Enrico Allieri
Ship Technology, Maritime Safety & Environment

eFuels: a pathway towards the (indirect) electrification of shipping industry

Presentation at webinar

E-fuels & the alternative options to decarbonize the transportation sector

organized by da
ANIMP
Associazione Nazionale di Impiantistica Industriale

on line on 19 July 2023

WHO WE ARE

- Assarmatori is a shipowners' association with its headquarters in Rome and offices in Genoa and Brussels
- Members include both national and international shipowners and ship operators who regularly operate within the Italian maritime cluster
- We give voice to shipowners and operators on key maritime issues, to improve business conditions and support investments for more efficient maritime services and for the development of new technologies
- From our Brussels office we also tackle the most relevant issues at EU level, working thoroughly with the European Institutions and the relevant governmental Bodies

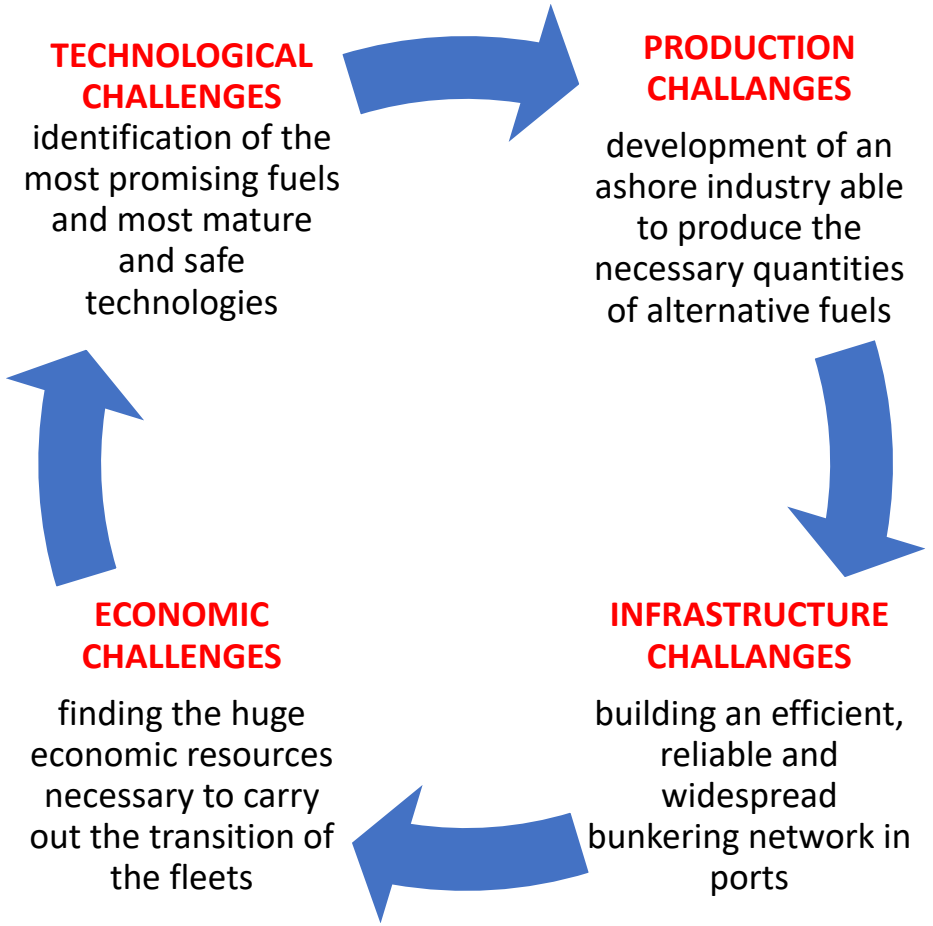
OUR NUMBERS

Assarmatori represents in Italy:

- more than the 50% of the *Motorways of the Sea* services and maritime transport services with the main Italian islands
- over 70% of the *short-sea* services to all small Italian islands
- about 50% of the total volume of containerized cargo
- nearly 50% of regular cruise services
- significant part of liquid and solid bulk cargo services

