

we4sea

efficiency solutions for ships



Fuel efficiency for ships

Ship fuel costs will rise significantly in 2 years time



Crude Oil Tanker

Alaska

Fuel consumption 52 ton/day @ 14.5 kn

Fuel cost \$ 4.7 million/year (HFO)

In 784 days, fuel costs might go up to 8 million/year using low-sulphur fuel (required per 1/1/2020)

163,250 dwt

Dwt: Dead Weight Tonnage
For fuel consumption 300 days/year and fuel price HFO \$321/ton

Time is running out for compliance to new legislation

35

**days to MRV regulation
requiring all ships sailing
in EU > 5000GT to
Monitor, Report and
Verify CO₂ emissions**

4000

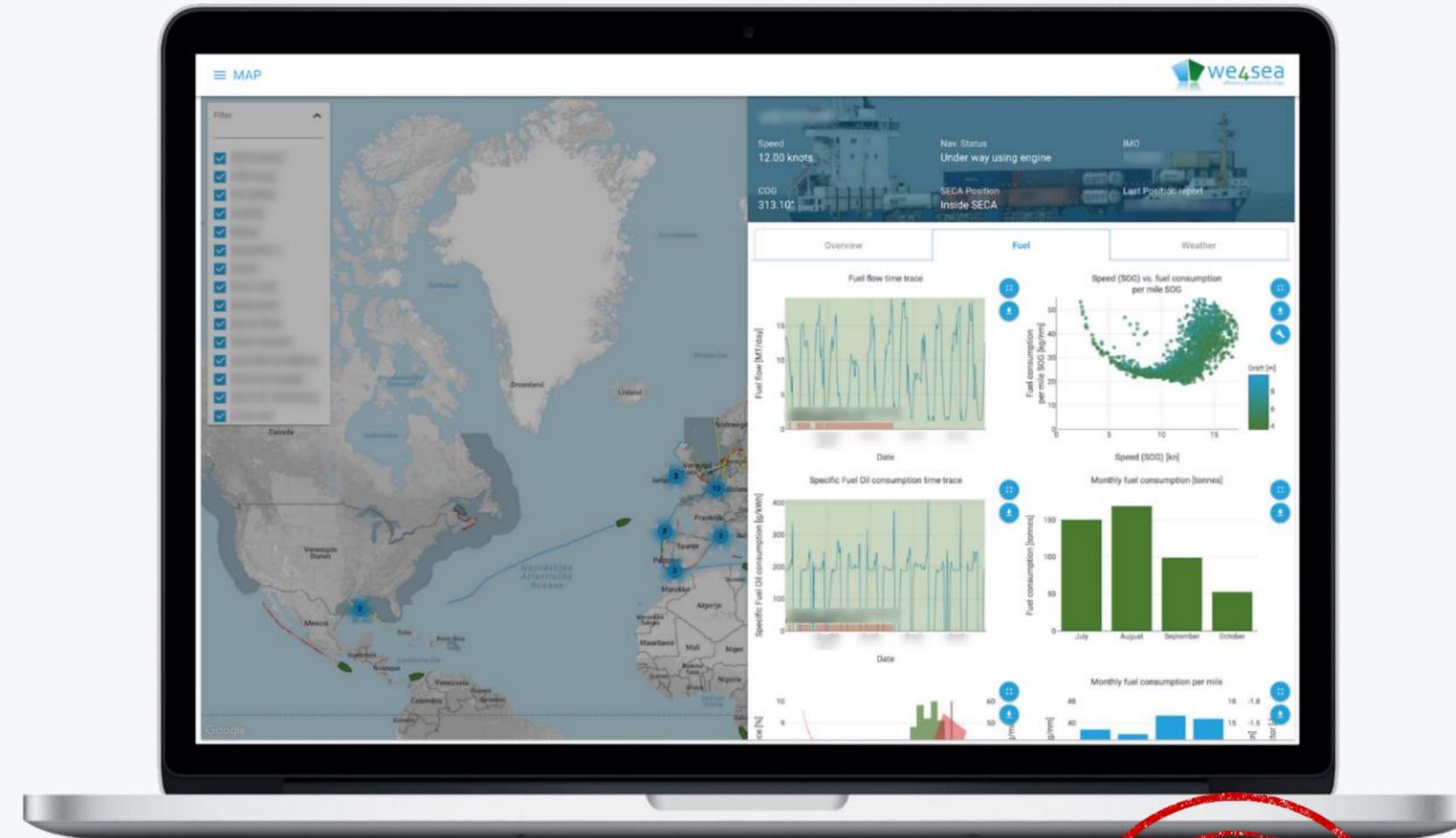
**days to IMO Data
Collection System
requiring all ships
> 5000GT to Monitor and
Report CO₂ emissions**

