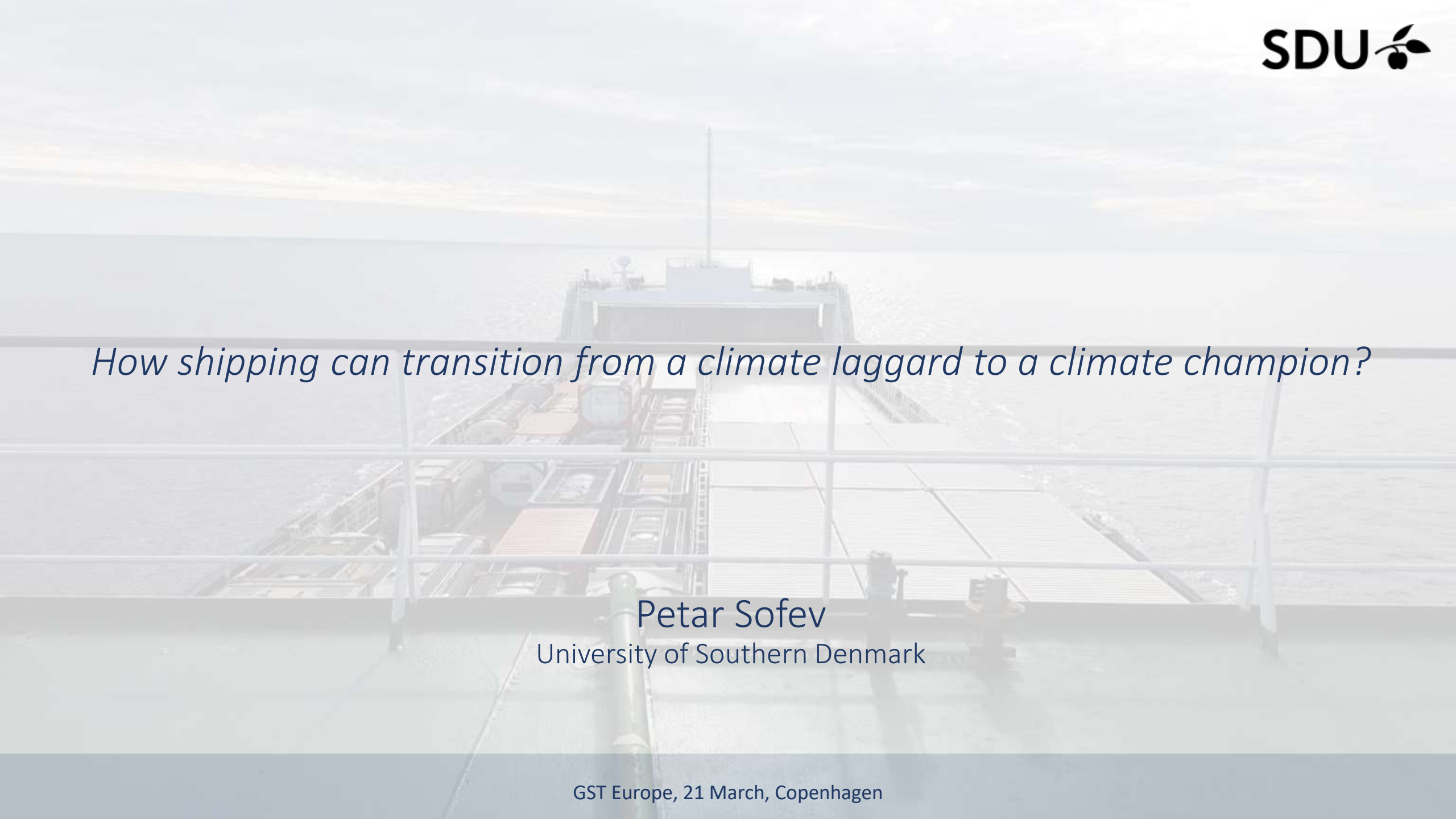


How shipping can transition from a climate laggard to a climate champion?

