

FERRY SHIPPING SUMMIT 2021

*Is the Ferry shipping industry prepared
for
EU's - fit for 55 program?*

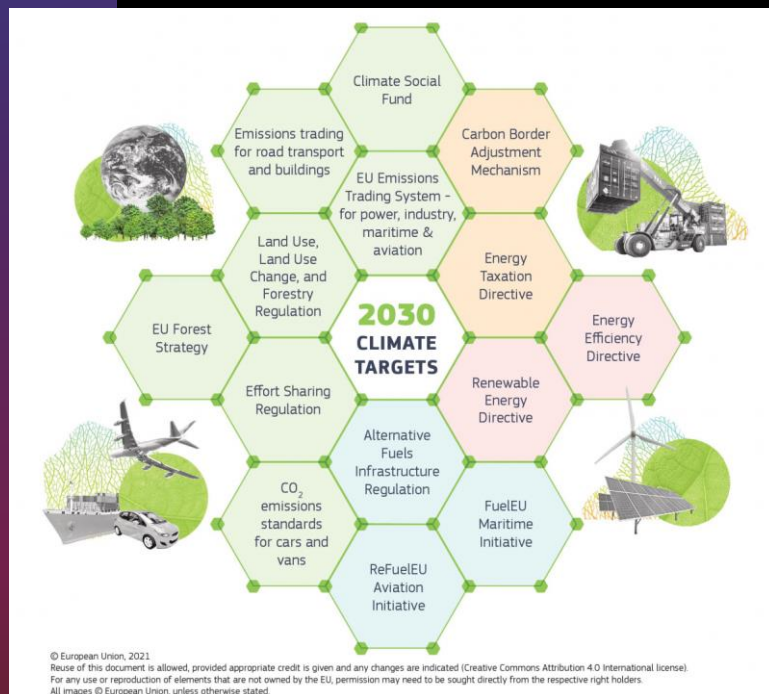
MLSea AB

Passion for Ships – Respect for the Oceans

What is the EU "Fit for 55"?

- A part of the EU Green Deal,
- Delivering the EU's 2030 Climate Target on the way to climate neutrality in 2050,
- By reducing net emissions by at least 55% by 2030 compared to 1990 and being climate neutral by 2050,
- FuelEU - Maritime is one "Egg" in the "Basket",

How does it affect the shipping and ports?



Pricing

- Stronger ETS
- Extending ETS to maritime, road transport and buildings
- Energy taxation
- Carbon boarder adjustment

Targets

- Sharing regulations
- Land use and land use change
- Renewable energy
- Energy Efficiency

Rules

- Stricter CO₂ performance for cars and vans.
- New Infrastructure for alternative fuels.
- Refuel EU: More sustainable aviation fuels
- Fuel EU: Cleaner maritime fuels

Support measures

Using revenues to promote innovation, build solidarity and mitigate impacts for the vulnerable, notably through the new **Social Climate Fund** and enhanced **Modernisation and Innovation Funds**.

The EU "Fit for 55" package is complex with various impacts and concerns to the shipping sector.

*Is the Ferry shipping and port industry prepared
for the
fit for Eu's 55 program?*



*Is Eu's and the fit for 55 program prepared
for the
Ferry shipping and port industry?*

The straight to the bullet answer(s) is "YES" – the sector is forced to it.

Because it is no longer aspirations or ambitions, it is **obligations laid down in the EU's climate law,**

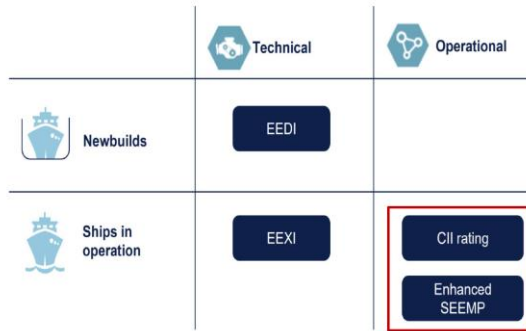
Despite from that, there are still many unanswered questions pending and which need to be answered with regulations and framework to be final adopted before all aspects, consequences and effects are known, and impacts calculated!

Bullet points from the “fit for 55” package with most impact to the shipping and port sectors

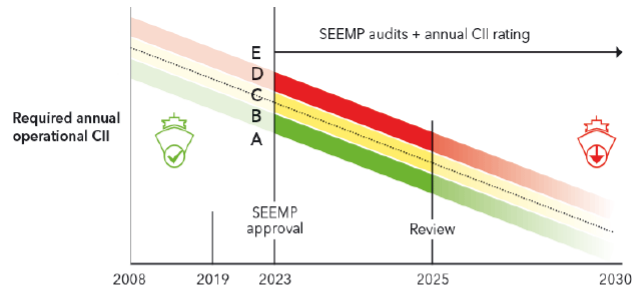
- ETS (Emission Trade System)
 - Ships > 5,000 GT to be included in the ETS from 2023+
 - Apply to all intra EU/EEA sailings and with 50% effect on sailings to/from outside EU/EEA
 - *ETS price per tonne of CO₂ (per 16.09.2021) 59.31 EUR/Tonne.*
 - *From which emission level will the price mechanism starts?*
- ETD (Energy Taxation Directive)
 - Outdated fuel tax exemption (international traffic) to be removed from 2023
 - New fuel tax system to be implemented from 2023+
 - *Several fuel tax indications mentioned;*
 - *For example 40 EUR/Tonne HFO?*
- RLF (Renewable and Low carbon Fuel)
 - Limits on the GHG intensity of fuels from 2025+
 - (or maximum limit of GHG in the energy used)
 - *New Fuel price indications is min. double up?*
 - *Which type to chose and will they be available in time?*
- AFI (Alternative Fuel Infrastructure)
 - Requirements of bunkering infrastructure from 2025+
 - OPS (Onshore Power supply) from 2030+
 - *Would the EU ports be ready to that?*