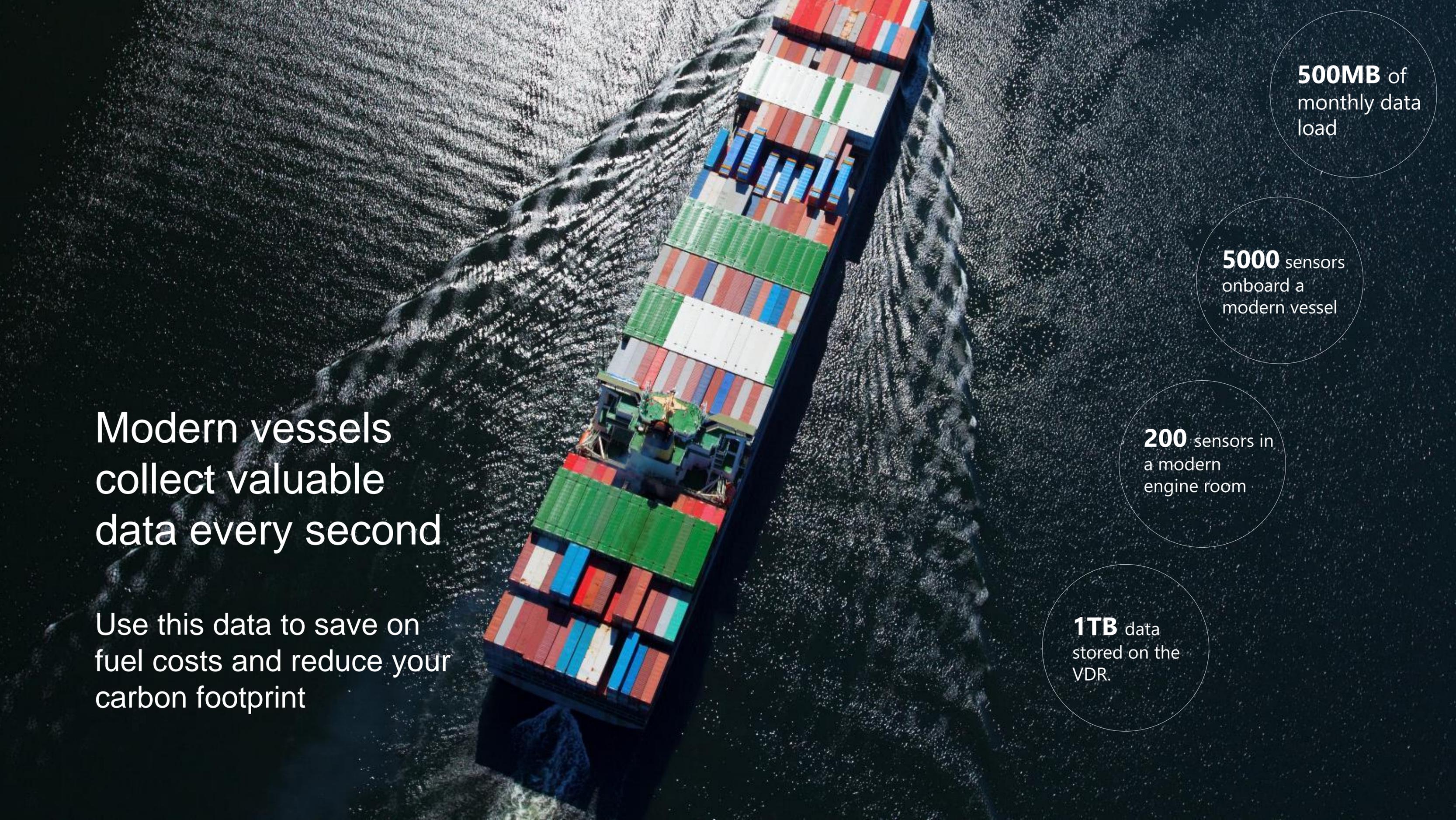
765

**days to global 0.5% limit
for sulphur in fuel used
on board ships
increasing fuel cost with
(at least) factor 1.6***

Fuel Efficiency solutions for shipowners

- ✓ Helps you understand where to save on fuel costs
- ✓ No additional hardware or port-visit needed to get started
- ✓ Fleet benchmarking by including weather effects
- ✓ Predicting fuel consumption after retrofits, using operational data and digital models
- ✓ Future-proof compliancy, certified for EU-MRV - CO₂ reporting, required for ships as of January 1, 2018





Modern vessels
collect valuable
data every second

Use this data to save on
fuel costs and reduce your
carbon footprint

500MB of
monthly data
load

5000 sensors
onboard a
modern vessel

200 sensors in
a modern
engine room

1TB data
stored on the
VDR.

