

### Waterborne Transport



#### **NAUTILUS Workshop:**

Potential and challenges of innovative power systems and synthetic fuels for emission reduction in waterborne transport

05/07/2022

Lucerne, Switzerland and online

## HORIZON EUROPE

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**CINEA Project Officer** 

EU initiatives and key projects to decarbonized waterborne transport



### CINEA In a nutshell



~ 58 billion for the period 2021-2027



> 500 staff by 2027



From 2800+ projects managed in October 2021 to > 4500 projects in 2027

- Policy feedback as an essential part of funding activities
- Expertise at the service of beneficiaries in managing the complete lifecycle of projects
- Exploitation of synergies and dynamic ways to work across programmes



## **CINEA**Our Programmes

EUROPEAN MARITIME FISHERIES AND AQUACULTURE FUND

LIFE PROGRAMME

**INNOVATION FUND** 

EUROPEAN CLIMATE,
INFRASTRUCTURE AND
ENVIRONMENT
EXECUTIVE AGENCY



FACILITY 2
Transport and Energy

RENEWABLE ENERGY FINANCING MECHANISM

JUST TRANSITION
MECHANISM
Public Sector Loan
Facility pillar

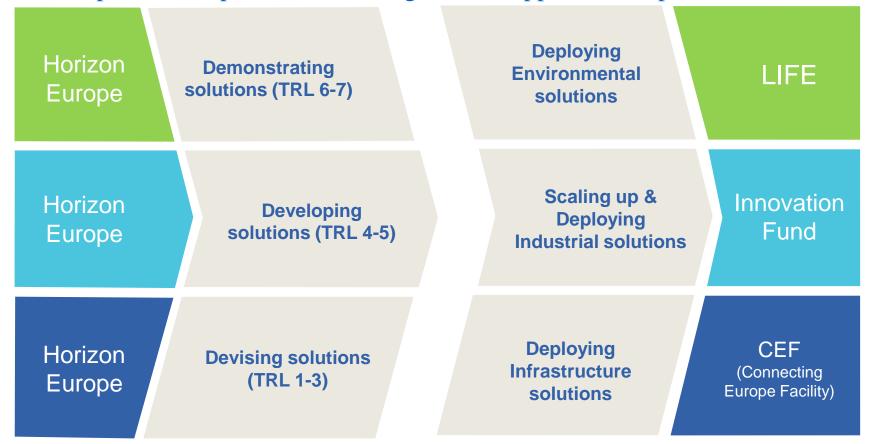
HORIZON EUROPE
Climate, Energy and Mobility



### CINEA

#### Complementary programmes to deliver solutions

https://ec.europa.eu/info/funding-tenders/opportunities/portal/



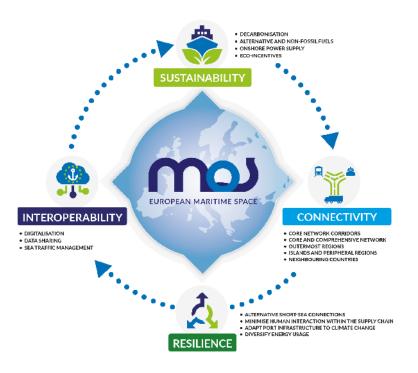
Examples on:



## Connecting Europe Facility (CEF2) and its waterborne perspective







- Alternative Fuels Infrastructure Facility: Recharging/refuelling infrastructure; Maritime and IWW Vessels, LNG bunkering vessels
- Motorways of the Sea: Upgrade of port infrastructure, Facilitation of Short Sea Shipping through ICT platforms
- Maritime and Inland Ports: Facilitation of port access, Shore-side electricity supply, Rail/road connections within the port
- European Maritime Single Window environment (EMSWe)
- Vessel Traffic Monitoring and Information Systems (VTMIS)
- River Information Services (RIS), inland single window, inland port community systems



## Innovation Fund and its waterborne perspective





Production and use of Renewable energy

including manufacturing plants for components

Carbon Capture Use and Storage

Scaling up clean tech

Large-scale demo & First of A Kind

Energy-intensive industries

including substitute products

Energy storage

including manufacturing plants for components

13 waterborne-related applications were submitted in the 2020 calls for large and small scale demonstrators:

#### Some examples:

- HYDROGEN EUROPAX: Zero-emission vessel powered by a large-scale fuel cell system will exclusively use green hydrogen from renewable sources (in PDA).
- WAVE: Large sailing cruise ship featuring an innovating wind propulsion technology (in PDA).



