

H2Ports

Implementing Fuel Cells and Hydrogen Technologies in Ports

Josep Sanz

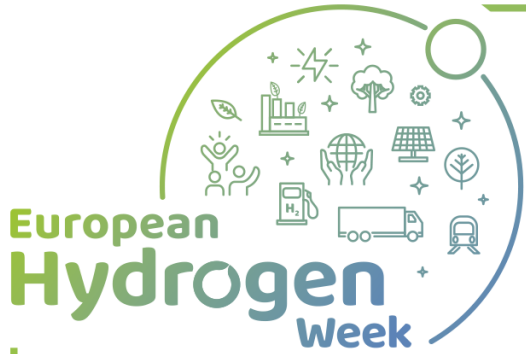
R&D Energy Transition

H2Ports FVP's project manager

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#CleanHydrogen

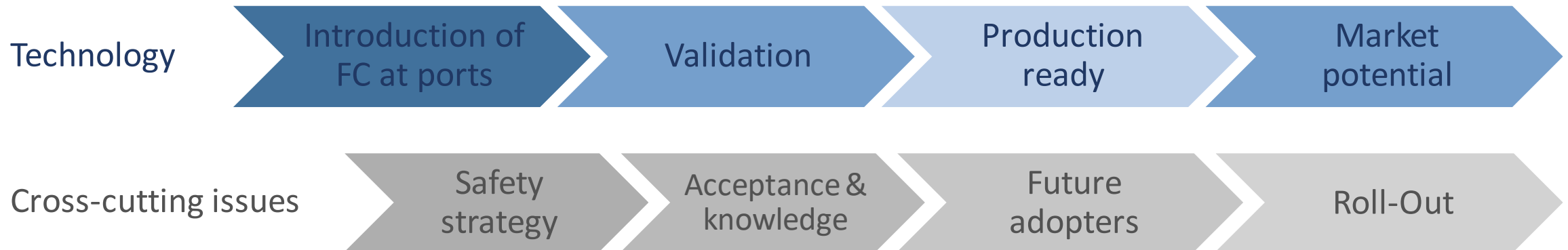


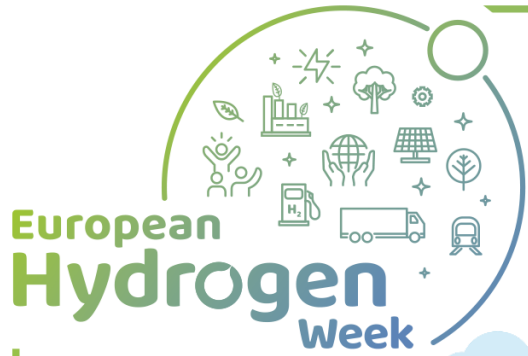