Petar Sofev
University of Southern Denmark

GST Europe, 21 March, Copenhagen

Standing at a crossroads: ensuring the transition to zero-emissions shipping through dual-purpose and modular infrastructure

Petar Sofev
University of Southern Denmark

GST Europe, 21 March, Copenhagen

A GLOBAL CALL FOR URGENT CLIMATE ACTION

*"Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport…). These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply **deep emissions reductions in all sectors**"* - IPCCC SR15 [1]

Either **WIN-WIN** or **LOSE-LOSE**

Shipping's role: 3-14%; 50-250% **- GROWING**

Coordinated R&D and policy needed

[1] https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/sr15_headline_statements.pdf

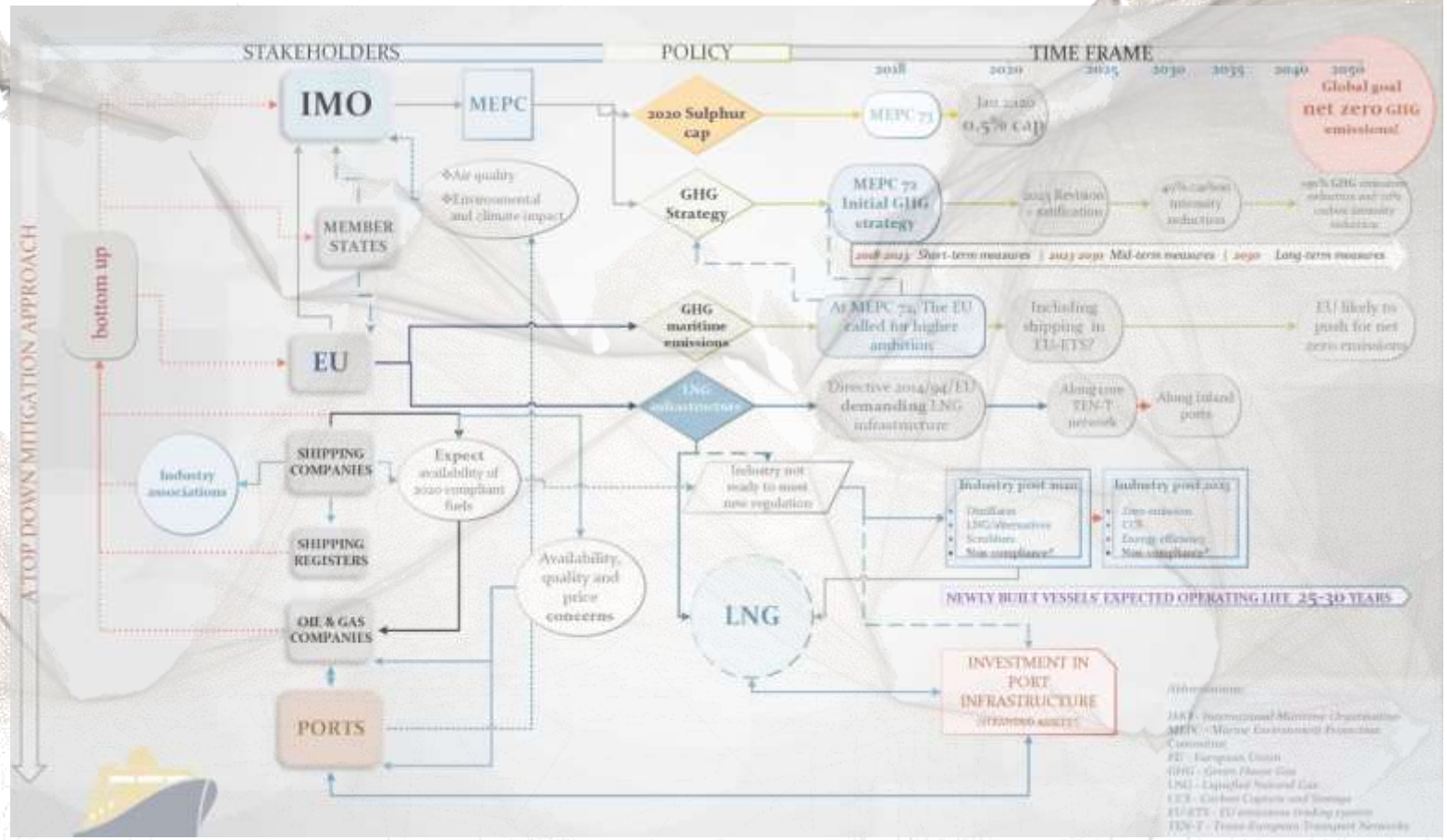
SHIPPING STANDING AT A CROSSROADS

IMO REGULATION

IMMEDIATE TERM:
2020 sulphur cap

LONG-TERM:
GHG strategy and **‘at least’** 50% reduction by 2050