# European Maritime, Fisheries and Aquaculture Fund (EMFAF) and its waterborne perspective







#### **Project: Airseas**

- Wind propulsion
- Ship stabiliser

- More sustainable **fishing and aquaculture** practices
- Support the growth potential of the **blue economy**
- Protect marine ecosystems



#### **Project: Bound4Blue**

- Onshore Power Supply
- Retrofit fuel

## In Maritime transport, EMFAF supports Seabasin Strategies with a high interest on:

- Green shipping in the Western Mediterranean Region
- Ports in the Atlantic Region

14 waterborne related projects funded for a total €24M in 12 EU countries



## CINEA The H2020 Waterborne portfolio

Innovative shipbuilding and complex value-added specialised vessels Infrastructure **H2020 WATERBORNE** System modelling and lifeemerging coastal and The Port of the future (PIXEL, PortForward, cycle cost optimisation for offshore activities (LINCOLN, COREALIS, DocksTheFuture) NEXUS) waterborne assets (SHIPLYS, PORTFOLIO (2014-2021) Green airports and ports as multimodal HOLISHIP) Complex and value-added hubs for sustainable and smart mobility Development, production and specialised vessels (HYSEASIII (PIONEERS, MAGPIE) use of high performance and TrAM, NAVAISI lightweight materials for CINEA's Horizon 2020 waterbone portfolio covers projects funded via: Improved Production and vessels and equipment Maintenance Processes in (FIBRESHIP, RAMSSES) Shipyards (Mori4 YARD, 2020 GREEN DEAL CALL / BLUE GROWTH High value-added specialised FIRRE4YEARDS RESURGAM **AIRPORTS & PORTS TOPIC** vessel concepts enabling waterborne transport related more efficient servicing of / PORTS SUBTOPIC MOBILITY FOR GROWTH waterbone transport topics (and related topics) Preparing for the future Unmanned and autonomous survey activities at sea (ENDLIRLINS) The Autonomous Ship Delivering the sub-sea technologies for new (AUTOSHIP) services at sea (DexROV, Moving freight by Water: Sustainable Infrastructure New and improved transport and Innovative Vessels (IWconcepts in waterborne NET, NOVIMOVE, AEGIS, transport (GASVESSEL, MOSES Energy efficient and zero emission vessel Towards the energy efficient and Retrofit Solutions and Next Safer and more efficient waterborne operations emission free vessel (E-FERRY, Generation Propulsion for Waterborne LeanShips, HERCULES-2) Transport (Nautilus, FASTWATER. Safer and more efficient Marine Accident Response (LASHFIRE, SAFEPASS, FLARE, GATERS, SeaTech) waterborne operations Promoting innovation in the Inland through new technologies and PALAEMONI Waterways Transport (IWT) sector Structuring R&I towards zero smarter traffic management emission waterborne transport Human Factors in Transport Safety (SAFEMODE) Innovations for energy efficiency and emission control in waterborne Under water noise mitigation and Response to oil spills and environmental impact (SATURN) transport (AIRCOAT, HYMETHSHIP) marine pollutions (GRACE) InCo flagship on reduction of Improving impact and broadening Safer waterborne transport transport impact on air quality stakeholder engagement in support and maritime operations of transport research and innovation (SEDNA) (LASTING PLATINA 3) Ship emission control scenarios,

marine environmental impact and

mitigation (EMERGE)

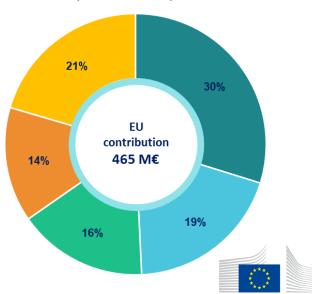
Decarbonising long distance shipping

(CHEK, ENGIMMONIA)

- Energy efficient and zero emission vessel
- Innovative shipbuilding and complex value-added specialised vessels
- Safer and more efficient waterborne operations
- Infrastructure

H2020 WATERBORNE PORTFOLIO (2014-2021)

