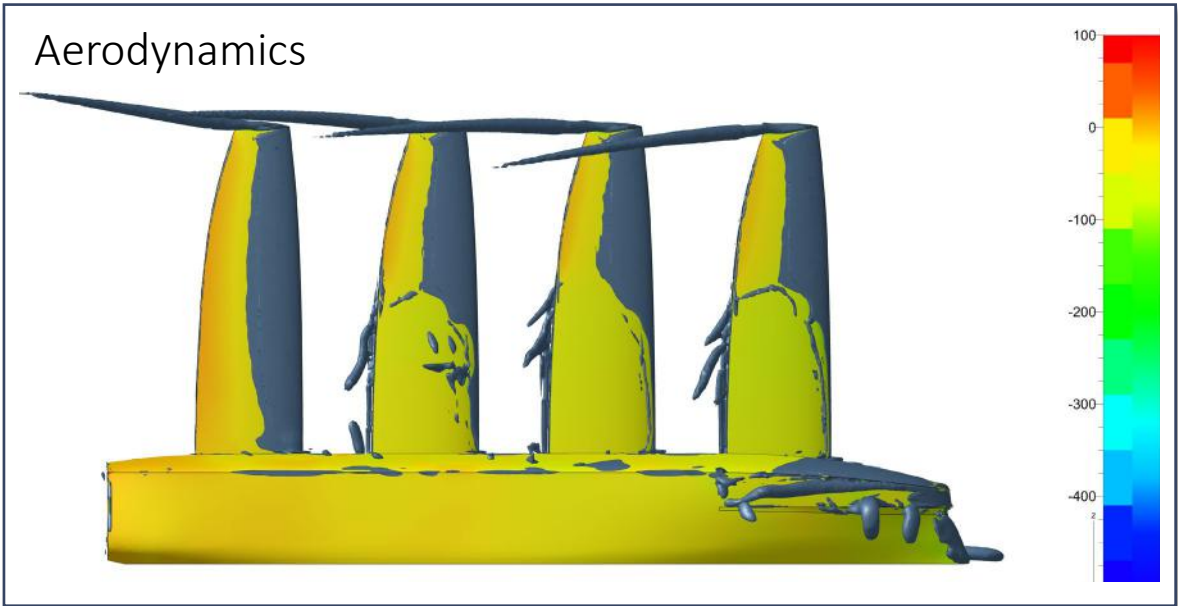
Commercially feasible

Technically ready to order in the end of 2021

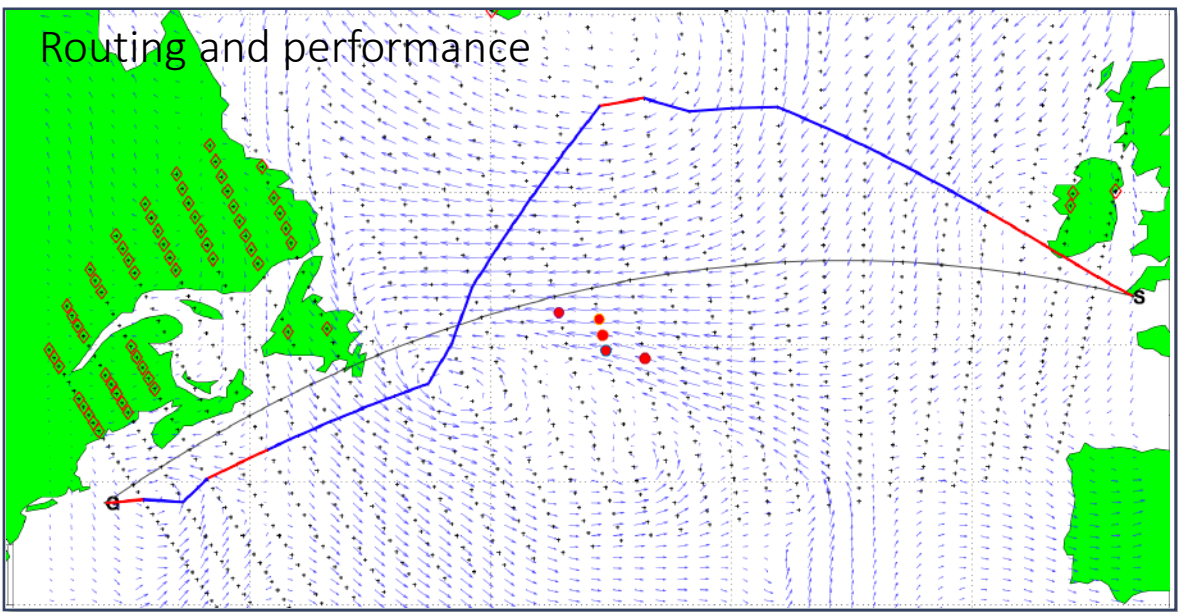
WALLENIUS  MARINE



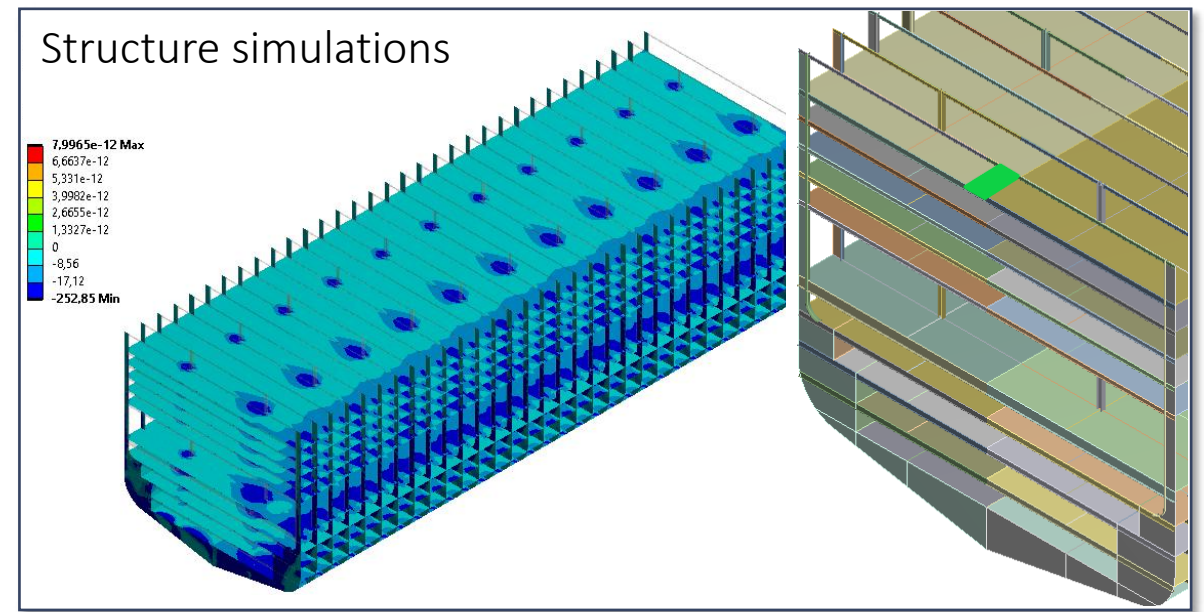
# Aerodynamics



# Routing and performance



# Structure simulations



# What we bring to AlfaWall Oceanbird



Product development  
Production experience  
Supply chain management  
Global service network  
Global sales network