“Have steered the shipping sector to a crossroads”



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SHIPPING STANDING AT A CROSSROADS, EUROPE

DIRECTIVE 2014/94/EU on the deployment of alternative fuels infrastructure:

Sufficient LNG bunkering infrastructure by 2025 at maritime ports (inland ports by 2030)

CAPITAL LOCK-INS:

Further incentivising LNG for shipping could cost Europe more than USD22bn by 2050[2]

TECHNOLOGICAL LOCK-INS:

- A costly way of missing the small window of opportunity to prevent climate catastrophe
- Not in line with the EU 2050 long-term vision

[2]https://www.transportenvironment.org/sites/te/files/2018_06_LNG_marine_fuel_EU_briefing_final.pdf

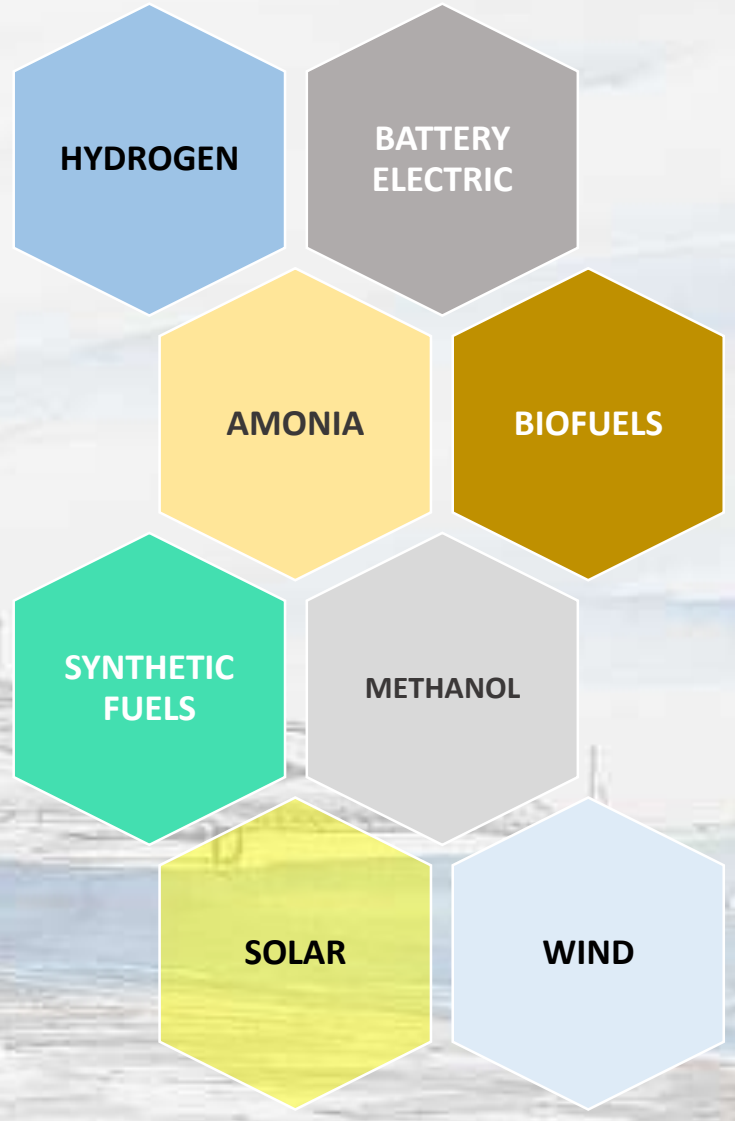
Background image source: European Commission TENtec: http://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/maps_upload/AnnexI_2017web.pdf