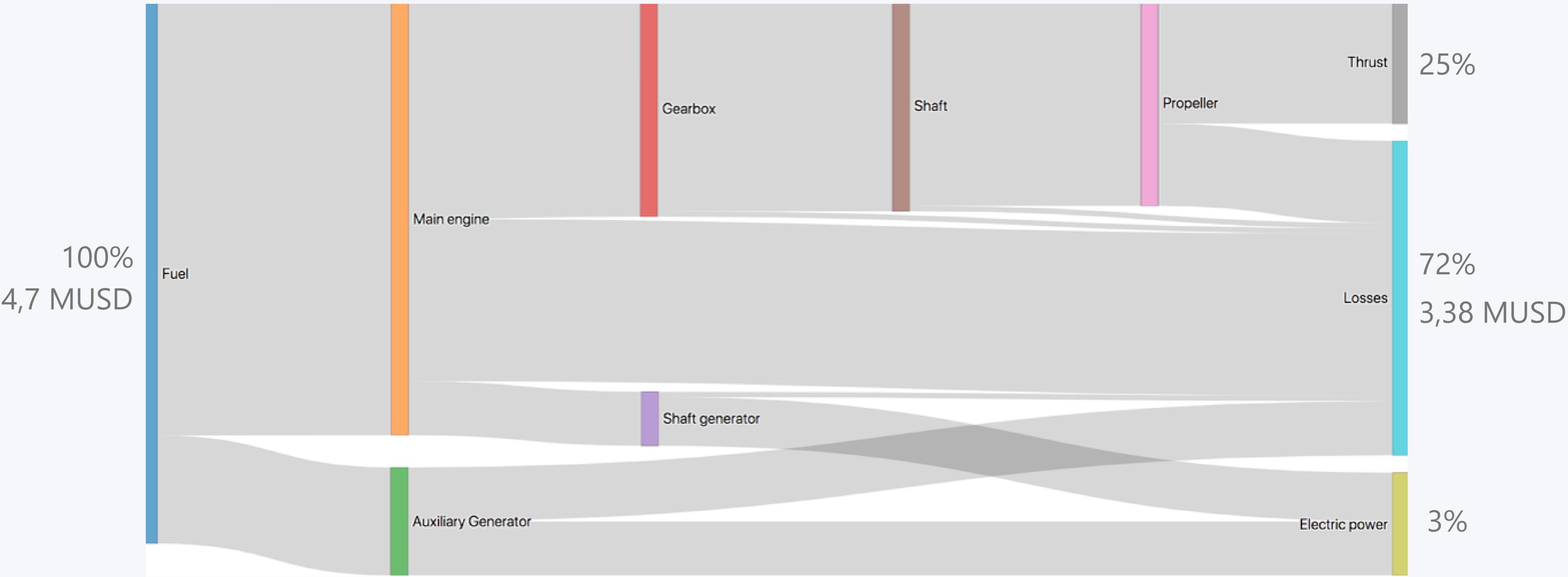
Ways to reduce fuel costs and emissions

- 1 Ships rarely sail as they were designed, leading to efficiency losses
- 2 New-build ships have a focus on CAPEX, not OPEX