New and improved waterborne transport concepts

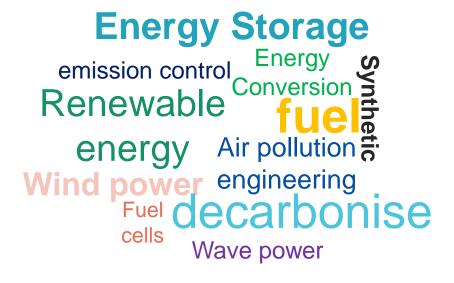


European

Commission

## Zero emission waterborne transport

Key challenges addressed under Horizon 2020

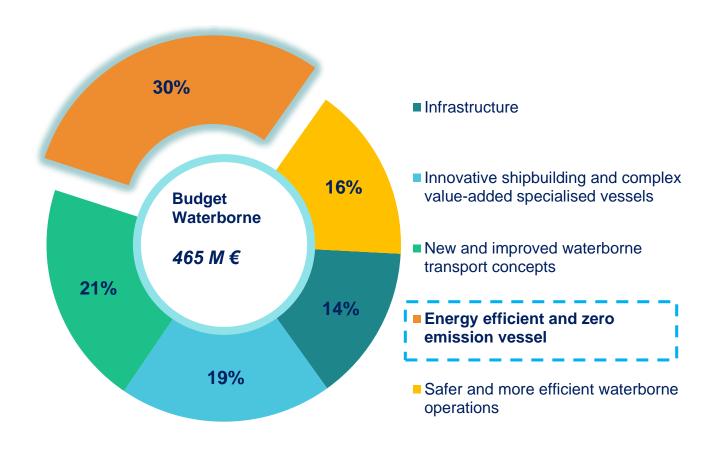


- To develop innovative solutions to decarbonise shipping
- To improve the competitiveness of European maritime industries and shipping companies in relation with green shipping
- To create wide spread awareness and "buy in" of stakeholders towards zero-emission shipping
- To better understand impact of the vessels through monitoring detection and modelling of emissions
- To provide technical evidence to assess gaps in current regulation of vessels and air quality



## H2020 Waterborne Portfolio (2014-2021)

The transformation towards zero-emission waterborne transport



- √ 18 projects
- ✓ 139 M € H2020 EU Contribution
- ✓ 295 beneficiaries



## Safe and Secure waterborne transport

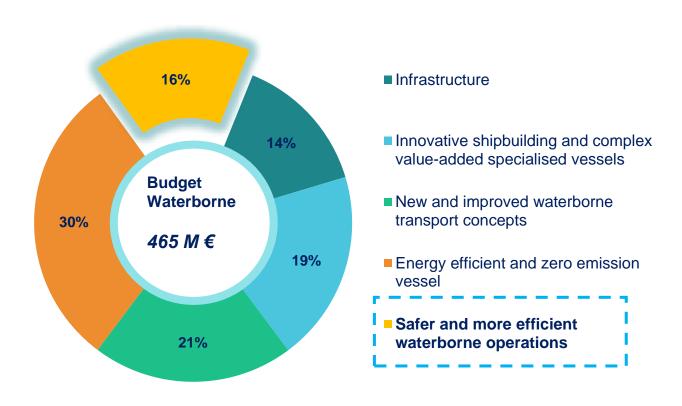
Key challenges addressed under Horizon 2020

evacuation Crisis data exchange technology drones Automation and control systems human factor

- ✓ To radically redesign of evacuation systems for passenger ships
- ✓ To greatly enhance the prevention and management of fires at sea without recourse to external intervention
- ✓ To develop and demonstrate innovative solutions for ship design and waterborne
  operations in order to avoid and mitigate passenger risks and ensure high levels of safety
- ✓ To improve the observation and predictions of **oil spreading in the** sea using novel online sensors on-board vessels, fixed structures or gliders
- ✓ To build the enabling knowledge, technologies, and operational procedures and test them in a real world environment with the aim of guaranteeing safe and environmentally sound waterborne operations
- ✓ To improve transport safety through a more timely, focused and integrated adoption of human factors in the design of vessels and minimise the human error
- ✓ To develop solutions that address these risks and can be reflected within forthcoming revisions of relevant IMO Rules



## H2020 Waterborne Portfolio (2014-2021) Safe and Secure waterborne transport



- ✓ 9 projects
- ✓ H2020 Net EU Contribution: 75 M €
- √ 208 beneficiaries



#### Competitive, Connected and Automated Waterborne Transport Key challenges addressed under Horizon 2020

### **Autonomous** Sustainableship Infrastructure Underwater Vehicles digital Connected Ports Automation and control systems Robots waterway