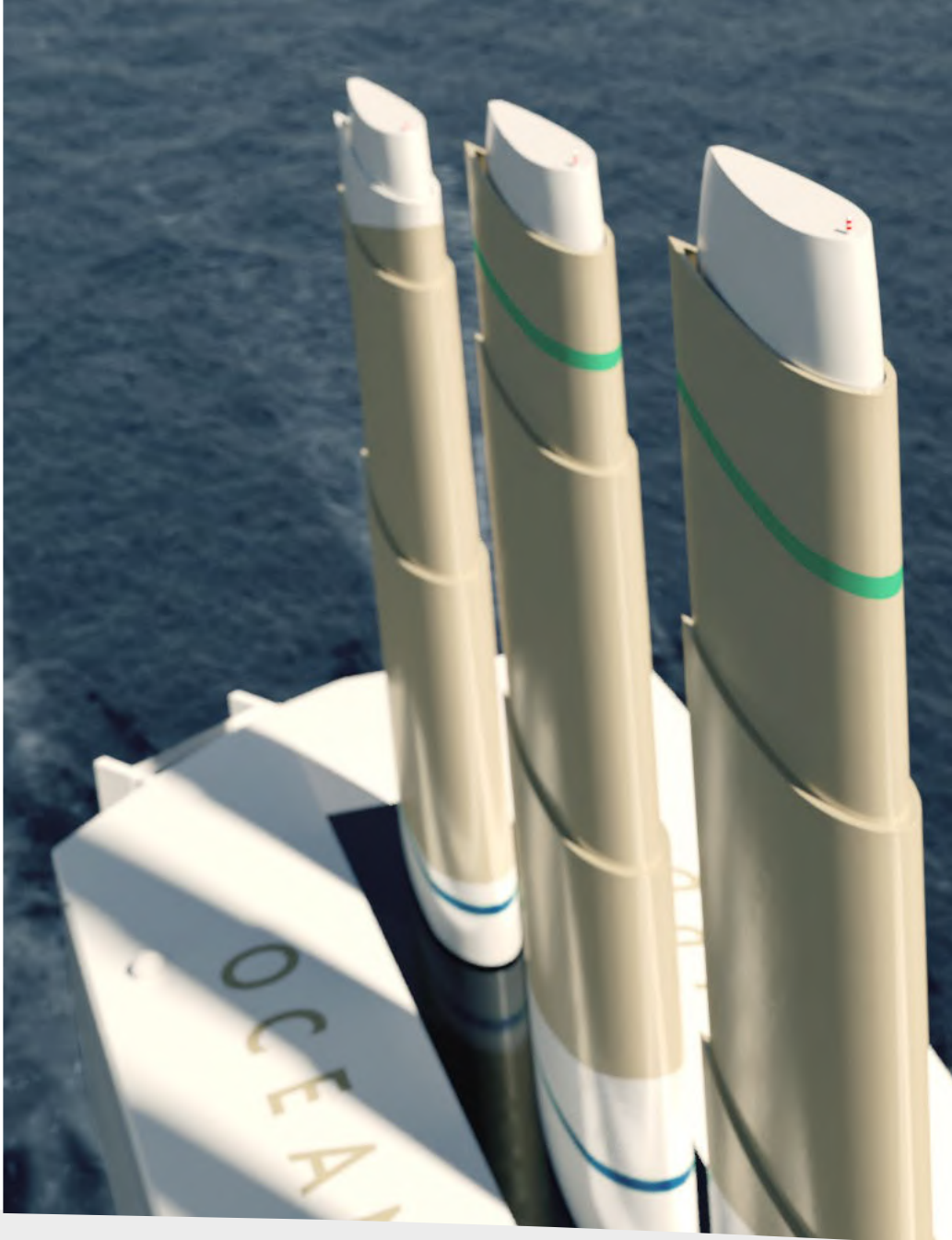


A company owned by Alfa Laval and Wallenius

Shipping know-how  
Ship design  
Innovation  
Concept development  
Marketing & Communication



OCEANBIRD



## What is Oceanbird?

- Oceanbird is a concept for wind-powered vessels, that is able reduce emissions from the vessels by up to 90%.
- The company is named after the concept. AlfaWall Oceanbird will supply wind power solutions for vessels; both **wind propulsion** (wind as main energy force) and **wind assisted** (wind as support to other main energy force).
- Applicable to both new buildings and retrofits.

# Our Vision

Oceanbird – providing wings  
for a shipping revolution



# Market drivers and trends

An industry in transition

Our customers need to comply to coming legislations such as:

- *CII*
- *EEXI*
- *EEDI*

Decarbonization

## Sustainable Shipping



Environmental Profile

Our customers sees the importance of having a environmental brand to attract customers and competence

Fulfil regulations

Reduce operating cost

Future proof

Boosting the brand

# Why wind is the right way forward

## Future proof

- Uncertainties of future fuel prices, wind is free
- No additional infrastructure needed
- Fuel availability

