

**Coalition T2EM
pour la Transition Eco-Energétique du Maritime**

Vers un Programme Navire&Port 0 émission

Assises du Port du Futur – 22 septembre 2021

Maritime Eco-Energy Transition Coalition for 2050



**MINISTÈRE
DE LA MER**

*Liberté
Égalité
Fraternité*



**Cluster
Maritime Français**
Cap sur la croissance bleue



**RÉPUBLIQUE
FRANÇAISE**

*Liberté
Égalité
Fraternité*



partenaire opérateur



partenaires réseaux



PREMIERS SIGNATAIRES DE LA LETTRE D'ENGAGEMENT

Pour la Création de l'Institut T2EM

Coalition pour la Transition Eco-énergétique du Maritime



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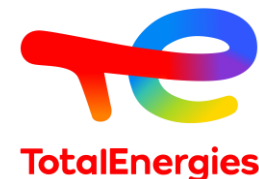


CHANTIERS
DE L'ATLANTIQUE



LEYTON

NAVAL
GROUP



THE INSTITUTE « MEET2050 » TO OPERATE THE « 0 EMISSION PROGRAM »

COMMON STUDIES WITH
KPIs & METHODS

MUTUALISING R&D &
ACCELERATING PILOTS

SOURCING INNOVATIONS
& INVESTMENTS



TECHNO PLATFORMS

€ 250M€
for 5years

100 experts
From academics &
industries, with
international
cooperations

DIGITAL PLATFORMS

0 EMISSION SHIPS&PORTS
2035 PROGRAM

GREEN ENERGIES
PRODUCTION

DIGITAL TWINS
& MODELISATIONS

PROPULSION
& ALTERNATIVE FUELS

ENERGY
EFFICIENCY

PORT HUBS
& OPERATIONS

CIRCULAR ECONOMY
& BIODIVERSITY

PUBLIC AFFAIRS
& FINANCING

To be created Q4 2021
To be launched January 2022

« 1,5° TARGET » A 1.500 – 1.900 BnUS\$ SHIPS & PORTS TRANSITION

INTEGRATED APPROACH
VALUE CHAIN & CROSS-IND

0 EMISSION TRAJECTORIES
SCIENCE BASED

NEW ENERGY MODELS
SEA PROVEN



Cluster
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Maritime Français

*A common roadmap for developing technologies and
business models for 0 emission ships and ports by 2035*

Some Ideas and Projections

	Gr. No.	Abatement technologies and use of alternative fuels and renewable energy
(1) Energy-saving technologies	Group 1 Main engine improvements	Main Engine Tuning Common-rail Electronic engine control
	Group 2 Auxiliary systems	Frequency converters Speed control of pumps and fans
	Group 3 Steam plant improvements	Steam plant operation improvements
	Group 4 Waste heat recovery	Waste heat recovery Exhaust gas boilers on auxiliary engines
	Group 5 Propeller improvements	Propeller-rudder upgrade Propeller upgrade (nozzle, tip winglet) Propeller boss cap fins Contra-rotating propeller
	Group 6 Propeller maintenance	Propeller performance monitoring Propeller polishing
	Group 7 Air lubrication	Air lubrication
	Group 8 Hull coating	Low-friction hull coating
	Group 9 Hull maintenance	Hull performance monitoring Hull brushing Hull hydro-blasting Dry-dock full blast
	Group 10 Optimization of water flow hull openings	Optimization water flow hull openings
	Group 11 Super light ship	Super light ship
(2) Use of renewable energy	Group 12 Reduced auxiliary power demand	Reduced auxiliary power demand (low energy lighting etc.)
	Group 13 Wind power	Towing kite Wind power (fixed sails or wings) Wind engine (Flettner rotor)
	Group 14 Solar panels	Solar panels

