



# JRC and the European hydrogen strategy

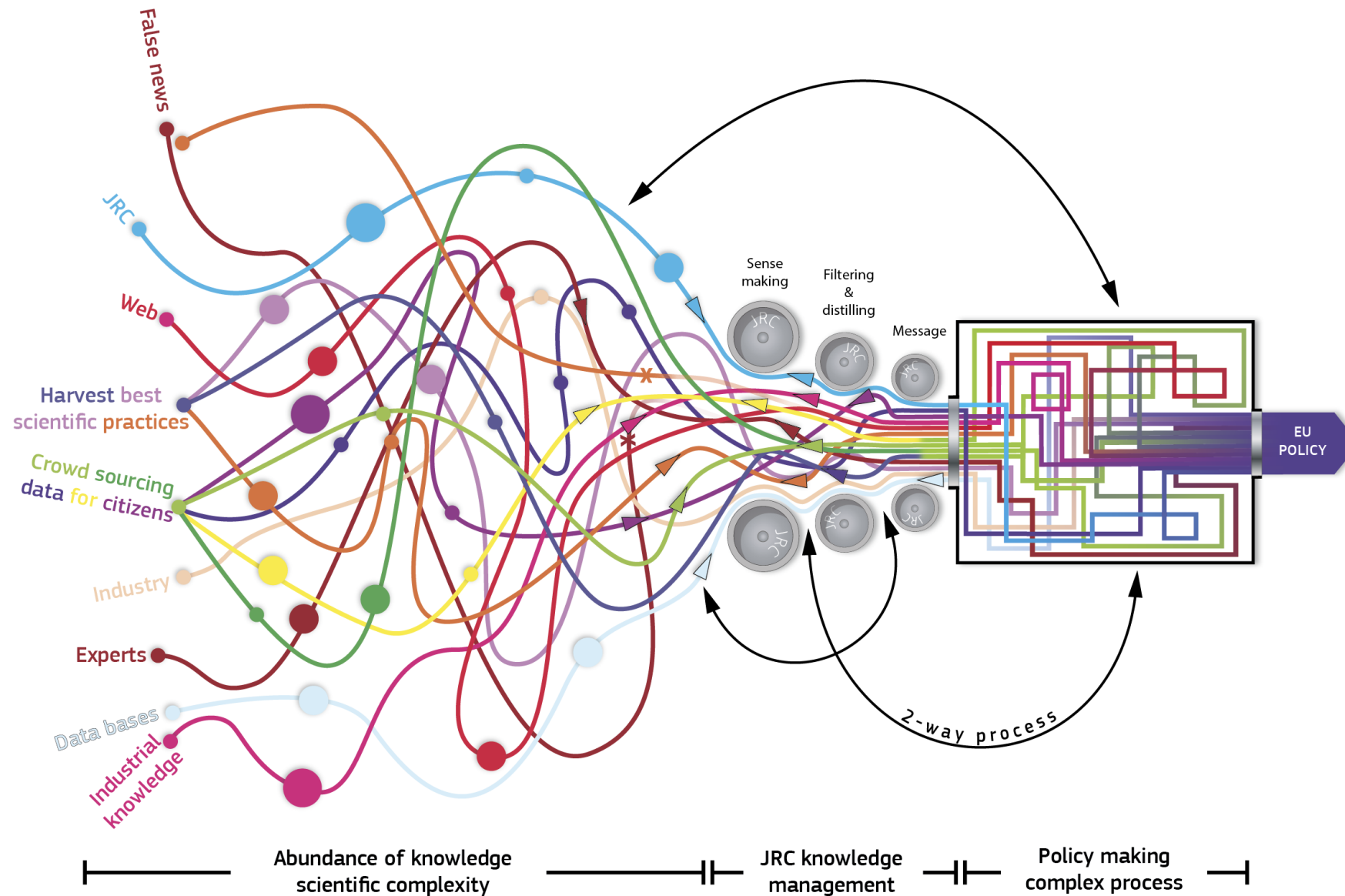
European Commission – Joint Research Centre

Energy Storage Unit, C.1

*Laura Bravo Diaz*

*Hydrogen week, 25<sup>th</sup> October 2022*

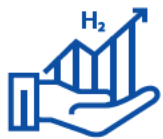
# The JRC mission in a nutshell



# EU Hydrogen Strategy, REPowerEU and JRC



- The production of clean hydrogen needs to be increased **by creating a sustainable industrial value chain.**



- We should **boost the demand for clean hydrogen** coming from industrial applications and mobility technologies.

JRC provides technical assessment of **IPCEI** and **Innovation Fund** projects and informs the implementation of the H2 strategy.