Objective and Impacts

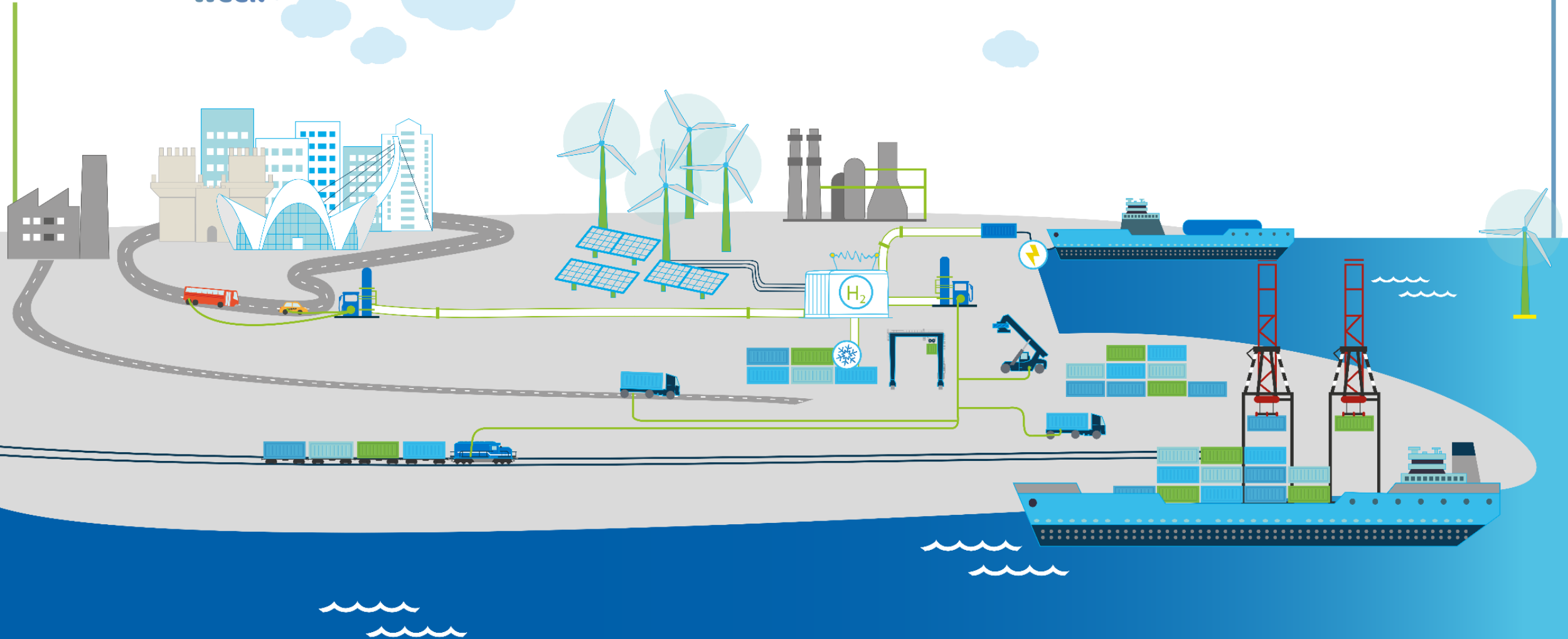


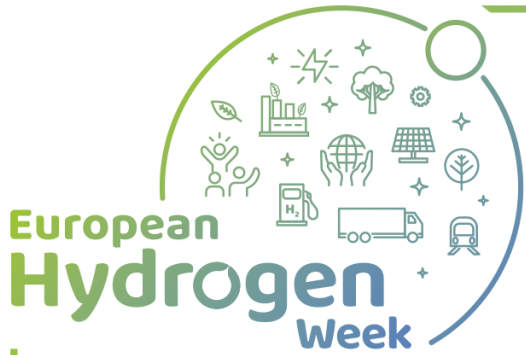
H2Ports aims to boost the transition of the European port industry towards an effective **low-carbon / zero - emission and safe operative model** by piloting and demonstrating new **Fuel Cell Technology**