Some Ideas and Projections

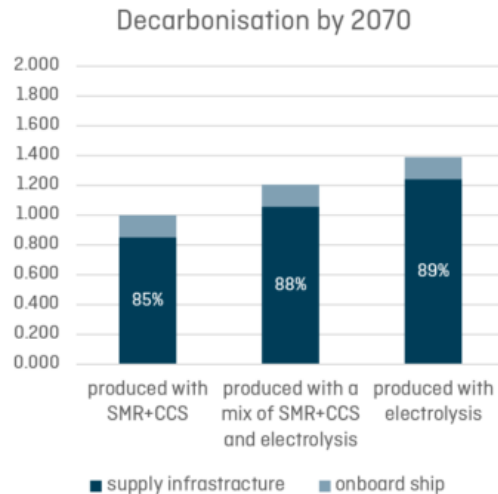
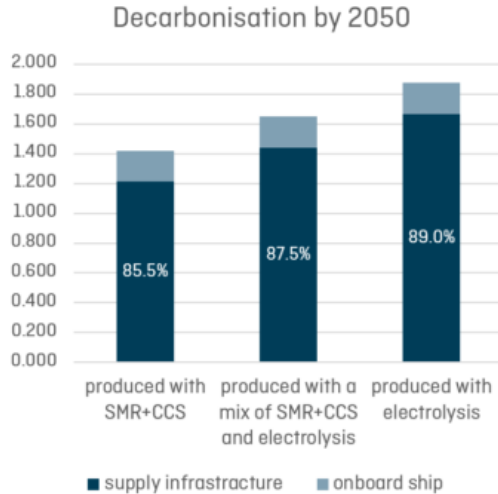
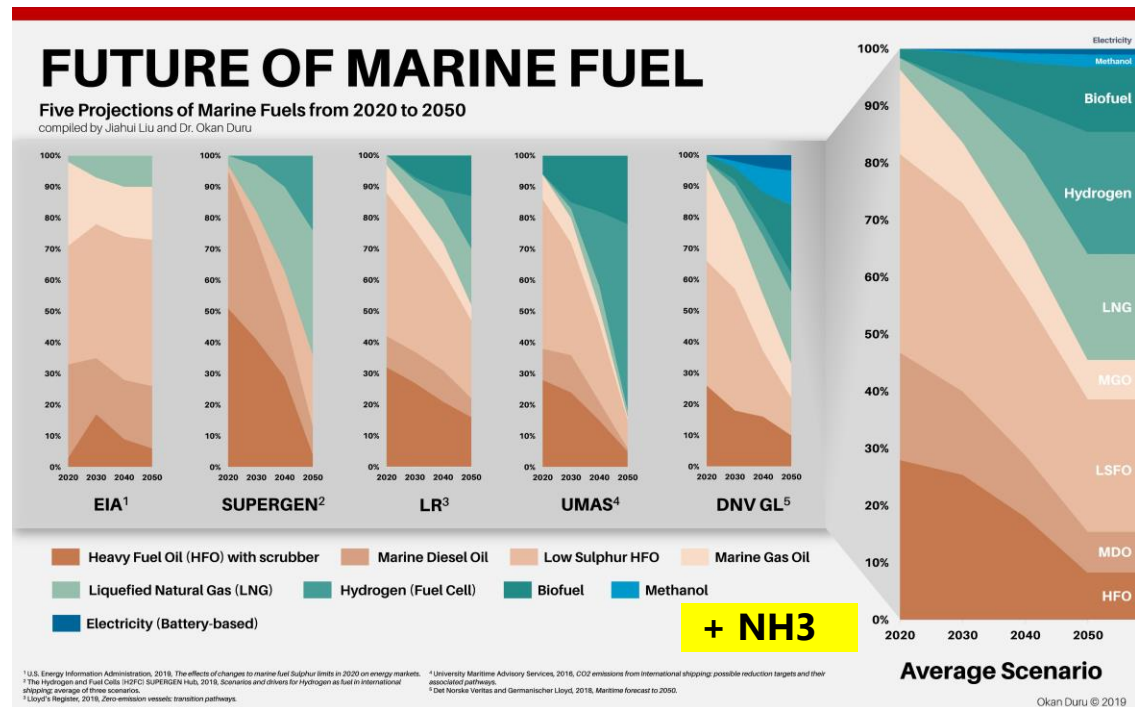