## Reliability

- Wind is a reliable energy source
- Hybrid solutions

## Reduce OPEX

- 40% of Vessels OPEX is fuel cost
- Reduce cost risk for alternative fuels

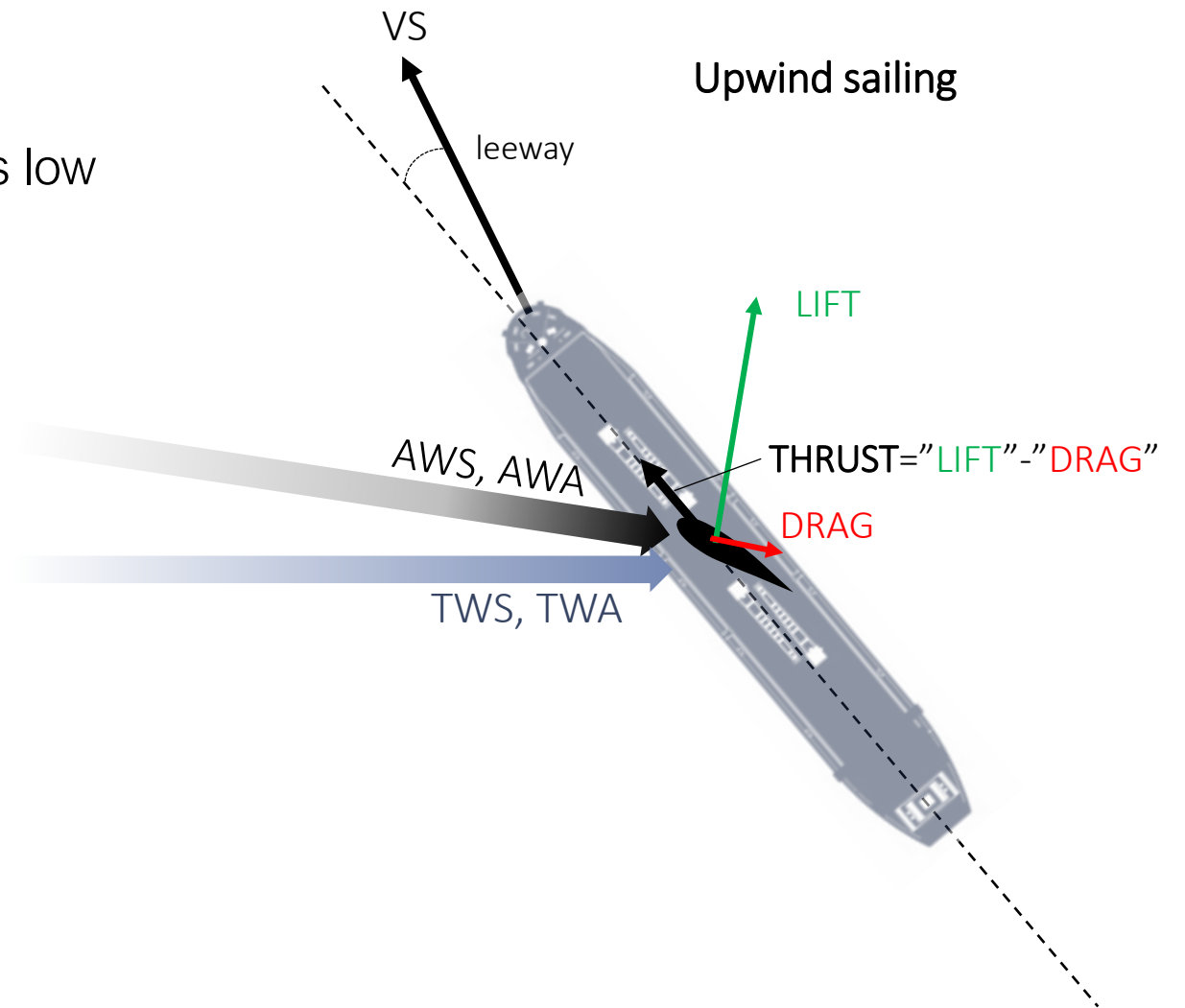
## Wind solutions solve more than CO<sub>2</sub>