#### **Infrastructure**

- ✓ To improve logistics efficiency and integration of the port in the surrounding socio-economic area
- ✓ To optimise passenger and freight flows for low emission mobility
- ✓ To accelerate the deployment of sustainable alternative fuels and electromobility
- ✓ To commit and contribute to a Europe-wide take up of technological, nontechnological and socially innovative solutions



#### Competitive, Connected and Automated Waterborne Transport Key challenges addressed under Horizon 2020

### **Autonomous** Sustainableship Infrastructure Underwater Vehicles digital Connected Ports Automation and control systems Robots waterway

#### New and improved waterborne transport concepts

- ✓ To develop validation, certification and safety assessment methodologies and tools to support autonomous ships
- ✓ To improve maritime and inland waterways logistics operations and enhancing modal shift concepts for freight transport.
- ✓ To deliver improved systems for waterborne operations, feedering and short sea vessels, with regard to smart connections
- ✓ To develop and demonstrate autonomous vehicles for under-sea services and surveillance



## Competitive, Connected and Automated Waterborne Transport Key challenges addressed under Horizon 2020

### **Autonomous** Sustainableship Infrastructure Underwater Vehicles digital Connected Ports Automation and control systems Robots waterway

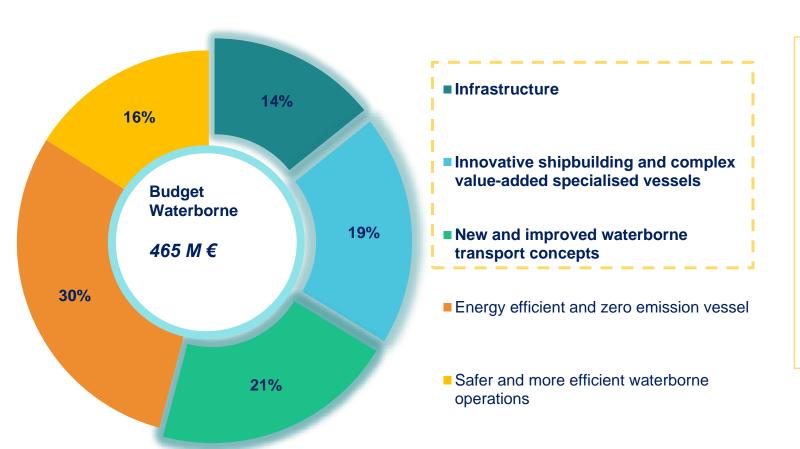
## Innovative Shipbuilding and complex value-added specialised vessels

- ✓ To provide a comprehensive performance analysis and simulation for new advanced materials and entire constructions
- ✓ To develop and validate advanced modular standardised shipbuilding concepts
  for European waters (urban, inland waterways and short sea)
- ✓ To increase the professional skills of workers and the capability of European shipbuilding industry to develop and commercialise specialised vessels and related technology
- ✓ To explore and validate low impact cruise and passenger ship designs and operations



#### H2020 Waterborne Portfolio (2014-2021)

Competitive, Connected and Automated Waterborne Transport



- √ 29 projects
- ✓ 252 M€
- √ 475 beneficiaries



## CINEA Horizon Europe - state of play





- 4 Calls evaluated (16 waterborne related research topics)
  - 2021-D5 : Clean and competitive solutions for all transport modes
  - 2021-D6: Safe, Resilient Transport and Smart Mobility services for passengers and goods
  - 2022-D5 and 2022-D6 have just been finalised
- 13 Projects have signed the Grant Agreement (€97M EU funding)
  - Alternative fuels
  - Energy efficiency on-board
  - Electrification
  - Digitalisation
  - Safety
- Work Programme 2023-2024 under preparation. First deadline in April 2023.

- Fighting climate change
- Make the energy and transport sectors more sustainable





"The European Green Deal is not only about emissions. It is about boosting innovation. It is about modern mobility.

The European Green Deal is our new growth strategy."

Speech by President von der Leyen in the Plenary of the European Parliament at the debate on the European Green Deal (11 December 2019)



## Keep in touch - CINEA





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CINEA - European Climate, Infrastructure and Environment Executive Agency



**CINEATube** 





## Thank you