Figure 1: Total investments needed to achieve IMO decarbonization targets and investments needed to fully decarbonize shipping by 2050 – GTZ Coalition

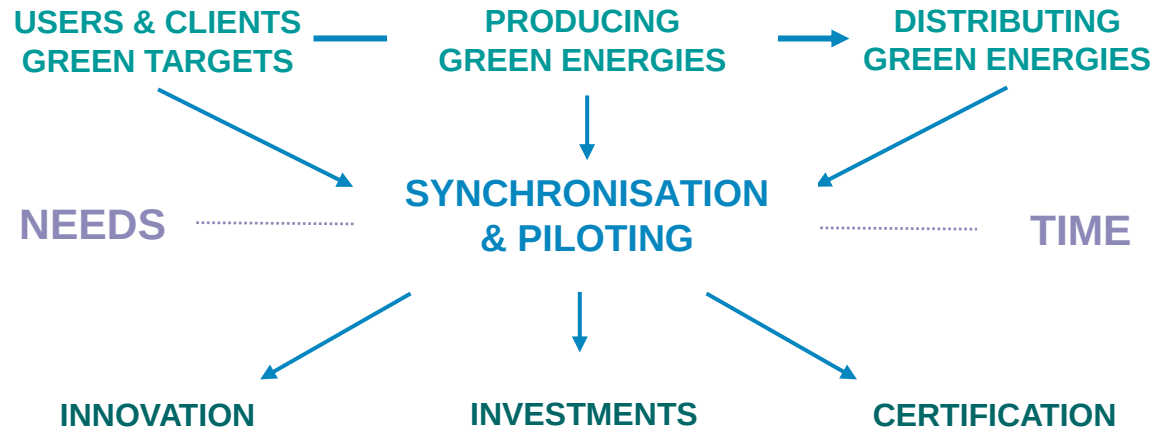
	Gr. No.	Abatement technologies and use of alternative fuels and renewable energy
(3) Use of alternative fuels	Group 15A Use of alternative fuel with carbons	LNG+ICE or FC Methanol + ICE Ethanol + ICE
	Group 15B Use of alternative fuel without carbons	Hydrogen + ICE or FC Ammonia + ICE or FC Synthetic methane + ICE or FC Biomass methane + ICE or FC Synthetic methanol + ICE Biomass methanol + ICE Synthetic ethanol + ICE Biomass ethanol + ICE
(4) Speed reduction	Group 16 Speed reduction	Speed reduction by 10%



TOWARDS A DIGITAL TWIN OF GREEN MULTIMODAL HUB

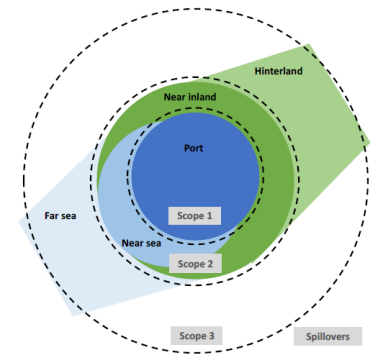
Our Ambition

Create a **Digital Twin** to operate the energy transition of a Green Multimodal Hub



Our POC

- ⚙ Defining objectives of decarbonisation of transport and supply chain by 2035 on existing Axis with an Asia-Europe maritime road overview
- ⚙ Roadmap for specifications and investments to *produce – distribute – optimize green energies*
- ⚙ Selecting 3 use cases to identify conditions for « Biogas / Electricity / H2 / ... **ready** projects » (airport experience)
- ⚙ Certification approach: KPIs validation & eco-calculator



Green Solutions to Keep the Seas Blue...