- No emissions like NO<sub>x</sub>, SO<sub>x</sub> and particles
- Reduce noise



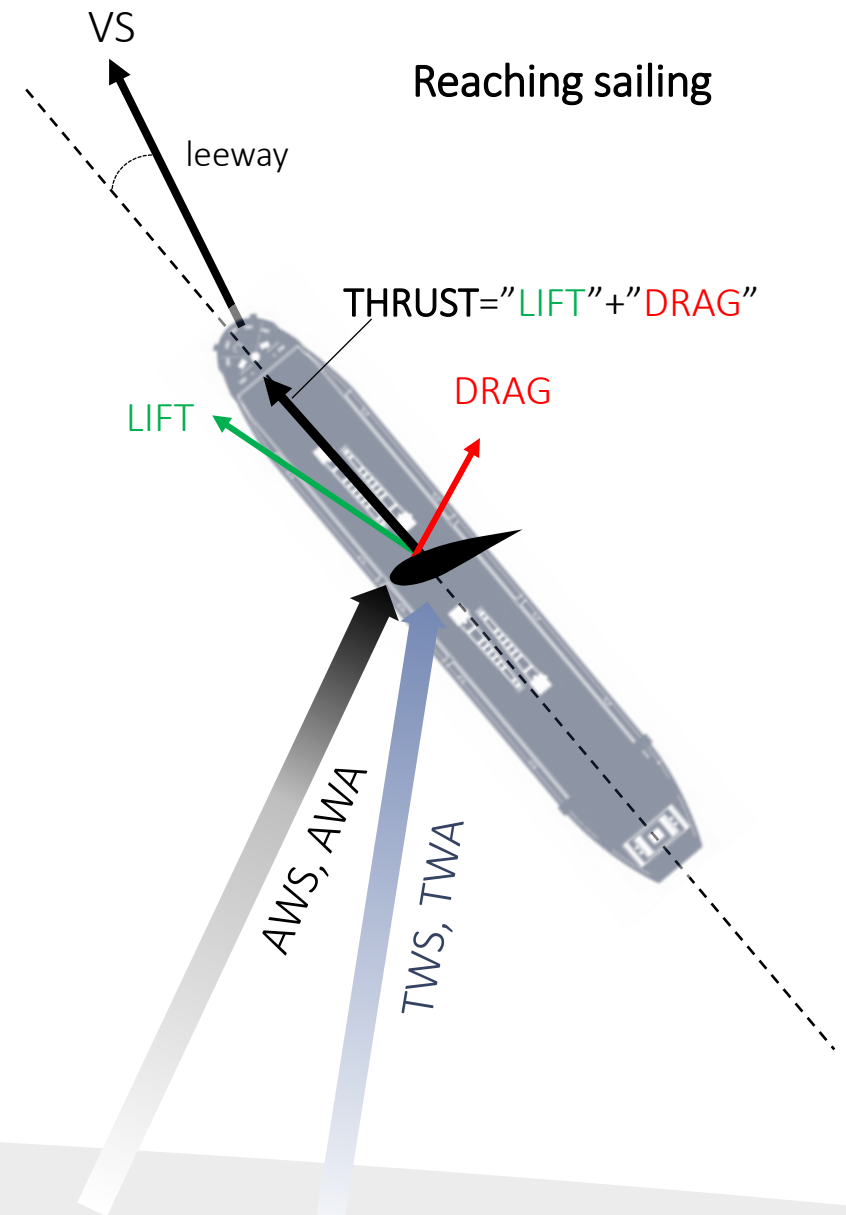
# How it works

“Generate as much thrust power to as low  
“cost” as possible”



