



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

Programme Review
Days 2019

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19-20 November 2019

#PRD2019
#SF2019

Lets talk
#CleanHydrogen

Fuel Cells & Hydrogen technologies in the context of the EU Energy and Climate Framework



Making energy more secure, affordable and sustainable



Long-term strategy: European Commission calls for a climate-neutral Europe by 2050

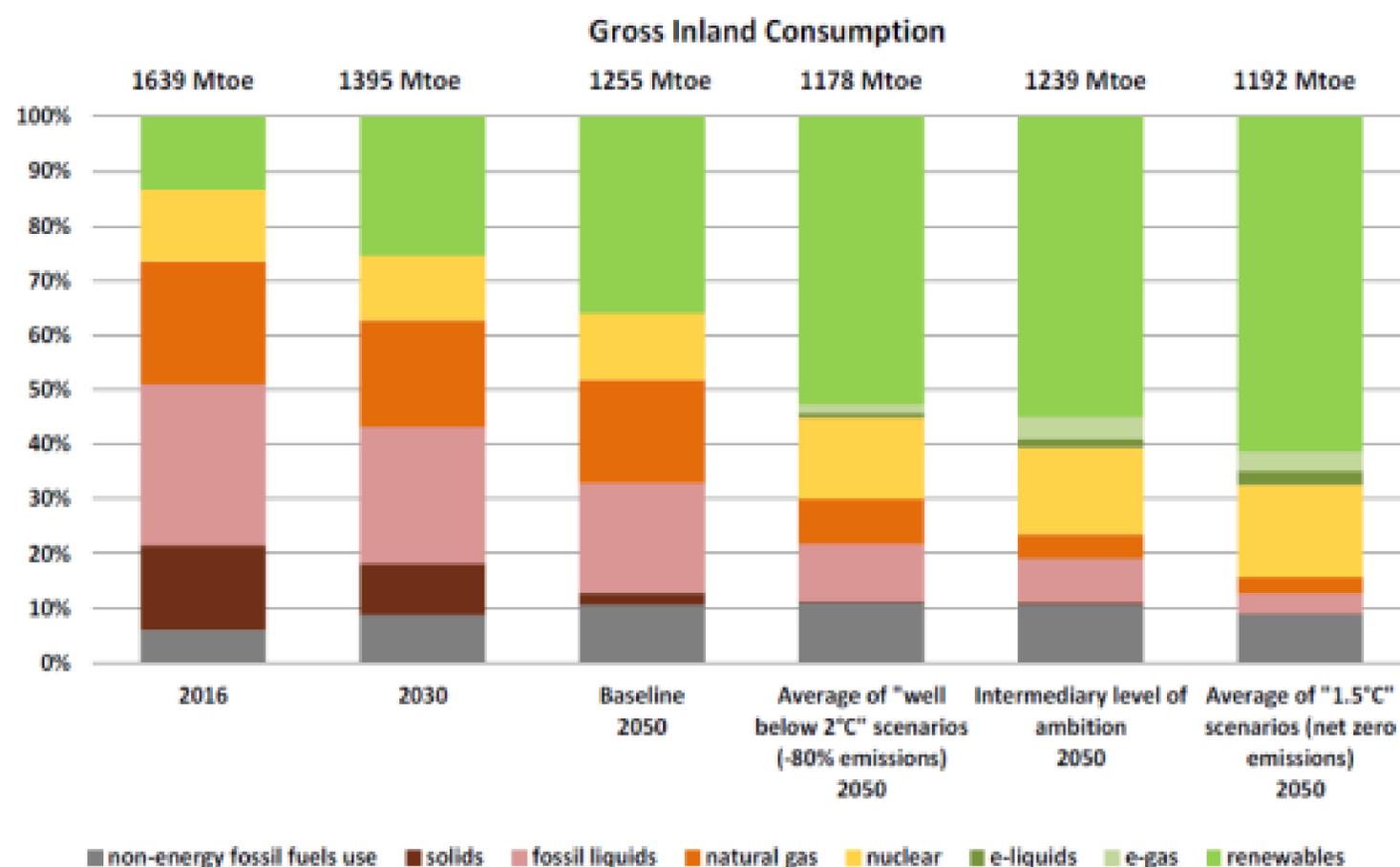


Figure 2. Fuel mix in Gross Inland Consumption

“The competitive deployment of renewable electricity provides a major opportunity for the decarbonisation of other sectors such as heating, transport and industry indirectly through the production of hydrogen via electrolysis”