- 3 Data-driven decisions lead to improved performance
- 4 Insight in fuel consumption leads to savings



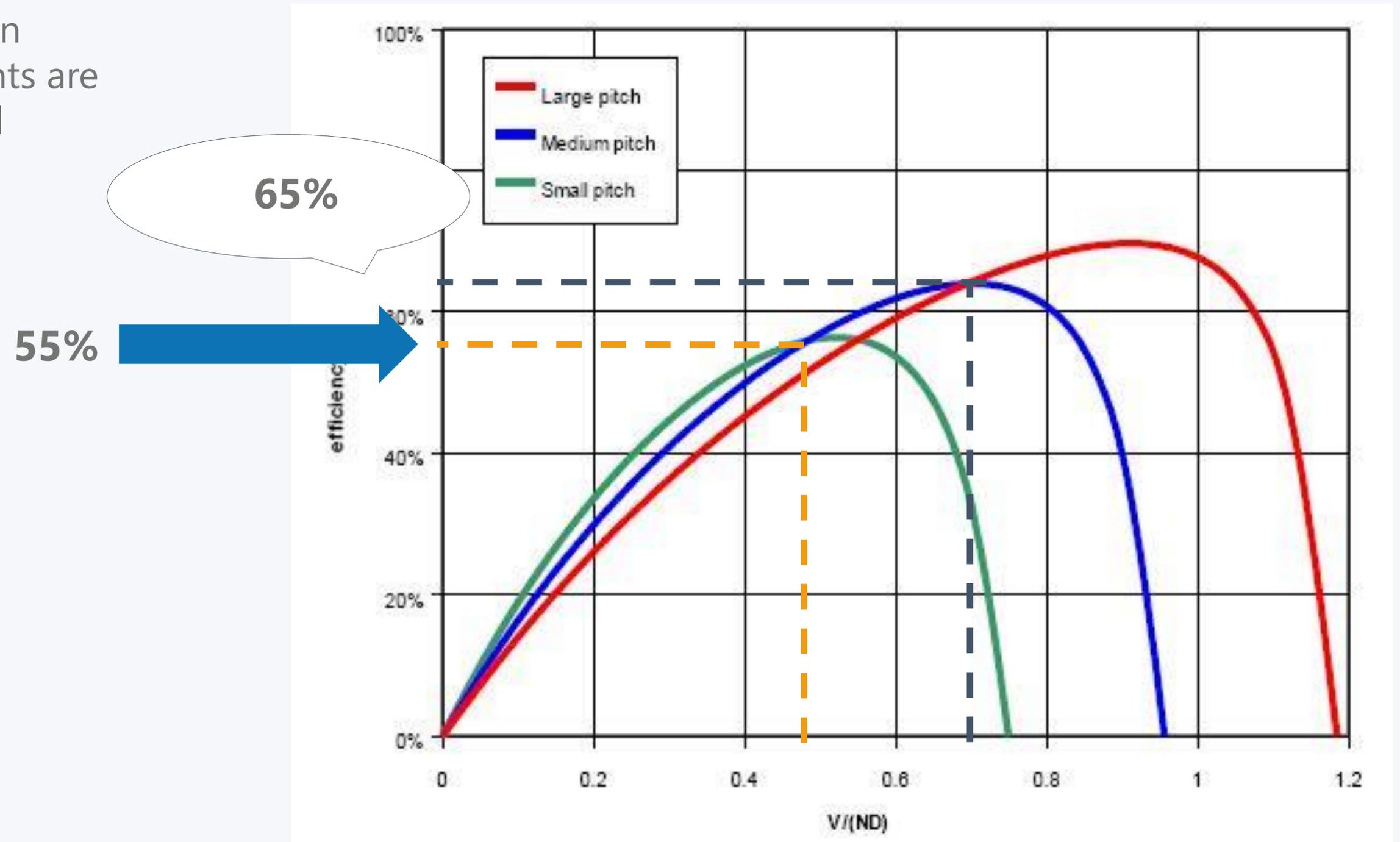
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Overall energy-efficiency