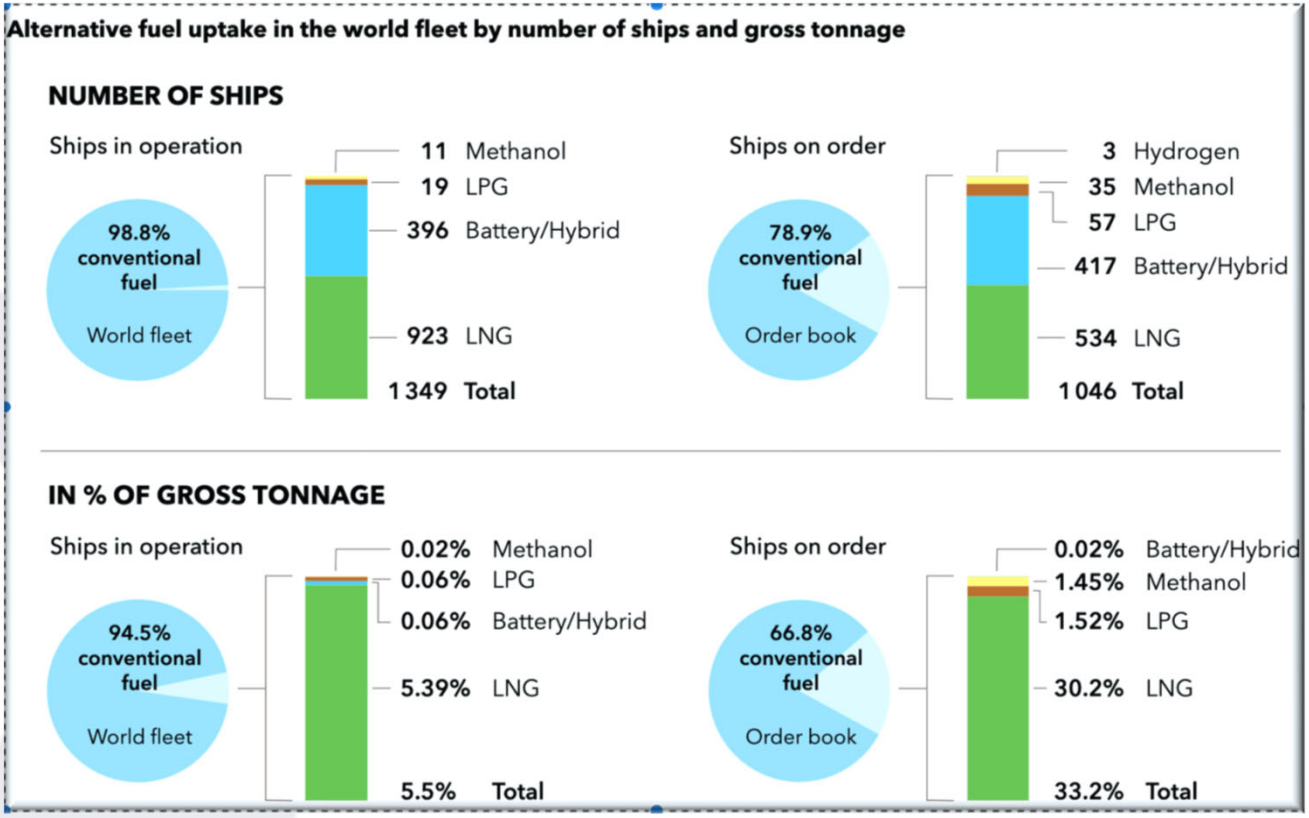
Rules & Regulations

CHALLENGES TO TAKE UP AND OVERCOME



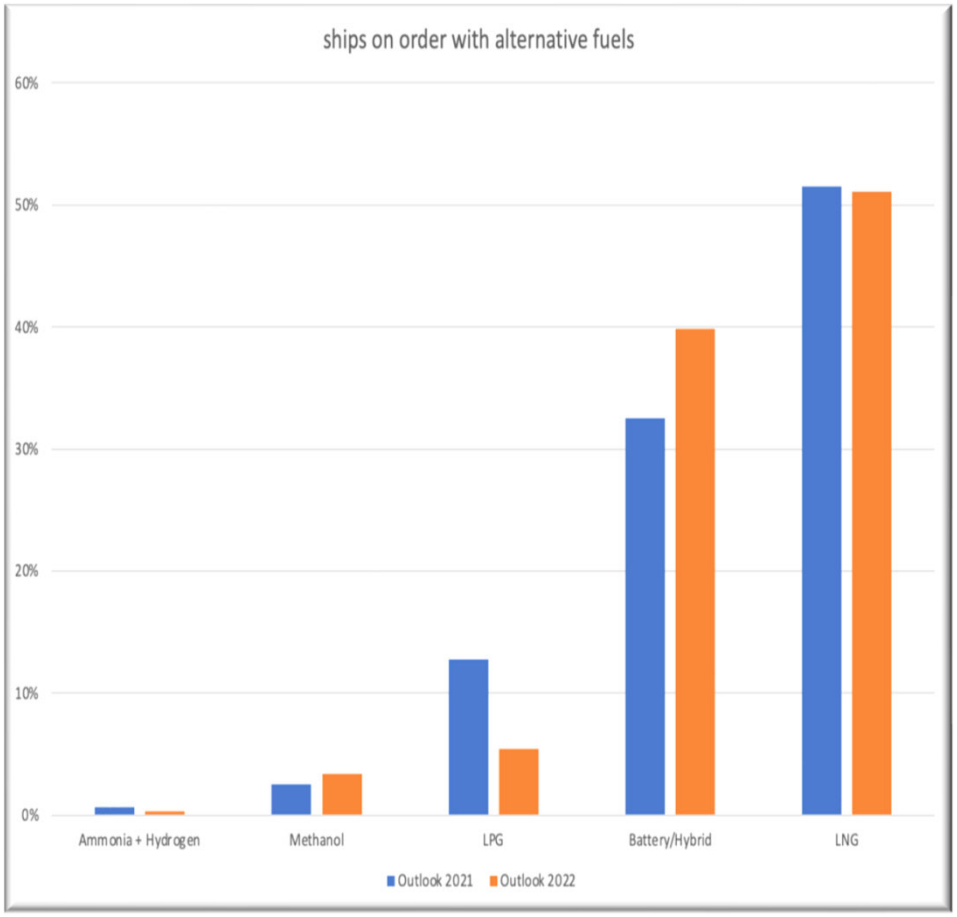
SHIPPING INDUSTRY IN FRONT OF DECARBONIZATION

- Almost 99% of ships in operation (about 95% in terms of tonnage) use conventional fuel for their propulsion
- About 80% of ships on order is still powered with conventional fuel
- LNG and Methanol are emerging as alternative fuels and orders of ships propelled with these fuels are growing
- At the moment Hydrogen and Ammonia seems not to be a viable choice



Source: DNV Outlook 2022

SHIPPING IS MOVING



	OUTLOOK DNV 2021		OUTLOOK DNV 2022	
	ships in operation	ships on order	ships in operation	ships on order
Ammonia		0,02%		0,06%
Hydrogen		0,06%		
Methanol	0,01%	0,30%	0,01%	0,71%
LPG		1,51%	0,02%	1,15%
Battery/Hybrid	0,30%	3,85%	0,35%	8,41%
LNG	0,19%	6,10%	0,82%	10,77%
Altarnative fuel total	**0,50%**	**11,84%**	**1,20%**	**21,10%**
Conventional fuel total	**99,50%**	**88,16%**	**98,80%**	**78,90%**

2021

ships on order with alternative fuel are **11,84%** *of the order book*

2022

ships on order with alternative fuel are **21,10%** *of the order book*

almost doubled in one year

KEY FACTORS IN ENERGY TRANSITION IN SHIPPING INDUSTRY

alternative fuels

- Fuels with high energy density (mass & volume) are required, easy and safe to store and manage on board, widely available in ports of call. Fossil fuels have these characteristics and will have to be replaced by alternative fuels capable to meet these requirements.

