



# FCH 2 JU & S2R JU: HYDROGEN TRAIN WORKSHOP

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[www.fch.europa.eu](http://www.fch.europa.eu)

# FCH 2 JU: Strong Public-Private Partnership with a focused objective

## Industry-led Public-Private Partnership (PPP)

### Fuel Cells & Hydrogen Joint Undertaking (FCH2 JU)



**Industry Grouping**  
About 105 members  
~ 50% SME



**Research Grouping**  
About 65 members



**To implement  
an optimal  
research and  
innovation  
programme to  
bring FCH  
technologies to  
the point of  
market  
readiness by  
2020**

The Joint Undertaking is managed by a Governing Board composed of representatives of all three partners and lead by Industry.

**Legal basis:**

Council Regulation: 559/2014 of 6 May 2014 (H2020)

# FCH 2 JU: Objectives for a green economy



## **H<sub>2</sub> STORAGE FOR GRID BALANCING**

Demonstrate on a large-scale hydrogen's capacity to harness power from renewables and support its integration into the energy system



## **HEAT & ELECTRICITY PRODUCTION**

Increase fuel cell efficiency and lifetime



## **GREEN HYDROGEN PRODUCTION**

Increase efficiency and reduce costs of hydrogen production, mainly from water electrolysis and renewables



## **MINIMAL USE OF CRITICAL RAW MATERIALS**

Reduce platinum loading



## **CLEAN TRANSPORT**

Reduce fuel cell system costs for transport applications

**203 projects supported for 730 M€**

*Similar leverage of private funding: 782 M€*

**ENERGY**  
**114 projects**

- Hydrogen production and distribution
- Hydrogen storage for renewable energy integration
- Fuel cells for power & combined heat & power generation

354 M€, 49%

**TRANSPORT**  
**52 projects**

- Road vehicles
- Non-road vehicles and machinery
- Refuelling infrastructure
- Maritime, rail and aviation applications

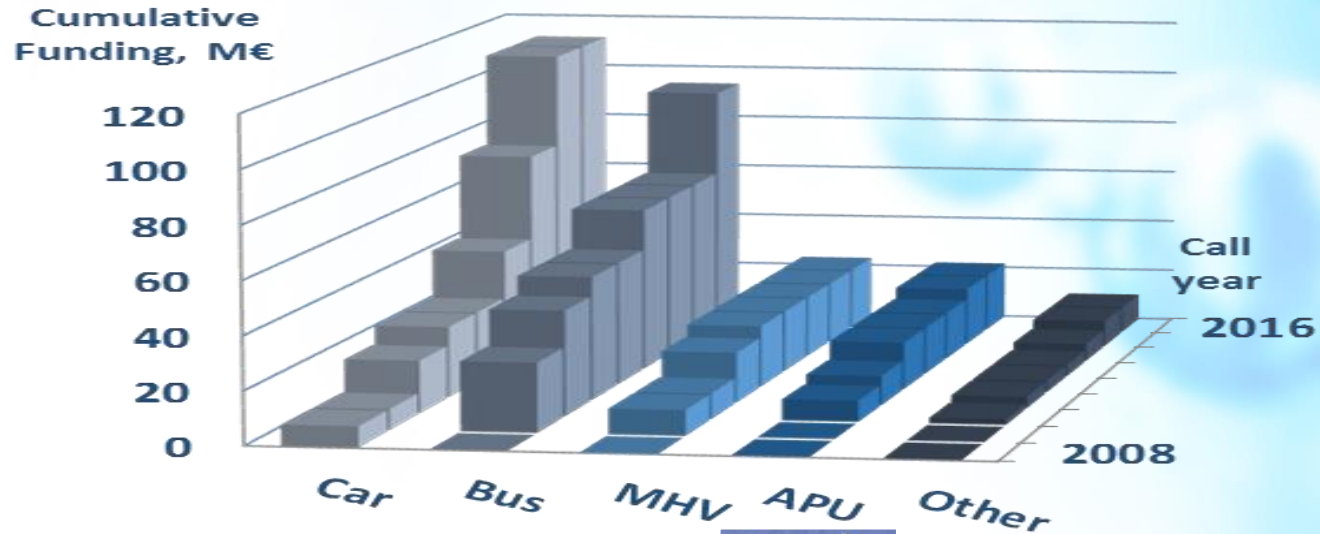
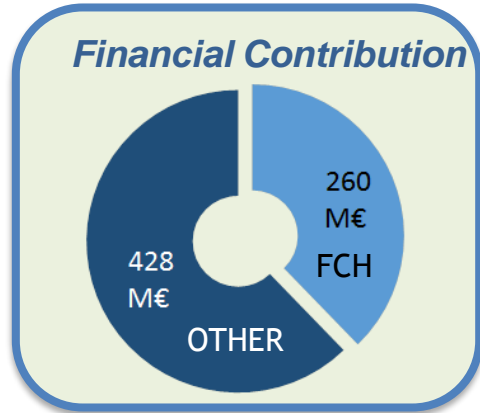
337 M€, 46%

39 M€

**Cross-cutting, 34 projects**

(e.g. standards, safety, education, consumer awareness, ...)