- Clean hydrogen needs a **supportive framework, well-functioning markets** and **clear rules**, as well as dedicated infrastructure and a logistical network.

JRC involvement in **standardization, safety and certification**



- **Promoting research and innovation** in clean hydrogen technologies is crucial.

JRC involved in **Clean Hydrogen JU**



- Europe we will secure **cooperation opportunities with neighboring countries and regions of the EU** and work to establish a global hydrogen market.

JRC in **IEA-Hydrogen TCP, IPHE and MI-Hydrogen**



# Promoting research and innovation

## Framework contract with Clean Hydrogen JU

Knowledge Management

RCS

Sustainability

Programme development

Programme assessment

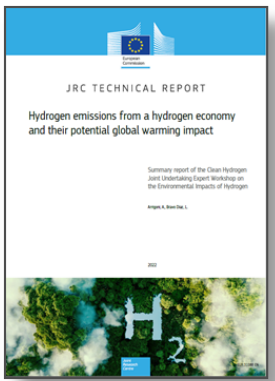
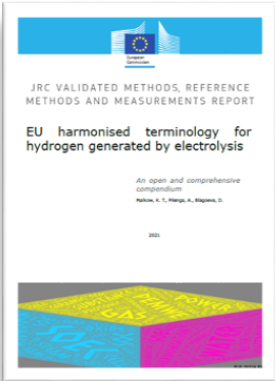
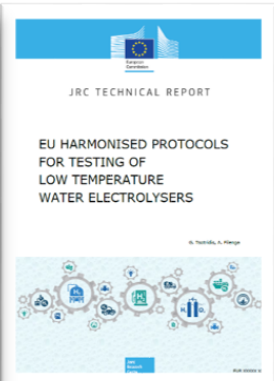
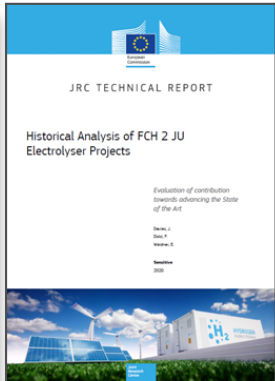
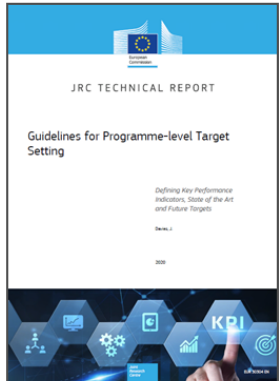
TIM  
Innovation Monitor

Strategy

Harmonisation

Data

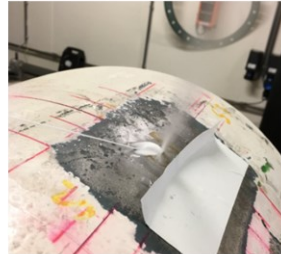
Methodology



# Promoting research and innovation



## GasTeF facility - Testing repurposed gas pipelines



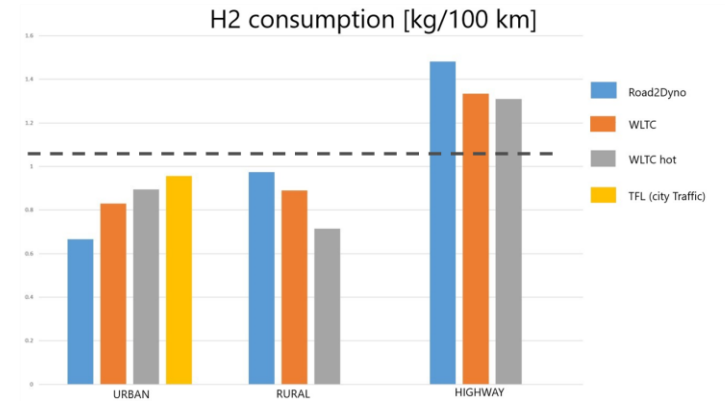
Real components, real condition tests

The knowledge gap: despite general compatibility with hydrogen, **operating conditions can accelerate hydrogen enhanced fatigue.**  
 ☞ **Dynamic tests for accelerated ageing under extreme hydrogen pressures and high cycle frequencies**

## VELA facility - Testing FCEV performances



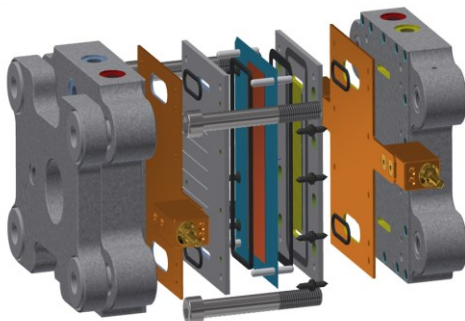
Real driving condition



## Electrochemical performance assessment: the FCTEST facility



Design and validation of a JRC ZERO7CELL single cell test hardware for PEM fuel cells



- It allows for an objective comparison of different product
- (soon available under CERN-OHL-W v2 license)

## Technology monitoring and analysis



**Which is the best way to transport green H<sub>2</sub> on long distances, inside and into the EU?**

A comparison of available options in term of energy use, costs, sustainability aspects.