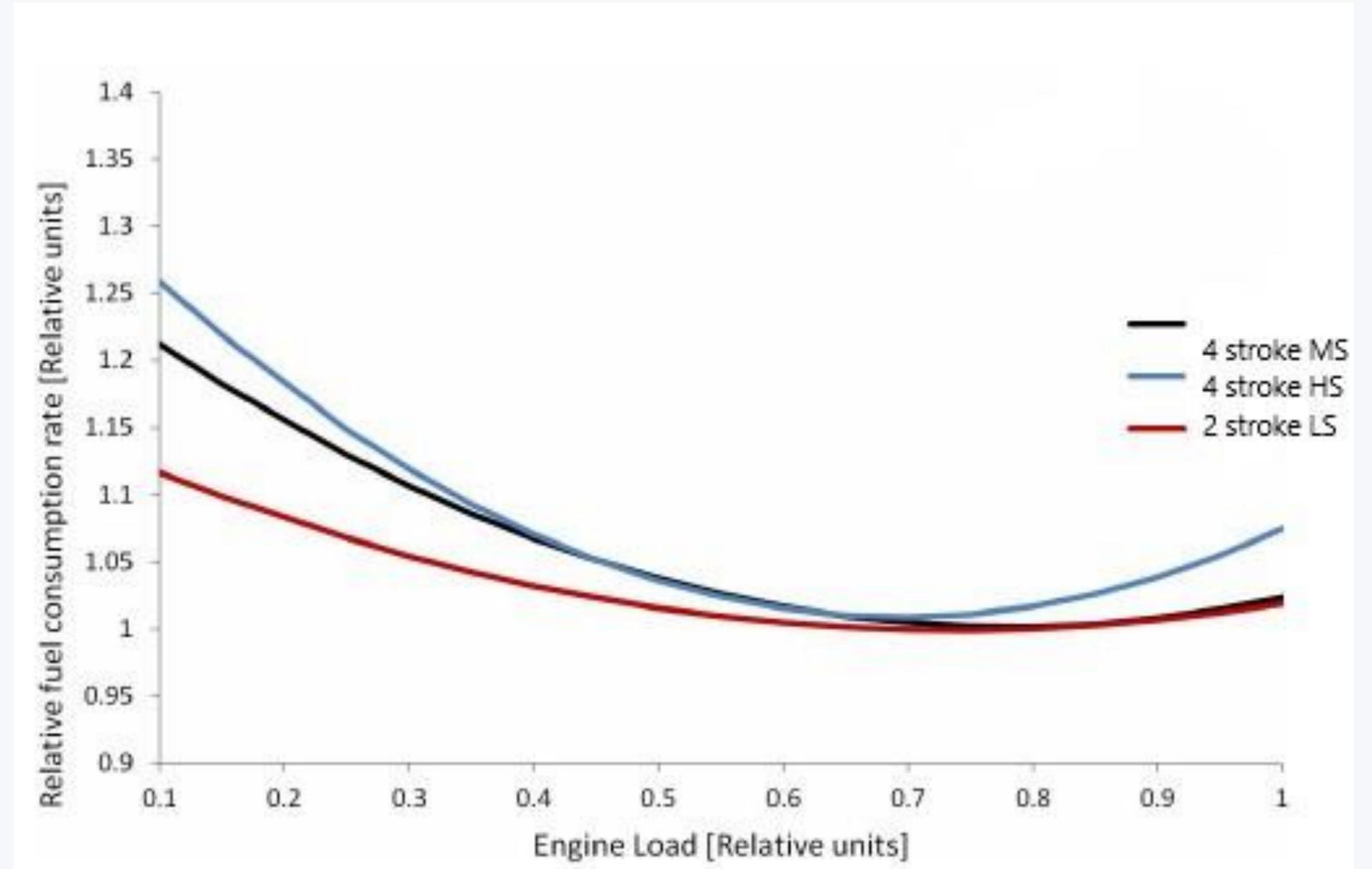
The (often) unknown side-effect of slow steaming

Slow steaming introduces an efficiency loss as components are not running in their optimal design conditions.