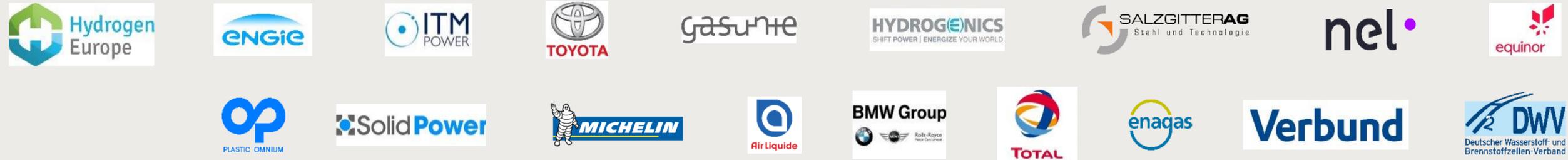
“Sustainable renewable heating [for existing buildings and many industrial applications] will continue to play a major role in particular gas mixed with hydrogen”

“Alternative fuels and hydrogen-based technologies (such as vehicles and vessels based on fuel cells) should be considered for long-haul trucks and coaches, rail freight, shipping and inland waterways”

“A combination of electrification, the increased use of hydrogen, biomass and renewable synthetic gas can reduce energy related emissions in the production of industrial goods [...] while renewable hydrogen can be a feedstock for a number of industrial processes”



Besides CO₂ abatement, deployment of the hydrogen roadmap also cuts local emissions, creates new markets and secures sustainable employment in EU

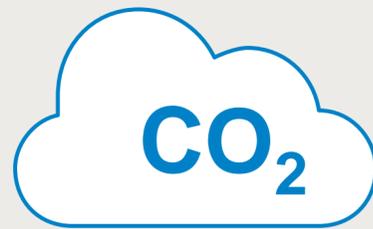


2050 hydrogen vision



~24%

of final energy demand¹



~560 Mt

annual CO₂ abatement²



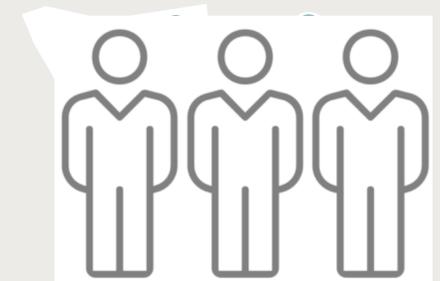
~EUR 820bn

annual revenue (hydrogen and equipment)