# Transport demonstration portfolio

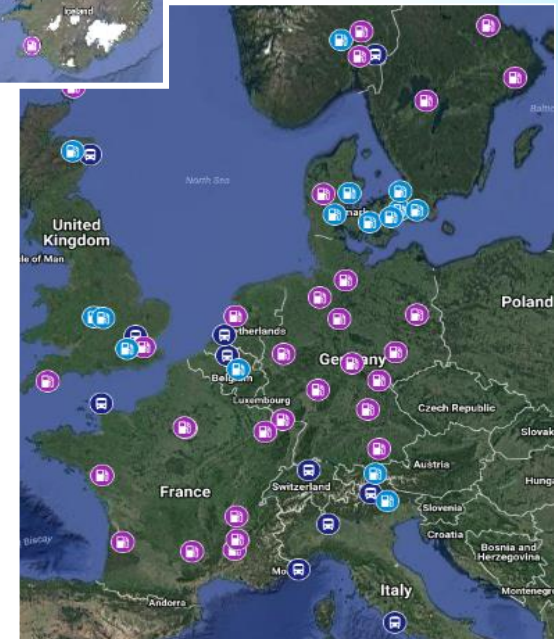


**From national plans to a EU strategy**

**From demo to a nascent 1.5 bn € market to 2020**



- ✓ >80 HRS
- ✓ >1,500 cars
- ✓ 206 buses in 19 cities



**First steps to EU business case**

- ✓ >280 MHV ✓ 10 sites





# FCH2 JU - MoU INITIATIVE

MOU:

MEMORANDUM  
OF  
UNDERSTANDING

>60 PARTICIPANTS

FROM 19 COUNTRIES:  
17 FROM EU  
2 FROM EFTA

ACCOUNTING FOR:

90 MILLION CITIZENS (18%)  
3 TRILLION EUROS (20% GDP)

## Opportunity to participate in a large study:

- Defines business cases for Hydrogen & Fuel Cell based products
- Put Cities & Regions in direct contact with the Industry
- Help to find best financing schemes

At no cost to the Cities & Regions  
(other than their own time and travel costs)