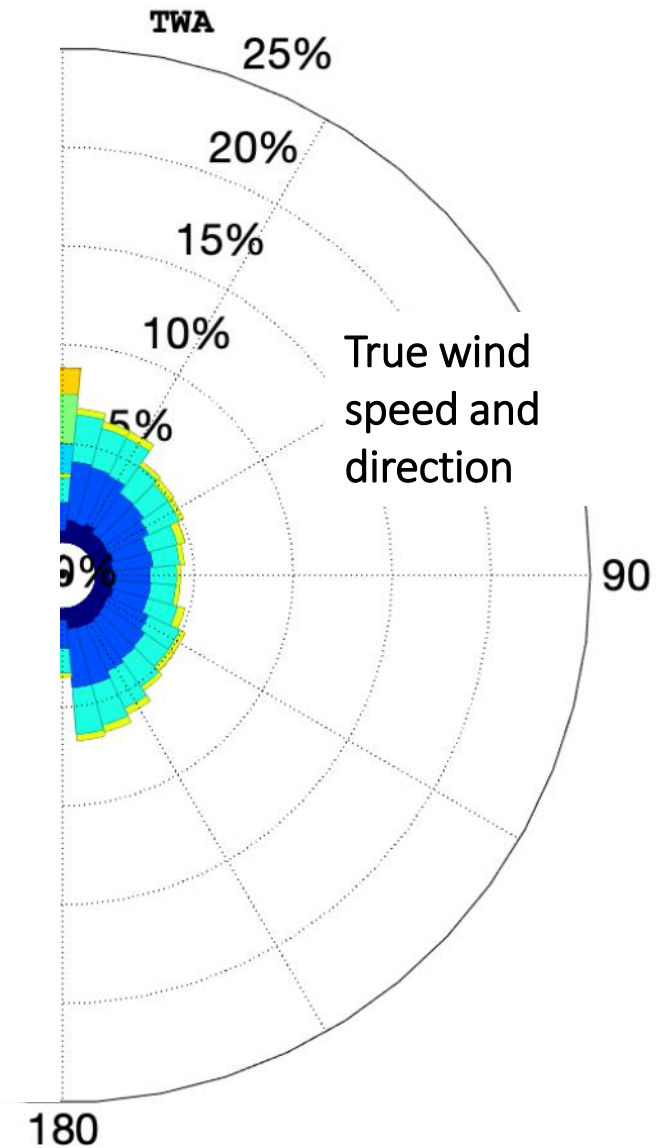
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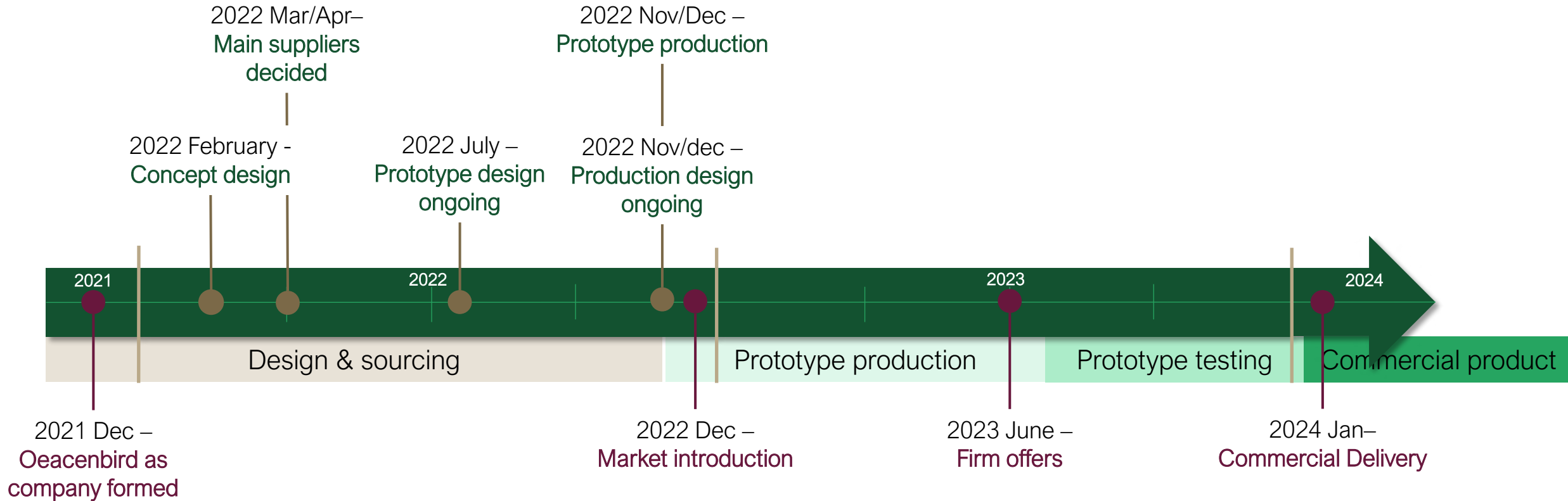
# How it works

“Generate as much thrust power to as low  
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# Oceanbird roadmap





# OCEAN BIRD

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