Port as a Hydrogen Valley

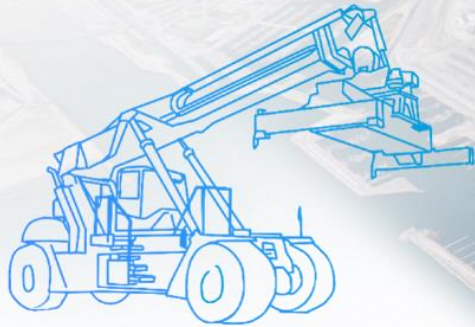




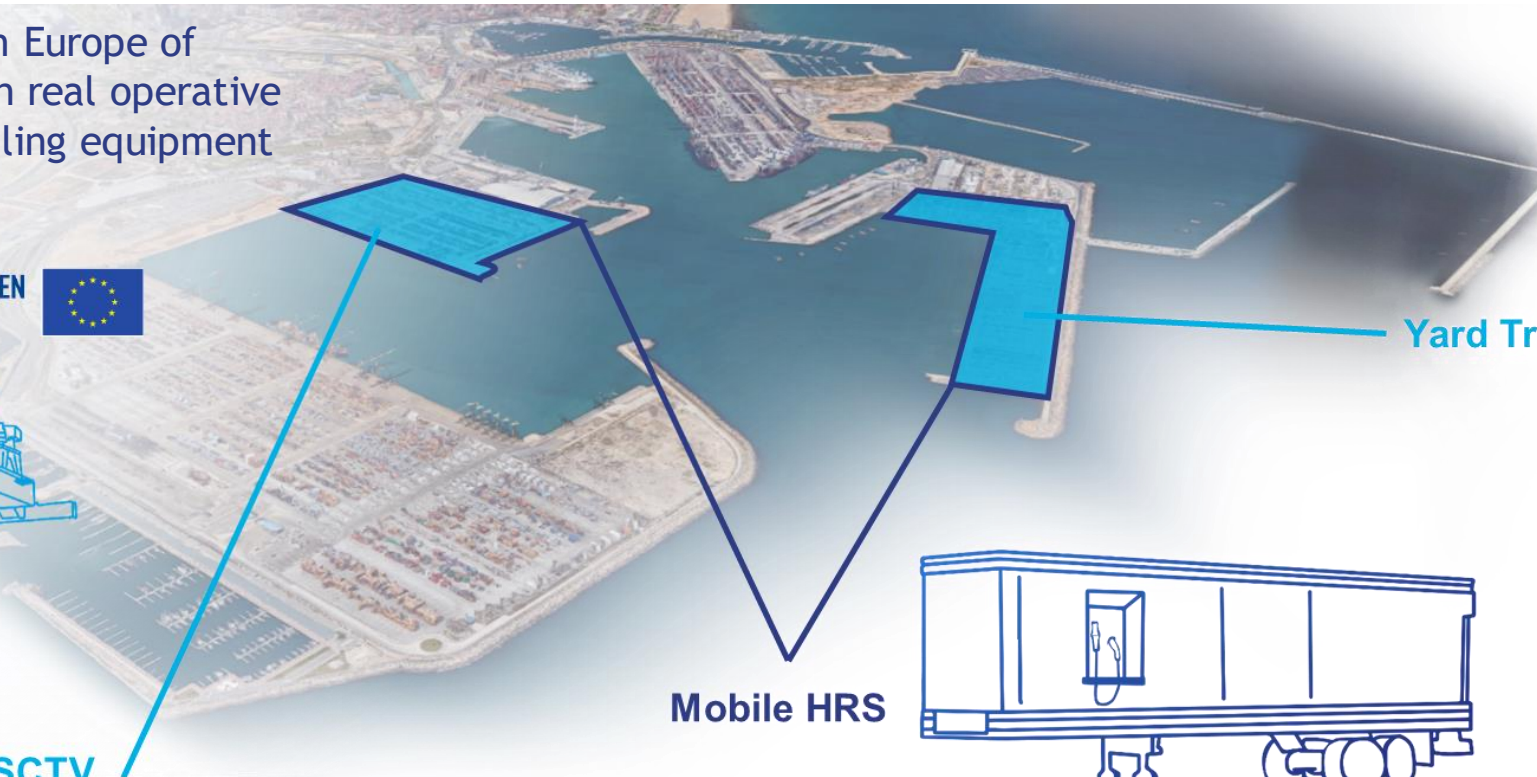
General Overview



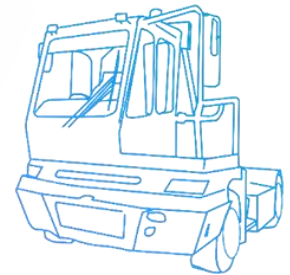
👍 First application in Europe of hydrogen technologies in real operative conditions for port handling equipment



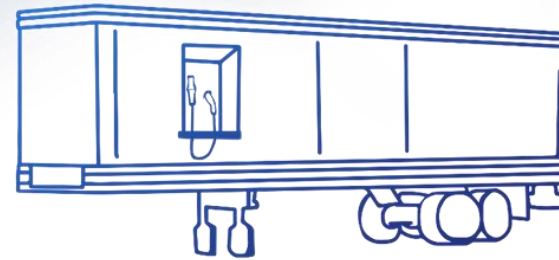
Reach Stacker en MSCTV



Yard Tractor en VALTE

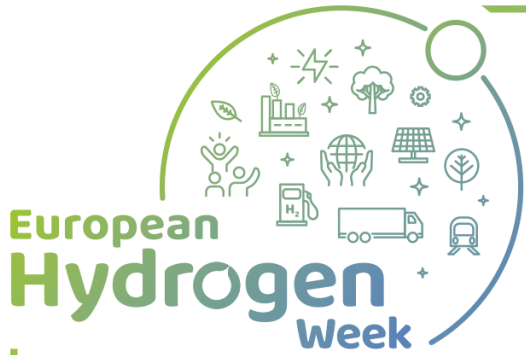


Mobile HRS



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Partners



Coordination:



Public authorities



Research institutions



End users



Industry



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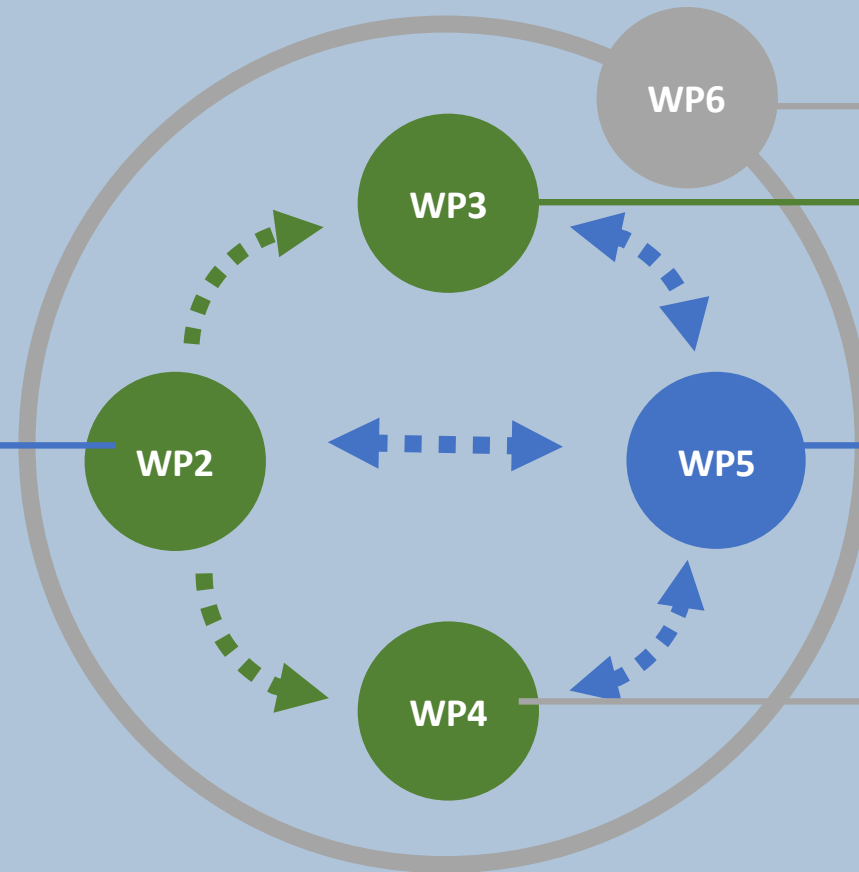


Project Structure

WP1

Project Management.

Hydrogen facilities
in ports



WP6

Communication and Dissemination

WP3

Implementation of FC and
Hydrogen in a Reach Stacker

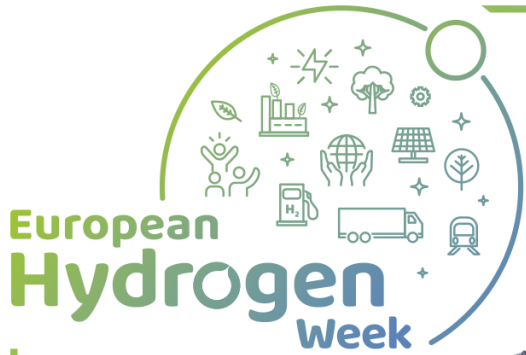
WP2

WP5

Risk Management and Risk
uptake strategy

WP4

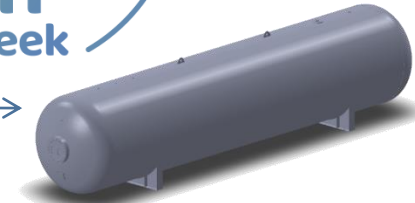
Implementation of FC and
Hydrogen in a Yard Tractor



WP2. Hydrogen supply



Gas Supplier



Buffer Tank
 50 m³; D:2450 L:11510
 10-40 bar
 180kg

Compressor
 50m³/h
 p_{in} : 10-40 bar
 p_{out} : 300-450 bar



Mobile Unit

High pressure storage



Panel dispenser
 Up to 3.6 kg/min
 T_{max} 85 °C



300 bar
 153 L
 151 Kg

450bar
 135L
 841 Kg



FCHJU funding € 800,000 approx.