The side-effect of slow steaming (2)

Low engine loads introduce an efficiency loss as engines are not running in their optimal conditions.



Jalkanen et al. (2011). Extension of an assessment model of ship traffic exhaust emissions for particulate matter and carbon monoxide.

The side-effect of slow steaming

Ship “nose jobs” involves replacing the bulbous bows of ships for better performance in slow steaming environments.

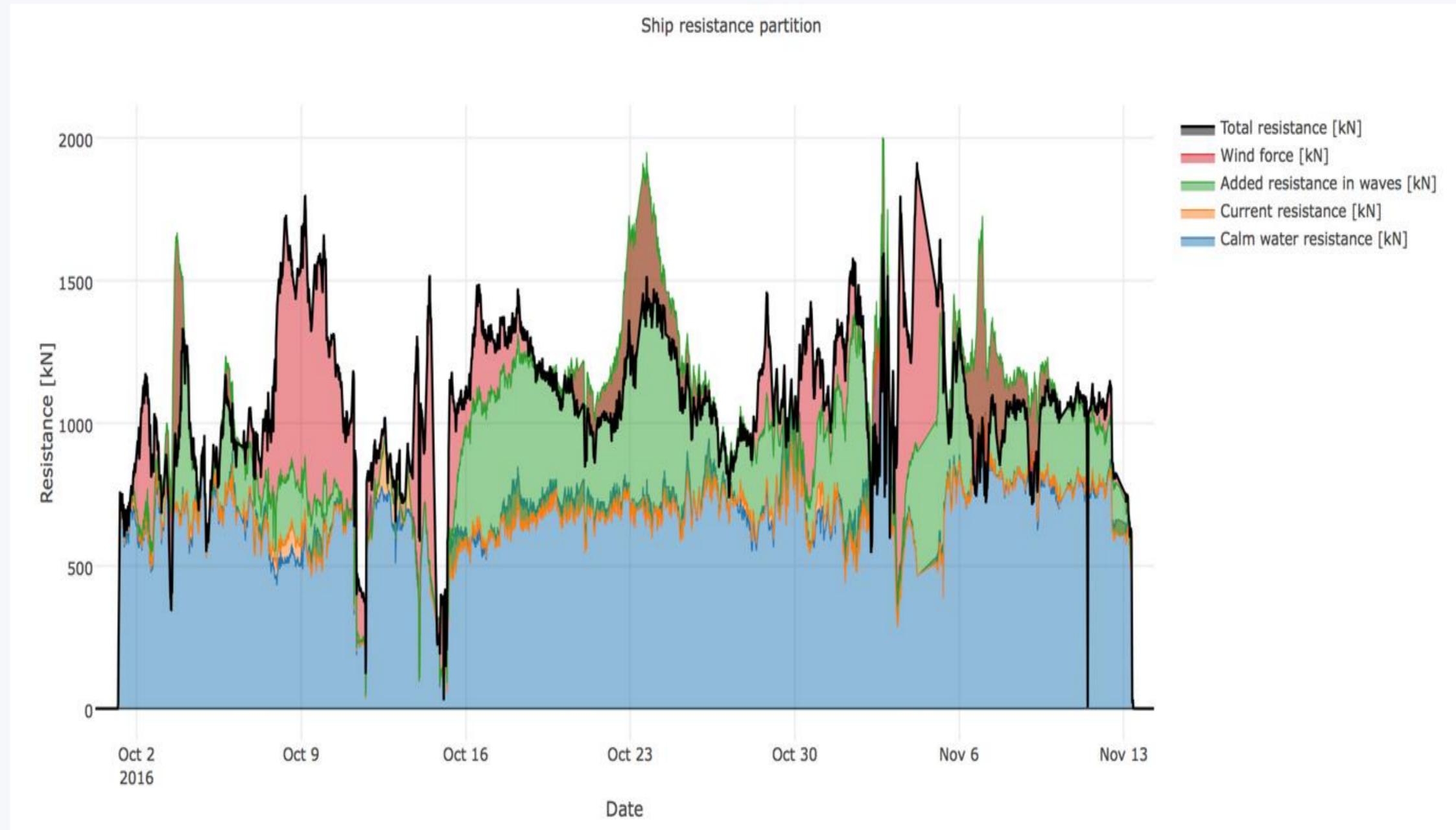
Fuel savings around 5%.