# FCH2 JU - An interest for RAIL

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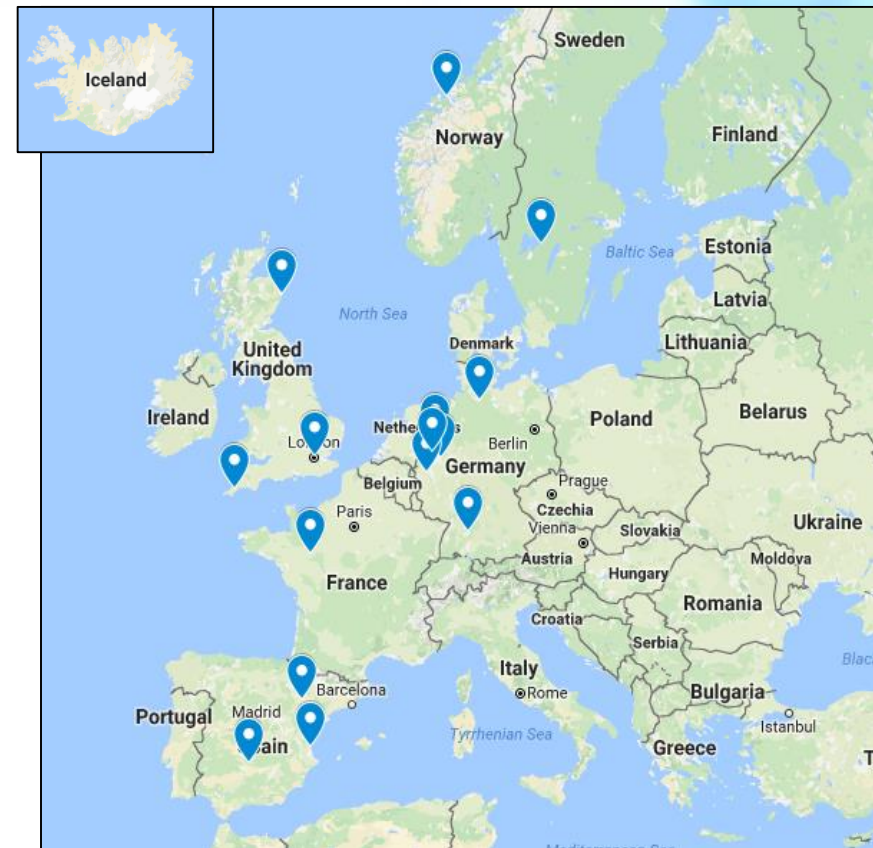
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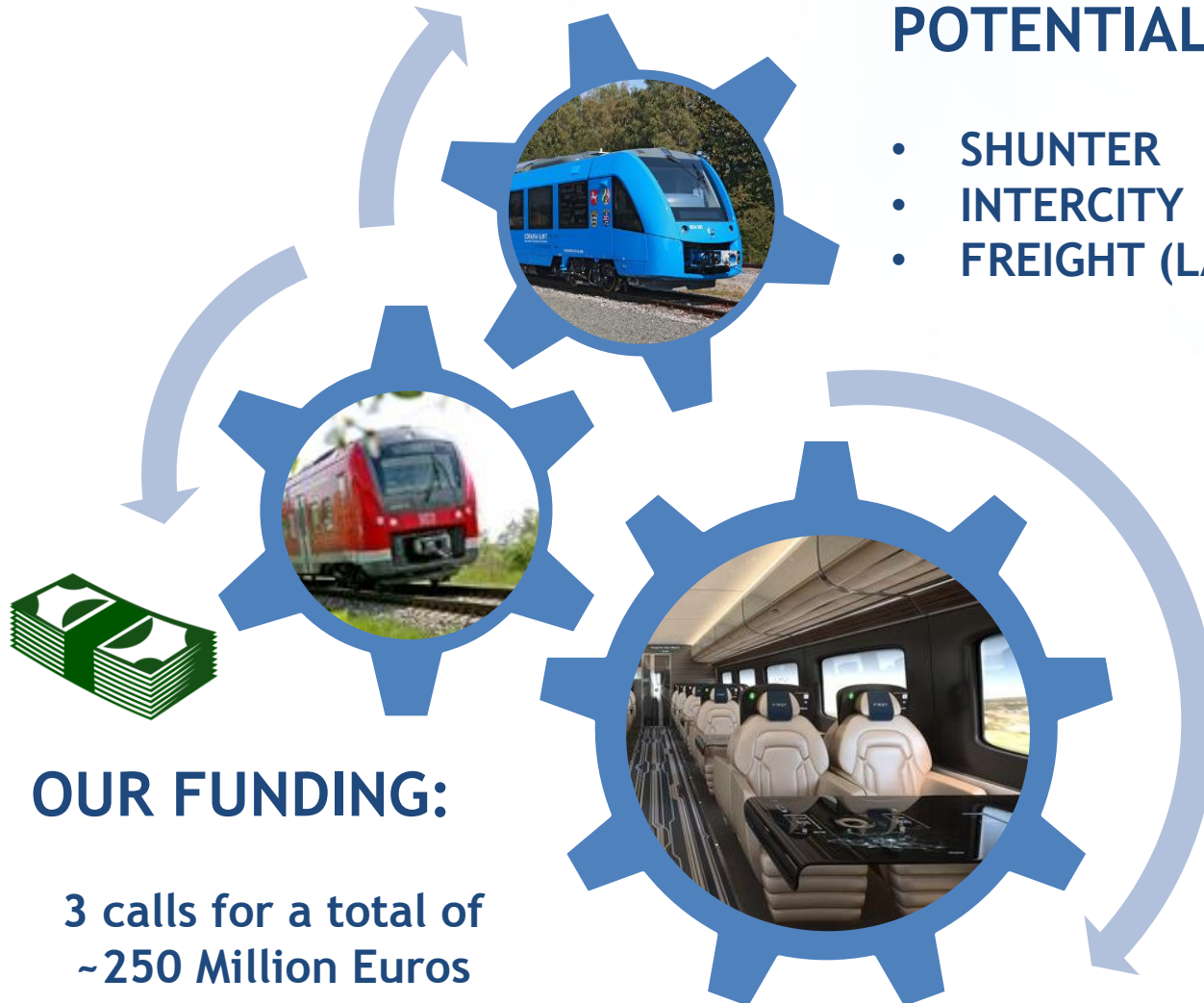
**15 REGIONS/CITIES  
FROM 6 COUNTRIES**

have demonstrated a deep  
interest toward  
RAIL applications





# FCH2 JU launched into new applications: trains



## OUR FUNDING:

3 calls for a total of  
~250 Million Euros

## POTENTIAL APPLICATIONS:

- SHUNTER
- INTERCITY
- FREIGHT (LAST MILE)



## THE WORKSHOP:

Discover new ideas for  
additional applications



# THANK YOU FOR YOUR ATTENTION



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FCH JU

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Further info :

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