~15%

reduction of local emissions (NO_x) relative to road transport



~5.4m

jobs (hydrogen, equipment, supplier industries)³



1 Including feedstock 2 Compared to the reference technology scenario 3 Excluding indirect effects

SOURCE: Hydrogen Roadmap Europe team

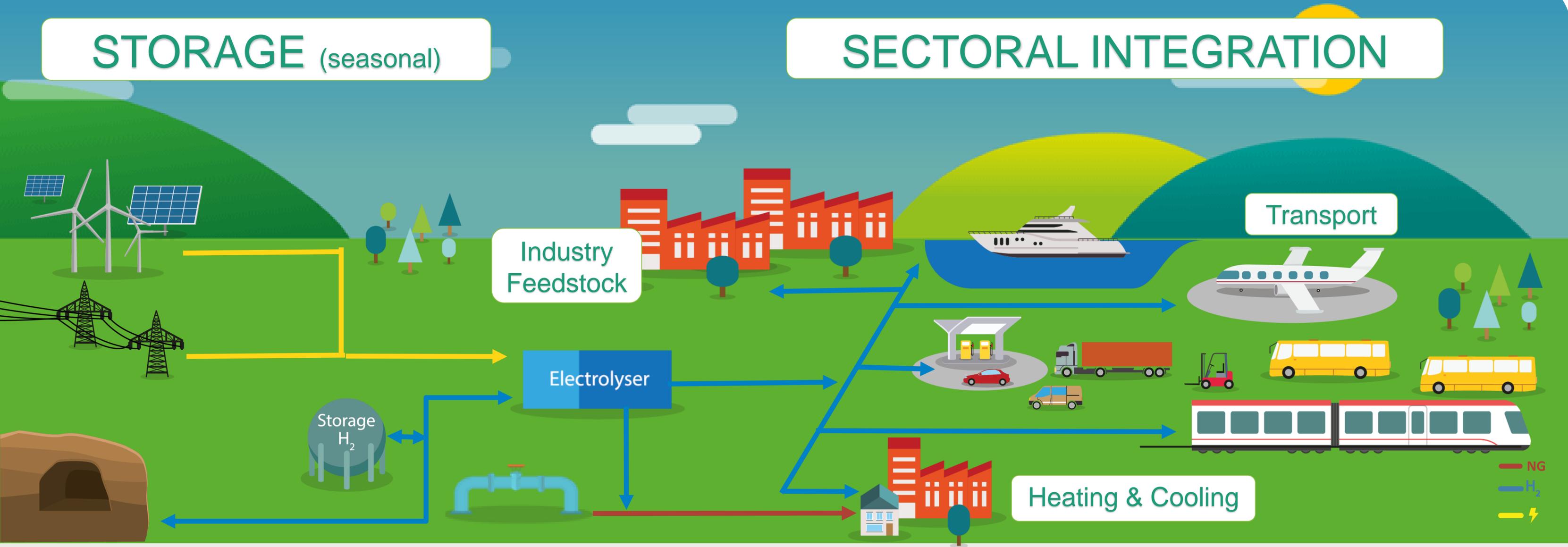
The role of hydrogen in our society & economy

Hydrogen allows more renewables in the energy system through storage and enables sectoral integration



STORAGE (seasonal)

SECTORAL INTEGRATION



Strong public-private partnership with a focused objective

EU Institutional Public-Private Partnership (IPPP)



Fuel Cells & Hydrogen Joint Undertaking (FCH 2 JU)