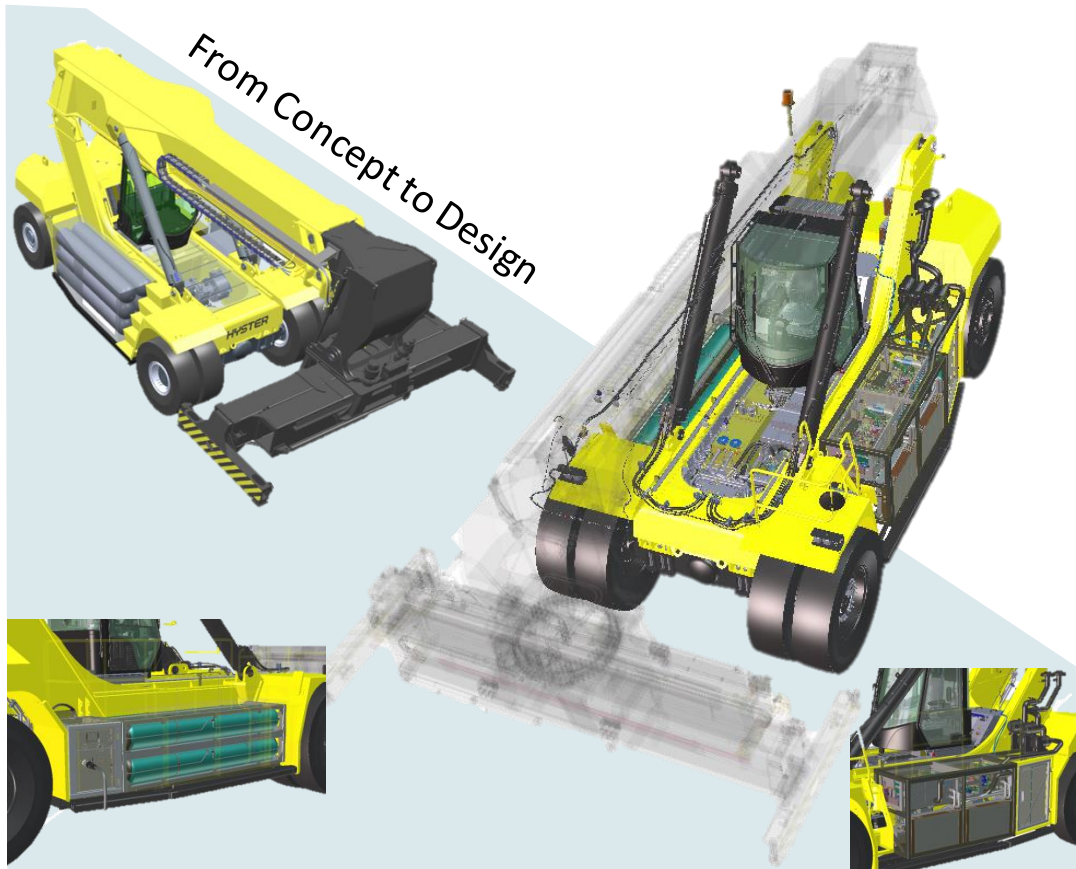


National Hydrogen Centre, Fundació Valenciaport, Valencia Port Authority, MSCTV, Hyster-Yale, Grimaldi, ATENA, Enagás



- Mobile hydrogen refuelling station
- Up to 60 kg of H₂ at 350 bar per day
- Hydrogen flow rate up to 3.6 kg/min
- Storage cascade at 300 and 450 bar use in order to save energy

WP3. Reach Stacker



FCHJU funding € 1,300,000 approx.