ZERO EMISSIONS – NO “ONE SIZE FITS ALL”

Difficult to predict a dominant fuel pathway

Long-haul and offshore most challenging to reach net-zero

Zero-emissions ships should be entering the fleet as early as 2030



Background image: Energy Observer

What is the feasibility of developing dual-purpose and modular bunkering infrastructure able to supply both LNG and hydrogen by 2025?

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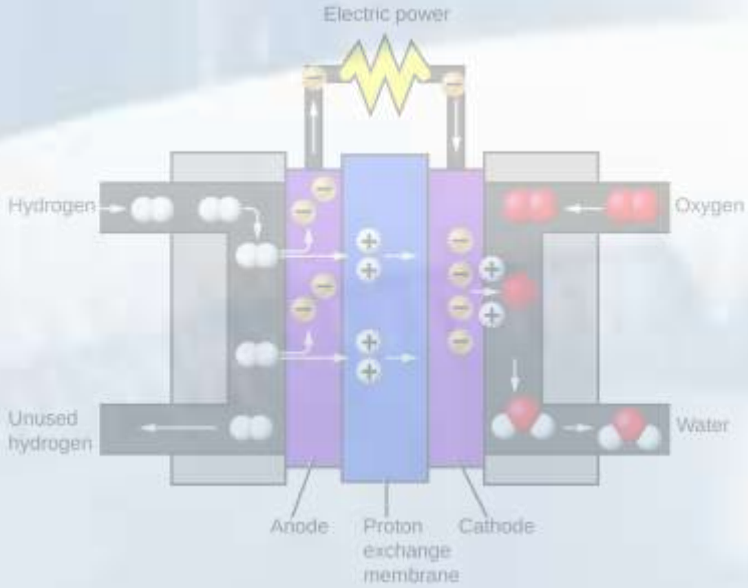
HYDROGEN AS A MARINE FUEL

CHICKEN-AND-EGG DILEMMA

Regulators and industry must set long-term and realistic pathways

Difficult to leapfrog, focus on **fast transition**

Dual-purpose (future-proof) bunkering infrastructure: **feasible but currently not cost-efficient**



Strong policy incentives and investments in R&D are needed if hydrogen is to deliver at scale and become cost-competitive. *CARBON TAX?*

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HYDROGEN BEYOND SHIPPING

AS PART OF THE ENERGY MIX

Not all industry processes likely to be electrified (high grade heat)

A substitute for natural gas (and other fossil fuels)

Gas exporting countries already focusing on blue hydrogen

POWERING THE TRANSPORT SECTOR

Not yet cost-competitive with conventional fuels: *an opportunity for shipping to transition from a climate laggard into climate champion*

APPROACH

NEED TO MEASURE IN ORDER TO MANAGE

ASSESMENT

- POLICY AND REGULATION
- INDUSTRY AND BUSINESS ENV.
- SUPPLY CHAIN
- FINANCIAL MECHANISMS
- COST BENEFIT AND MARKET ANALYSIS

TECHNOLOGY

- DUAL-PURPOSE
- MODULAR
  - Retrofitting
- BLUE SDU
- STARTUPS
- INDUSTRY LEADERS
- TRANSPORT & ENERGY SECTOR
- ACCESS TO FINANCE FOR R&D

BUSINESS CASE

- TECH. FEASIBLE
- COST-EFFICIENT
- SCALABLE
- STRONG BUSINESS CASE
- EXPAND

POLICY

- DRIVE POLICY CHANGE
- DISSEMINATE

BUILDING PARTNERSHIPS ACROSS SECTORS

"The solution came from an outsider who had no experience with ships“

Marc Levinson, The Box

Thank you

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