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How to navigate the financial hurdle of clean shipping

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Clean shipping definition

- So far – no clear definition in written form!
- What comes closest for the moment is...
 - ..IMO goals according to Paris agreement
 - 50 % reduction in total of GHG based on 2008 by 2050
 - 40 %reduction of GHG per transport operation by 2030 and 70% by 2050 compared to 2008
 - Monitoring of fuel consumption from March 2018 on
 - Waste water treatment regulations
 - 30% more efficient engines from 2025 on (compared to 2014)
- In the Baltic Sea Region in addition to that - fuels have to apply to a maximum of 0,1% sulphur content (SECA)

SECA impact on clean shipping

	MS Finlandia	Megastar	Viking Grace	Ficaria Seaways
Year of service	2001	2017	2013	2006
Gt	36.093	49.000	57.565	32.289
Fuel type	MGO	LNG	LNG	HFO (scrubber)
CO ₂ in t/year (Thetis MRV)	66.929	47.909	43.334	52.232
CO ₂ / Gt	1,85	0,98	0,75	1,62
Emissions factor (CO ₂ per t fuel)	3,15	2,77	2,77	3,12
Share of CO ₂ while berthed	9 %	6%	4%	4%
Average speed kn/h	21,1	21,8	18,9	20,1

















Data taken from free internet sources (shipping registers, etc.) and mainly from <https://mrv.emsa.europa.eu/#public/emission-report>

50.000 t CO₂ is equivalent to around 17.500 private households' electricity consumption

General conclusions – Greenhouse Gas savings

- All ships fulfill the SECA directive!
- Very different impact on GHG emissions!
 - Generally – LNG has around 10% less CO₂ emissions than oil fuels
 - Ship design seems to have a big impact → how much ?
 - Onshore Power Supply has an impact of 5 – 10 %
 - Year of built has an impact → 30 – 40% of more efficient design and engines
 - Average speed of vessel has an impact → 15 – 20%
- SECA and Clean shipping are not necessarily connected
 - Not all SECA measures lead to GHG emission reductions (this should be considered when making future investments)

Which measures have a positive impact on green shipping?

	CO ₂ emissions	NOx emissions	Economics	Impact
Scrubber				
LNG	 Compared to oil fuels		 If new ship	
OPS				
MGO				

- Same situation as in the Green Building sector!
- New housings are well described → near zero emissions buildings
- The existing building stock lacks concepts for economical solutions and the needed will for renovation
 - For new ships → Variety of choices
 - For existing ships → Only scrubber and OPS are economically feasible

Why not using that knowledge....

- ...to take a big step ahead with Clean Shipping without re-inventing the wheel again but considering the Paris agreement
- Very simplified vision.....

Climate impact
Energy efficiency
Material efficiency
Fuel potential
Ship adaptation
Economics
Infrastructure
Innovation bonus as motivation

- ...and for sure still a long way to go

BUT, what if CO₂ emissions cost money?



CO2 European Emission Allowances price

- Actual price around 25 € / t CO₂
- Increase within the last 3 years → **500%**
- Impact on running costs (examples)

	t CO ₂	additional costs
Finlandia	66.929	1.673.225 €
Megastar	47.909	1.197.725 €
Viking Grace	43.334	1.083.350 €
Ficaria Seaways	52.232	1.305.800 €

Would this change the approach / the speed towards Green Shipping?

Coming back to the main question....

- **How to navigate the financial hurdle of clean shipping?**
- There is no clear answer
 - It depends on what you choose as your maxime / goal / motivation
 - If you choose to fulfill the minimum requirements → high risk of later coming costs (taxes, regulations)
- My simple suggestion is:
 - do as much as possible and economically feasible (even if this is far above the usual calculations)
 - Will result in higher reselling price
 - Will reduce the impact of later coming taxes and regulations
 - Will give you authenticity and not just some „green paint“