Industry grouping
More than 130 members
50% SME



European
Commission



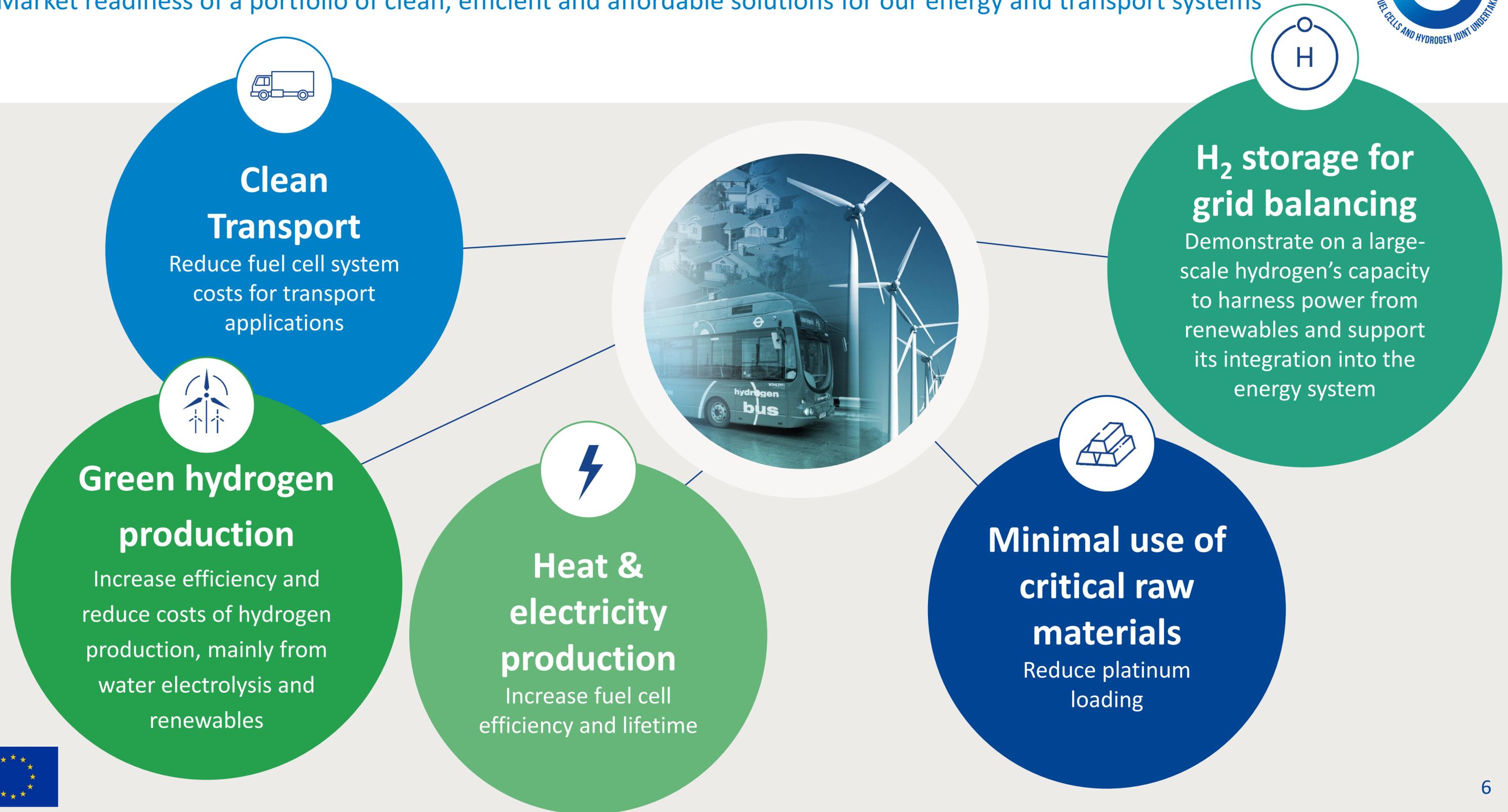