Payback period in less than 2 years.

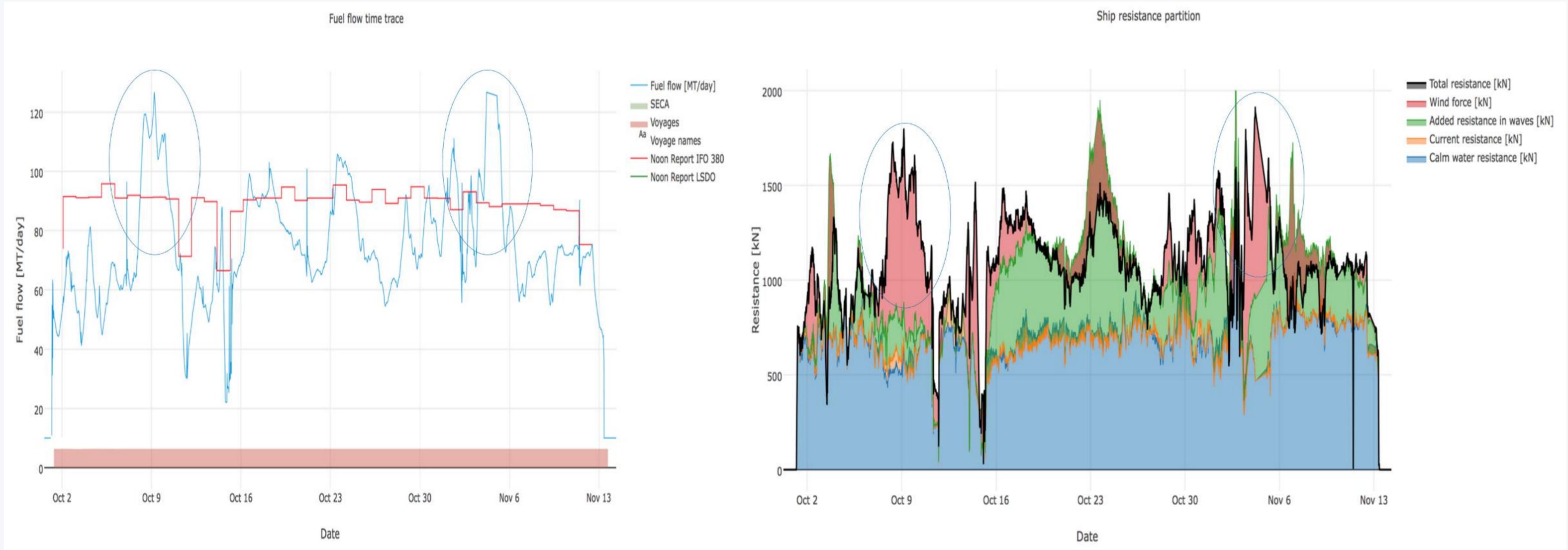


Detailed ship-resistance analysis

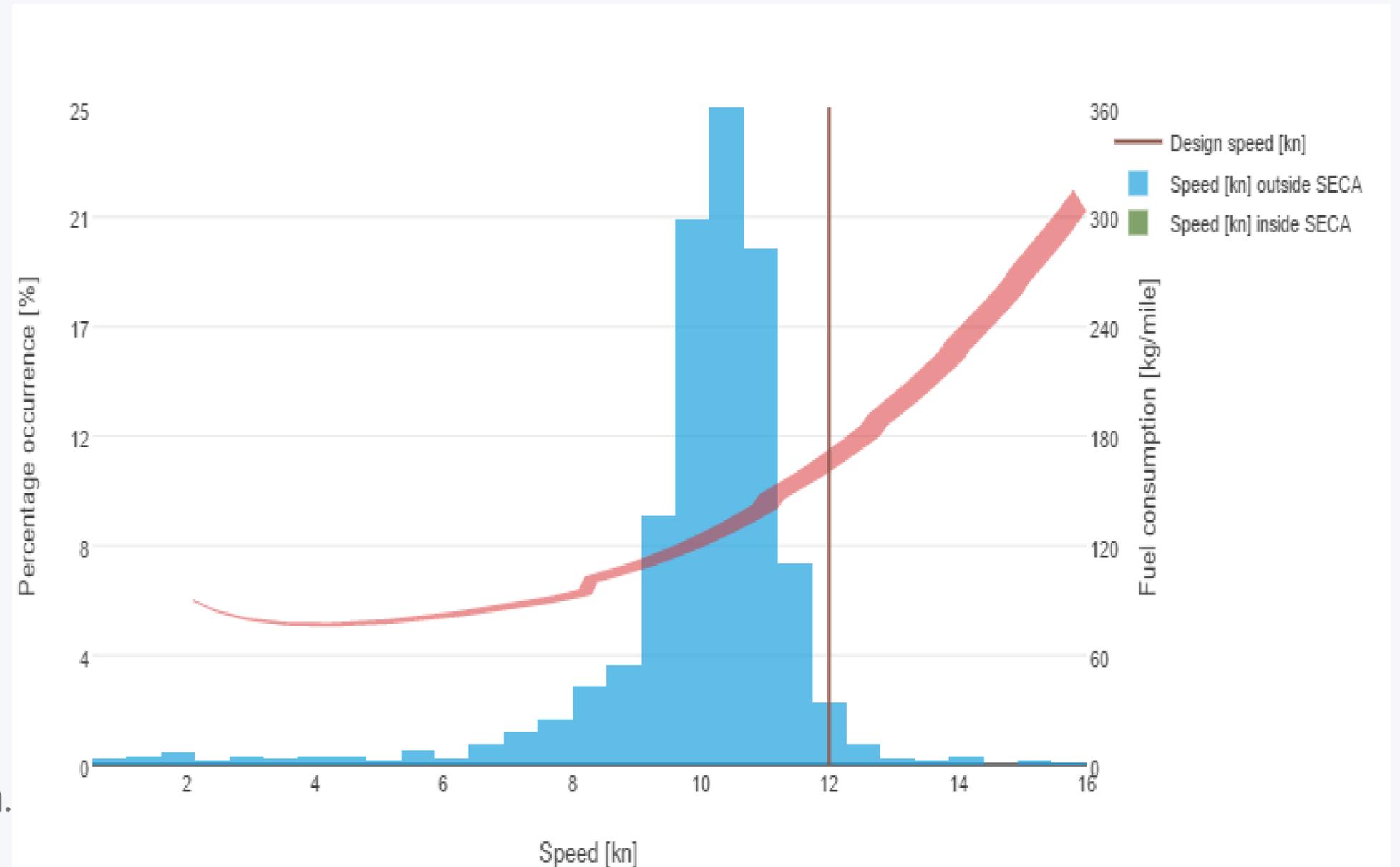
Ship resistance is calculated over the voyage, taking hull/wave/wind/currents into account



Why noon-reporting is not sufficient for performance analysis



Sailing off-design leads to efficiency losses



This propulsion train was optimized for a service speed of 12 knots.
92 % of service time sailing slower than 12 kn.
Leading to efficiency loss



Keep in touch with us

Can you afford *not* to monitor your fuel efficiency?

www.we4sea.com