

# Creating a green hydrogen ecosystem for shipping in Paris, *a case study by the H2SHIPS project*

## OBJECTIVES

*Analyze the conditions for the emergence of a river H2 ecosystem in Paris by assessing the technical and economic feasibility of :*

- *H2 production close to the river*
- *H2 transport by river*
- *H2 for greening of the fleet - and compliance with the low emissions zone*



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- POTENTIAL LOCATIONS
- REGULATION AND PLAYERS
- SAFETY ANALYSIS & LAND REQUIREMENTS



- REGULATION AND PLAYERS
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- IDENTIFY TECHNOLOGICAL CHOICES

- IDENTIFY POTENTIAL USERS ALONG THE RIVER
- UNDERSTAND THE COMPETITION
- ANTICIPATE GROWING NEEDS

## H2 PRODUCTION



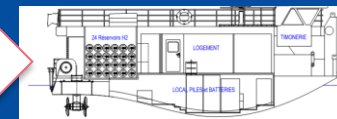
## CONDITIONNING & TRANSPORT



## LOADING QUAY / SHIP & TRANSPORT



## REFUELING H2 SHIPS



- NO FIXED H2 PRODUCTION/DISTRIBUTION ON QUAY
- MOBILE SOLUTION PREFERRED FOR SAFETY

- SWAPPING OF MOBILE H2 CONTAINERS
- REQUIRED ADAPTED PLATFORM (TURNING AREA, ACCESSIBILITY, DISPENSING, ETC.) & HANDLING EQUIPMENT

- E.G. SEINE PUSHER BOAT ; PRE-FEASIBILITY STUDY = H2 AVERAGE CONSUMPTION 153 KG



BY 2025, HRS WITH ONSITE PRODUCTION OF MIN. 800 KG/D  
 TO BE OPERATED AT ~500 M FROM THE QUAY



- TRANSFER OF HOUSEHOLD WASTE UP TO 290 KTON/YEAR VIA THE RIVER
- NEED FOR 2 TO 3 PUSHERS & 5 TO 8 BARGES
- AVERAGE WEEKLY NEED OF 800 KG.

# Conclusion & General recommendations

- 1. The transport of H2 by river will be relevant to address the uses of river vessels and certain dockside uses.***
- 2. Optimising and rationalising operations will make it possible to accept this activity on restricted sites and to reach volume thresholds in order to optimise costs.***
- 3. Specific port operating regulations will have to provide a framework for this activity over and above the regulations (RPMF, ADN, ADR).***
- 4. The nature of the operations, the occupation time but also the space immobilised and the related facilities will define the conditions of occupation of the domain and their pricing, which will be linked to the issue of the economic model.***
- 5. The technological and regulatory obstacles do not seem insurmountable.***
- 6. We need to be patient and think ahead. Consultation with all the players in the chain, right from the project's inception, is essential if it is to be acceptable.***

# Interreg



EUROPEAN UNION

## North-West Europe

## H2SHIPS

European Regional Development Fund

# Thank you!