Research grouping
over 70 members

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



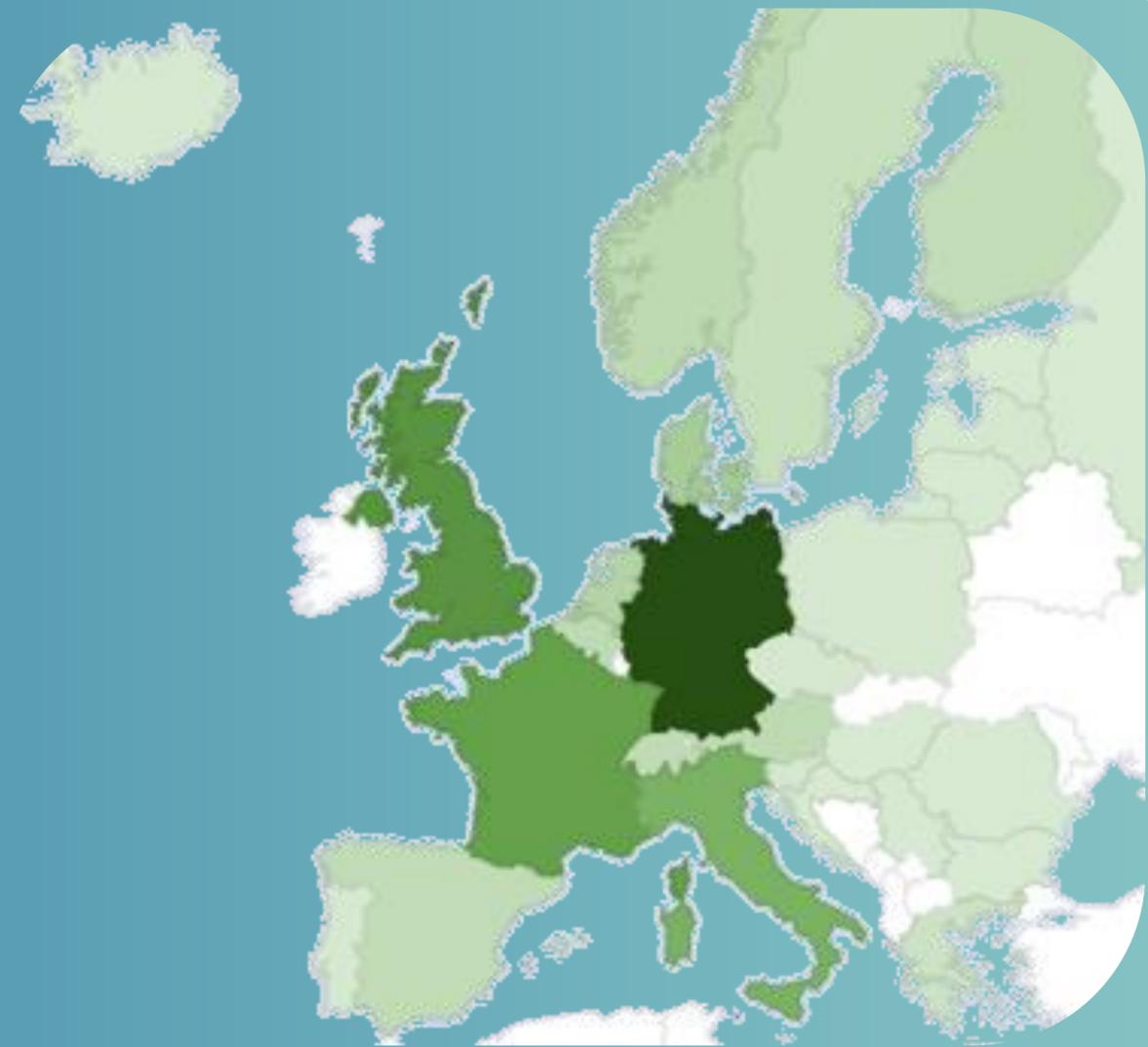
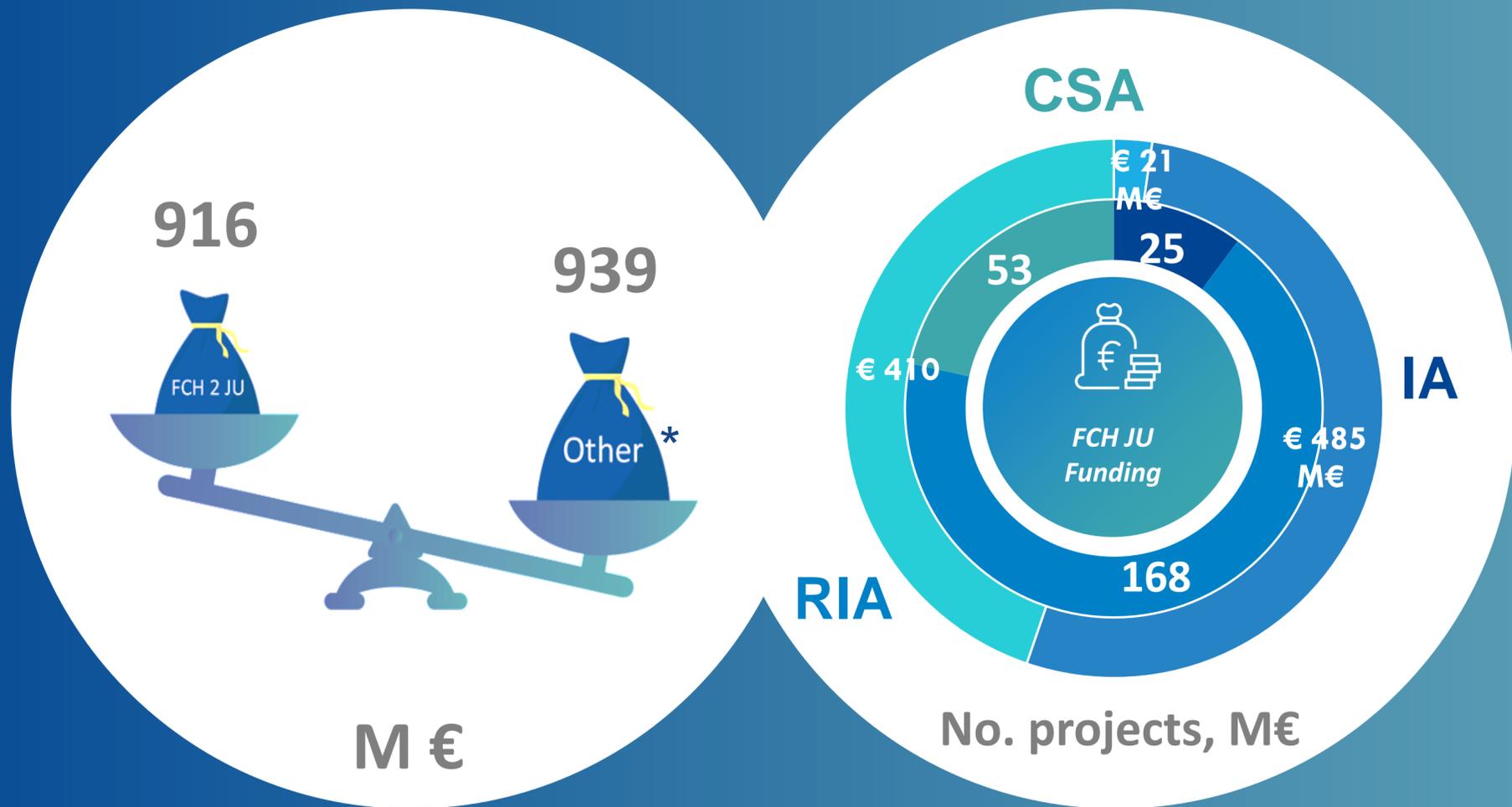
FCH 2 JU Objectives