# Assessment of hydrogen delivery options

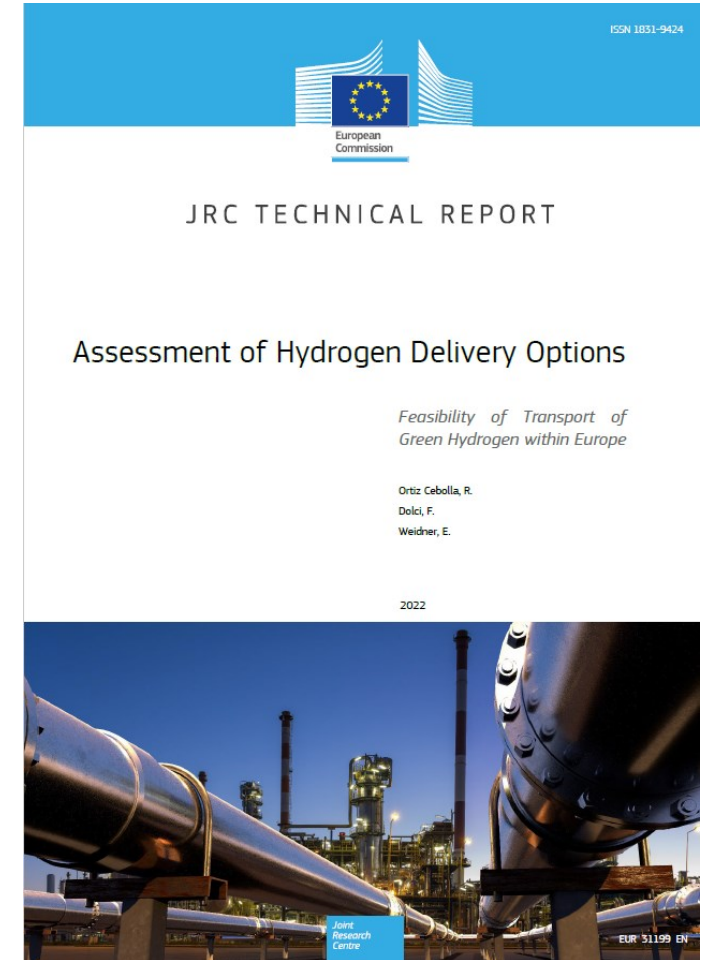
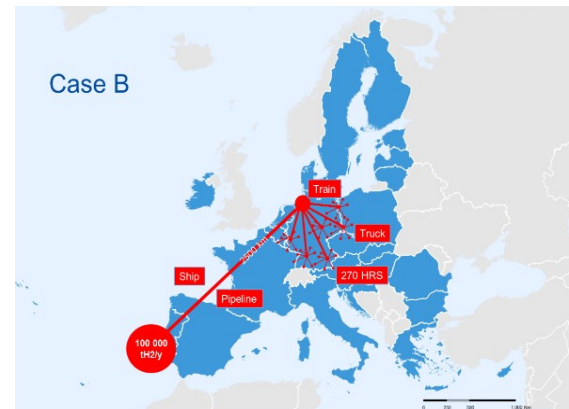
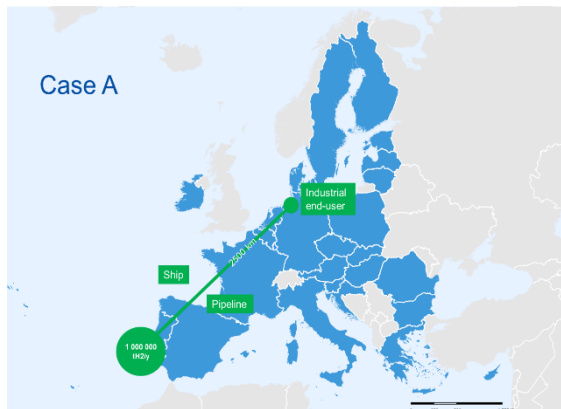
## Assessment of energy demand and costs

### Packaging modes

- CGH2
- LH2
- LOHC (DBT)
- MeOH (DAC)
- NH3

### Transport modes

- Shipping Sea
- Shipping inland
- Pipeline
- Truck
- Rail (biodiesel and electric)





# Keep in touch



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# Thank you



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