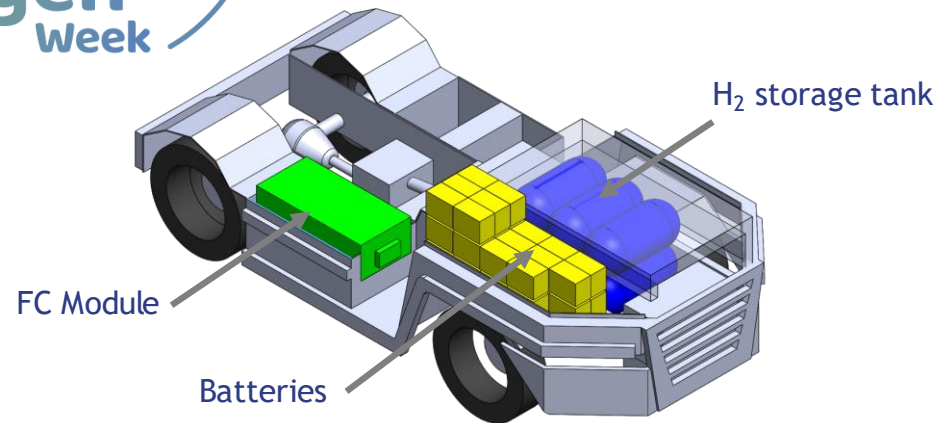
Hyster-Yale Nederland B.V., MSCTV, Port Authority of Valencia, Fundación Valenciaport, National Hydrogen Centre



Expected achievements

- Average CO₂ reduction of 128,000 kg per year per vehicle (3000 h & 16 L/h)
- Lower TCO
- Improved productivity

WP4. Yard Tractor



FCHJU funding € 1,100,000 approx.

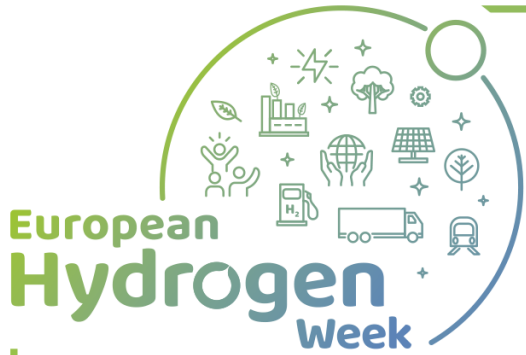


ATENA, Grimaldi Group, Ballard, National Hydrogen Centre, Fundacion Valenciaport

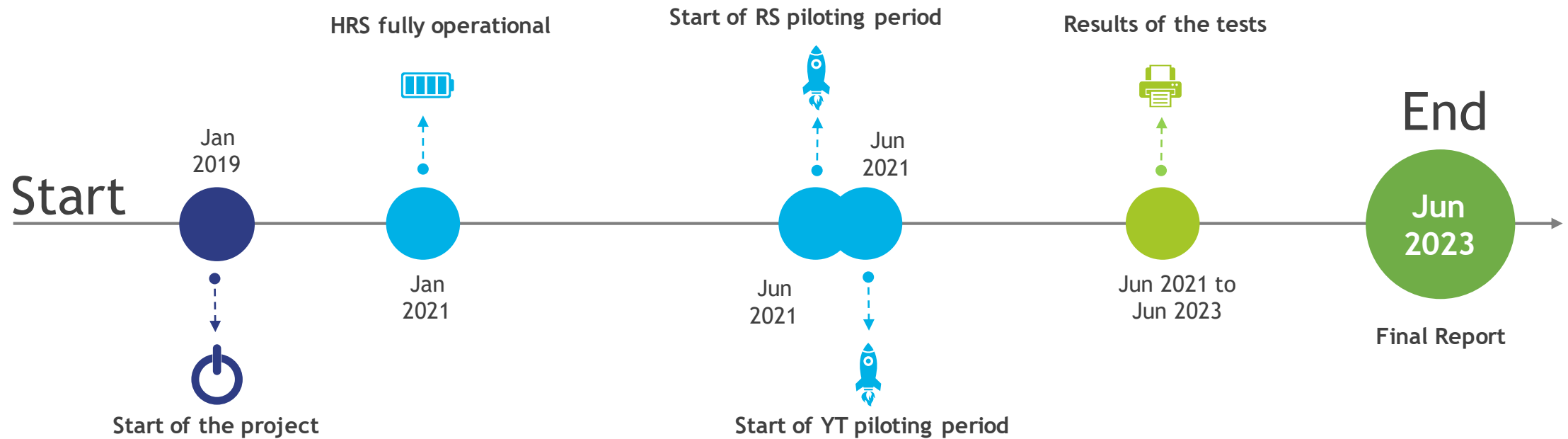


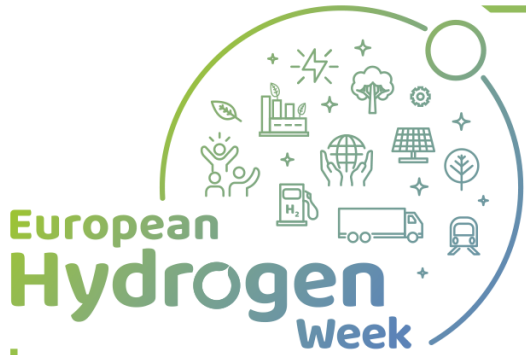
Development and deployment a 4x4 Yard Tractor equipped with a Fuel Cells and test it in Valencia Terminal Europa (Grimaldi Group). It involves three tasks:

- Design of the new FCEV YT
- Assembling of new components in the YT
- Testing and Piloting of the FCEV YT in Valencia, Spain



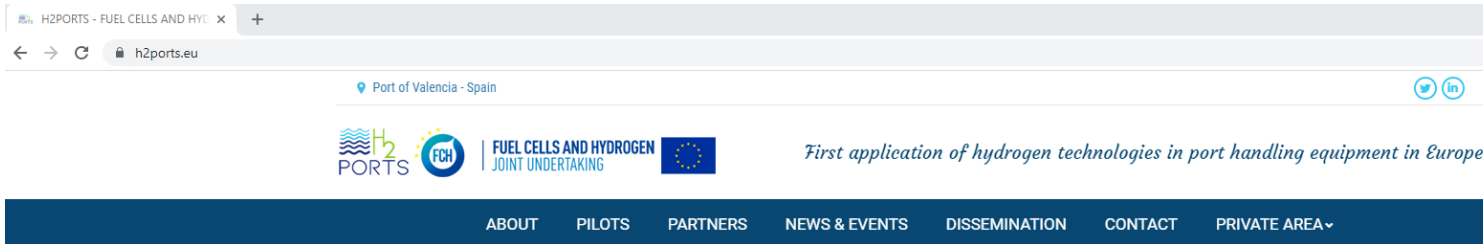
Current Planning (Nov 20)





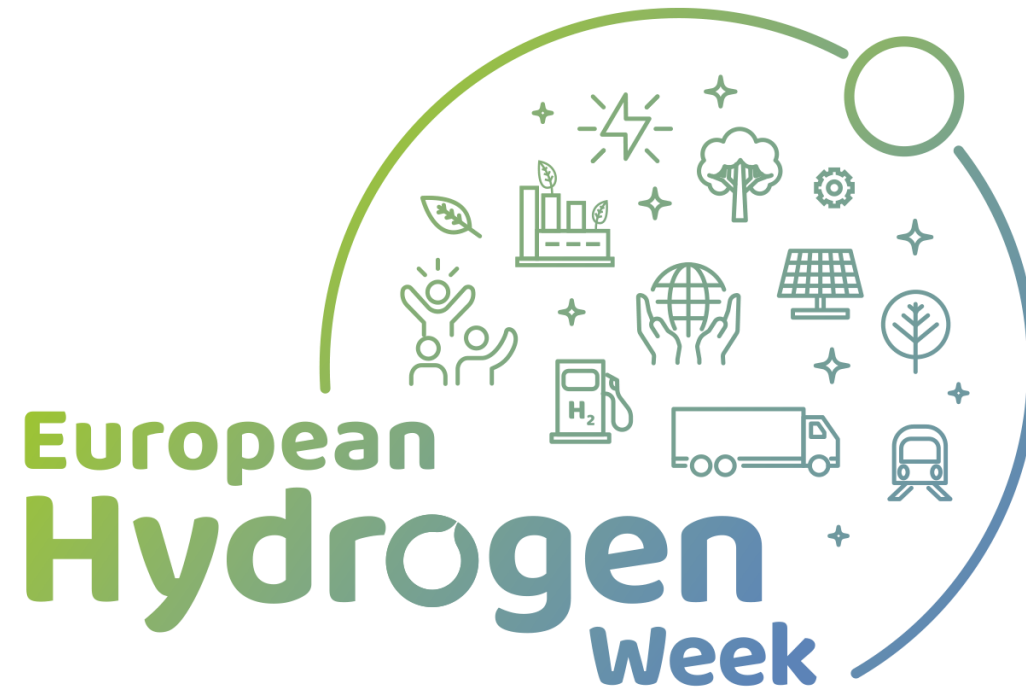
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Thank you!

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