Market readiness of a portfolio of clean, efficient and affordable solutions for our energy and transport systems



Attracting investment from industry and research

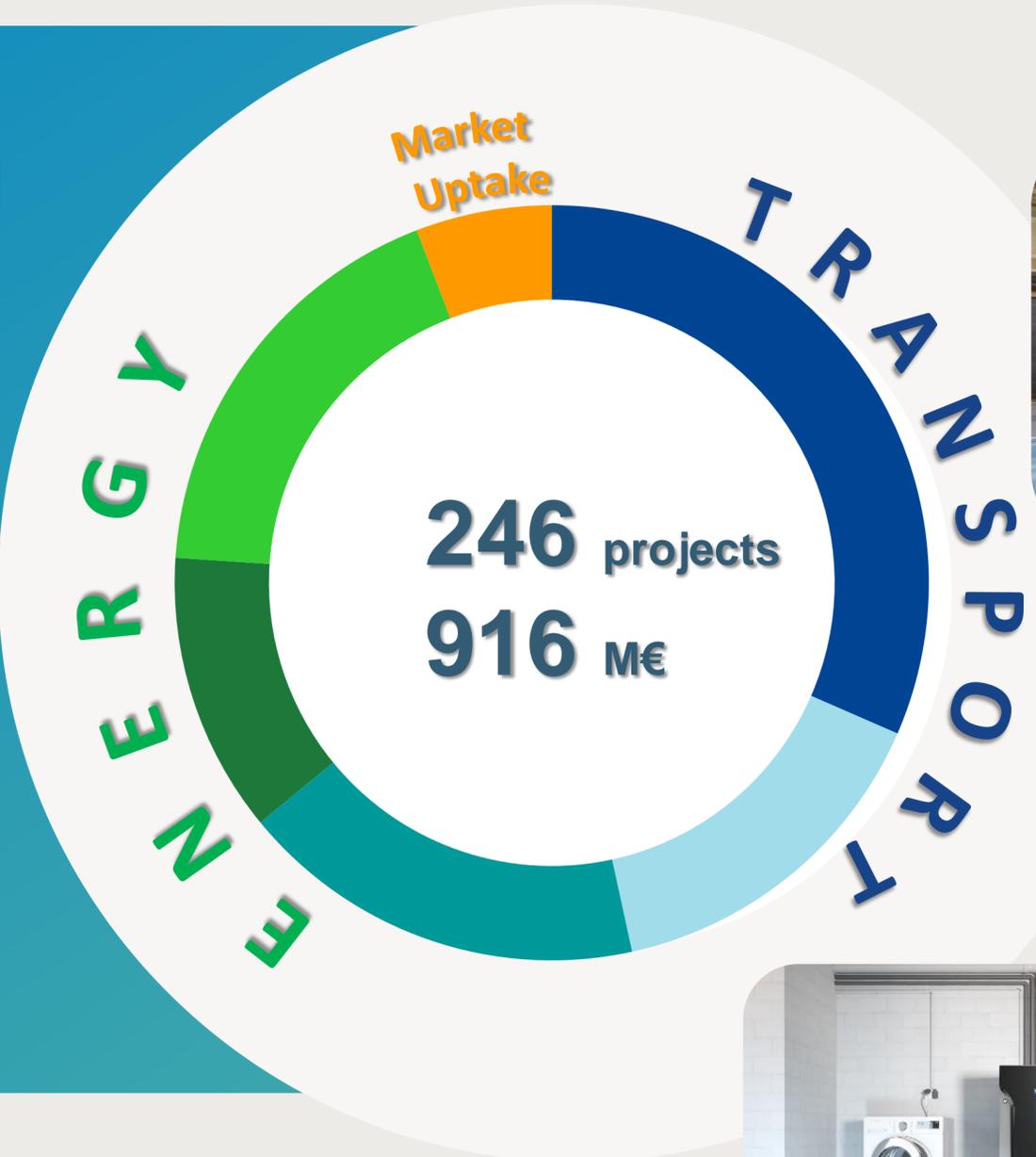
246 projects, 916 M€ public support, on both research and innovation activities



* Other resources including private and national/regional funding
 RIA=Research and Innovation action
 IA=Innovation actions
 CSA=Coordination and Support action

Complex portfolio of projects

From research to validation and field demonstration



■ Trials and deployment of fuel cell applications – Transport



■ Next generation of products – Transport

■ Trials and deployment of fuel cell applications – Energy

■ Next generation of products – Energy



■ Hydrogen for sectoral integration

■ Support for market uptake



IMPACT through projects results



 EU leadership in Electrolysers: key enabler technology for Sectoral integration, Energy storage, Decarbonizing industry & the gas grid

 Fuel cells for m-CHP: a success story - Products available, strong European supply chain actors, supporting European competitiveness

 Cars and small vans are at commercial standards; growing demand for FC buses and preparing to offer new solutions; Moving towards heavy-duty mobility

 Multidisciplinary approach to key safety-related issues; empowering the European FCH sector (education/training); sustainability/LCA; standards