IMO's short-term GHG measures

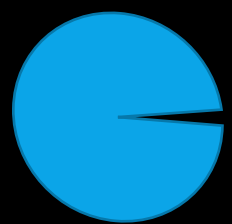


On top of the EU "Fit for 55" package the sector also have to face the new IMO regulations



Year	Reduction from 2019 ref. (mid-point of C-rating band)
2023	5 %
2024	7 %
2025	9 %
2026	11 %
2027-2030	To be decided

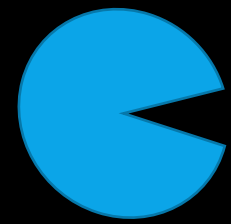
Status



Today's Fleet WW
99,5% HFO/MGO

Remaining WW fleet today

- 0,30% Batteries
- 0,19% LNG
- 0,01% Methanol



Ships on order 2021

- 0,02% Ammonia
- 0,06% Hydrogen
- 0,30% Methanol
- 1,51% LPG
- 3,85% Battery
- 6,10% LNG
- 88,16% HFO/MGO

	Output EI installation		
Batteries	90-95%	100%/Hybrid	Development quicker charge time - larger capacity
MGO	35%	ICE	Phased out / replaced by bio
LNG	35%	ICE	Phased out / replaced by bio
Methanol	35%	ICE	FC
Ammonia	35%	ICE - Pilot	FC
Hydrogen	55-60%	ICE / FC - Pilot small scale	FC/Pilot Big scale

Timeline: 2021/2022, 2025, 2030, 2035, 2040+

Solutions

- It is easier to prepare a new building for new technologies and new alternative fuels.
 - Still a lot of parameters to consider even with EEDI
 - Operational and technical profile assessment
 - Trade area
 - Fuel strategy – prepared, batteries and/or hybrid and/or new fuels
 - Battery charge time possibilities
 - New fuels
 - Infrastructure and availability new fuels
 - Regulations new fuels
 - New fuel price(s) vs ETS and ETD for existing fuels
 - Efficiency of new fuels where Batteries (90-95%) and Hydrogen (55-60%) are best in class.
 - CII also a requirement to a new ship
 - Second hand value
 - Investor willingness and conditions
 - Etc.
- For existing vessels three main parameters to be considered
 - Lifetime (remaining) of the vessel – with EEXI and CII in mind
 - Operational parameters
 - Harbour turn arounds
 - Digitalisation
 - Artificial Intelligence
 - Voyage planning/optimisation /Vessel utilization
 - Education (Underestimated today)
 - Technical parameters
 - Hydrodynamics
 - Hull, Silicone coating and cleaning
 - Propellers , new blades reflecting new speed
 - Rudder designs, twisted and costa bulbs/hub caps
 - Air lubrication
 - Bulbous bow design
 - Machinery & Consumers
 - Engine load
 - Peak shaving (Hybrid if possible)
 - VFD
 - LED
 - WHR
 - Energy harvest
 - After treatment
 - Carbon capture storage
 - New alternative fuels incl. battery packs
 - Shore power
 - Etc.

Business impact & consequences

- International trade within EU/EEA and/or to/from EU/EEA and/or domestic trade only or all combined?



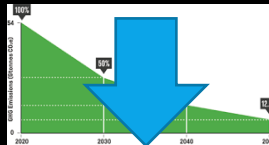
- Flexible fleet compare to trading areas, new tonnage and existing tonnage vs regulators (IMO/EU) regulations.
 - Upgrading, GHG reduction, new technics, new fuels, new buildings etc.



- Balance sheet risk asset values.
- Shareholder value (ESG) - Access to best finance conditions (Poseidon) – Taxonomy (EU).



- Best commercial market attractiveness for an operator with high GHG performance.



- What's the best GHG environmental strategy and solutions towards 2030/2050+?



A lot of parameters and impacts to assess and think about for the future.

On the short to medium range I think all are able to meet the requirements to lower the GHG footprint.

On the longer range I'm a bit more insecure about it, mostly due to possible lack of availability of new green fuels, we're talking about million of tonnes of fossil fuels to be replaced with alternative fuel types. And that's only for shipping, will there be a "fight" with aviation, land based electrical transport and industry?

Access to capital will be a key driver, it requires extreme investments to produce green fuels from green wind/solar power and build up a supply chain infrastructure and at the same time change all the fossil ships.

The new younger generation may change there travel behaviour and cargo owners also have a GHG sheet.

It will only be more expensive and how many of the calculations done do reflect the present power prices we see today with LNG prices touching EUR 70 per MW and electrical power in EU doubled compare to the last years with MGO still on a reasonable price level!

Are the Ferry Shipping prepared for "Fit 4 – 55"?

Again - Yes they are but all open question has to been answered quickly from the regulator side.

Thanks for listening