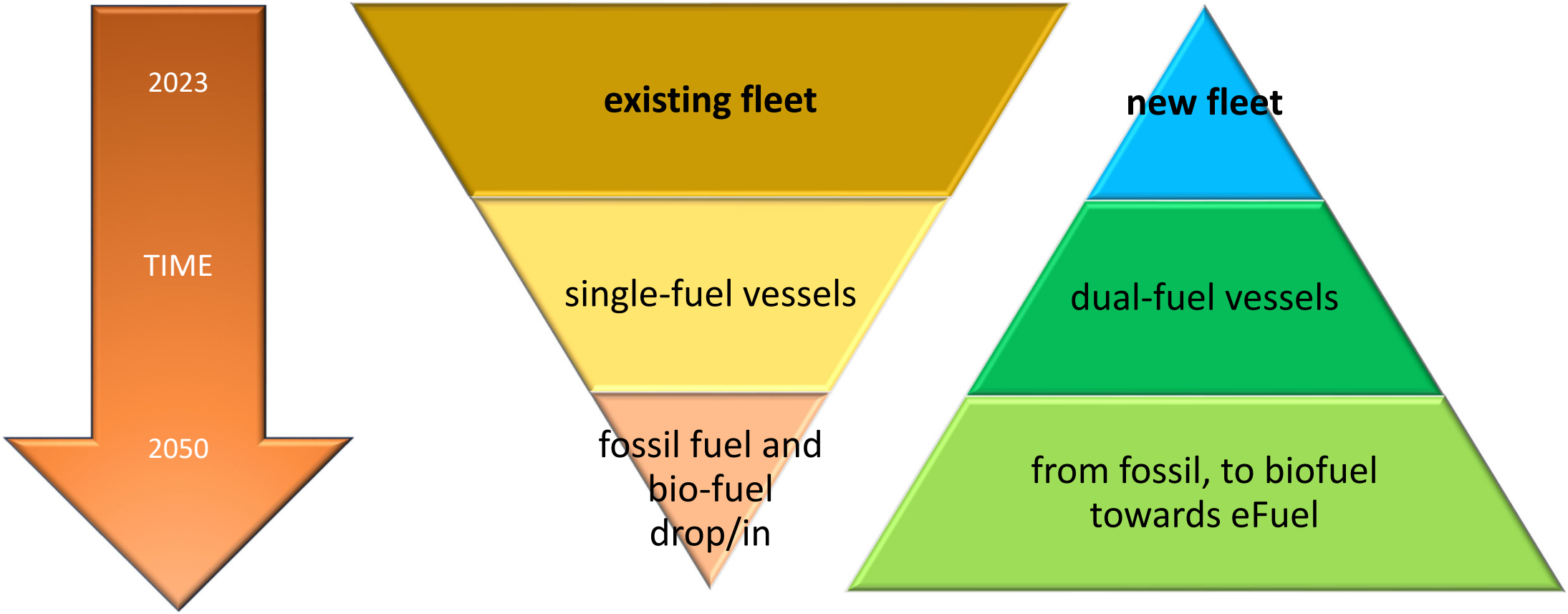
ships turnover

- Ships have a long life-cycle and fleet turnover times are linked to the production capacity of the shipbuilding industry. The transition of the fleets will be slow and gradual, it will be necessary both to manage the existing fleet and to accelerate as much as possible the fleet renewal.

costs

- CAPEX and OPEX of maritime transport are both destined to increase quickly, due to the costs of needed investment and to the higher costs of alternative fuels; at least a part of the additional costs will be passed to final users.

TWO-TRACK PROCESS



FROM FOSSIL TO E-FUELS

fossil fuels

- continue to supply existing fleet and a decreasing number of single fuel new buildings

bio-fuels

- replace an increasing amount of fossil fuels (drop-in) in existing ICEs and dual fuel vessels

e-fuels

- eMethane
  eMethanol
  eDiesel
  eAmmonia
  will electrify maritime transport

eFuels: a pathway towards the (indirect) electrification of shipping industry

CONCLUSIONS

- Apart from the specific niches where the batteries could be used, we cannot bring directly electricity on board ships, but we can do that with electrofuels.
- In this sense we can look at eFuels like an indirect elettrification of our sector.
- This cannot be done at one-shot, the process will be gradual and time demanding but our industry is already on the path and ready to do as necessary to hit the target.

TANK YOU FOR YOUR ATTENTION