FCH JU activities – 2019: a year full of IMPACT



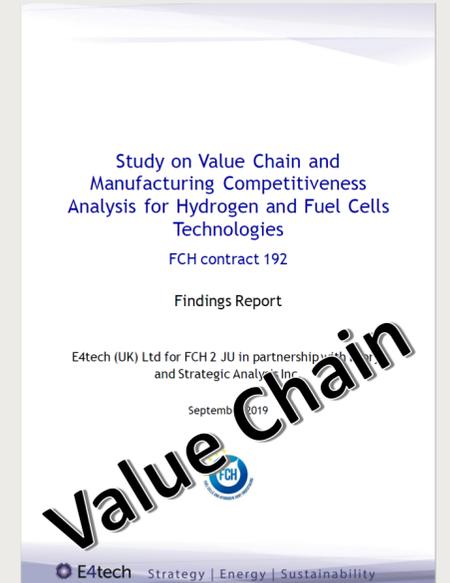
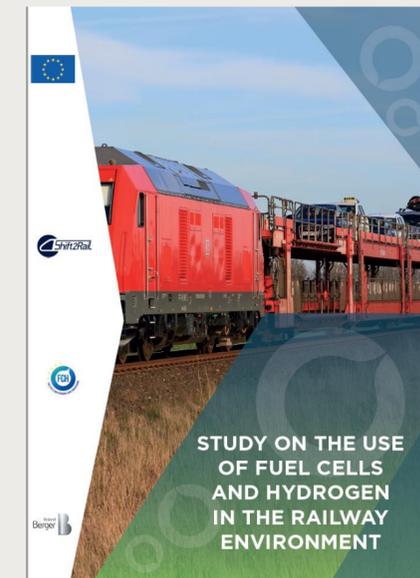
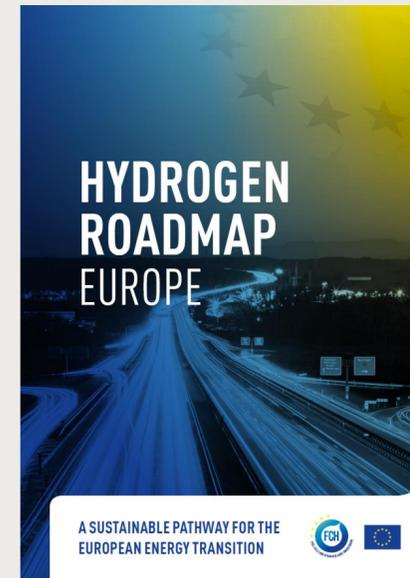
Events



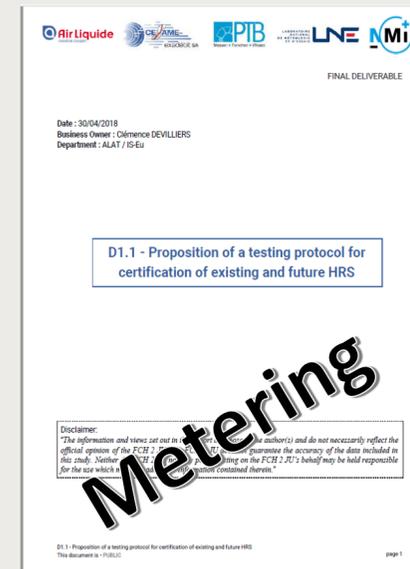
Final Conference



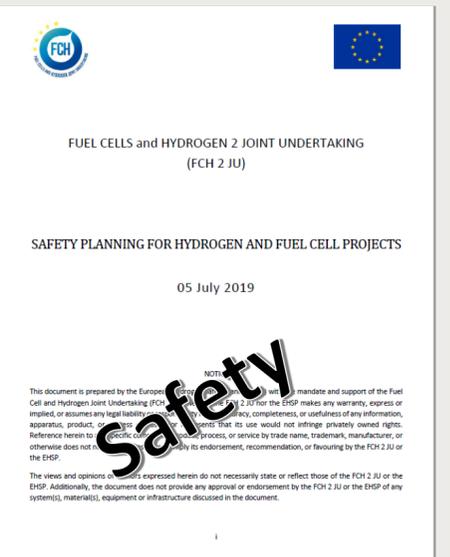
Publications/Initiatives



The Mission Innovation "Hydrogen Valleys" Workshop



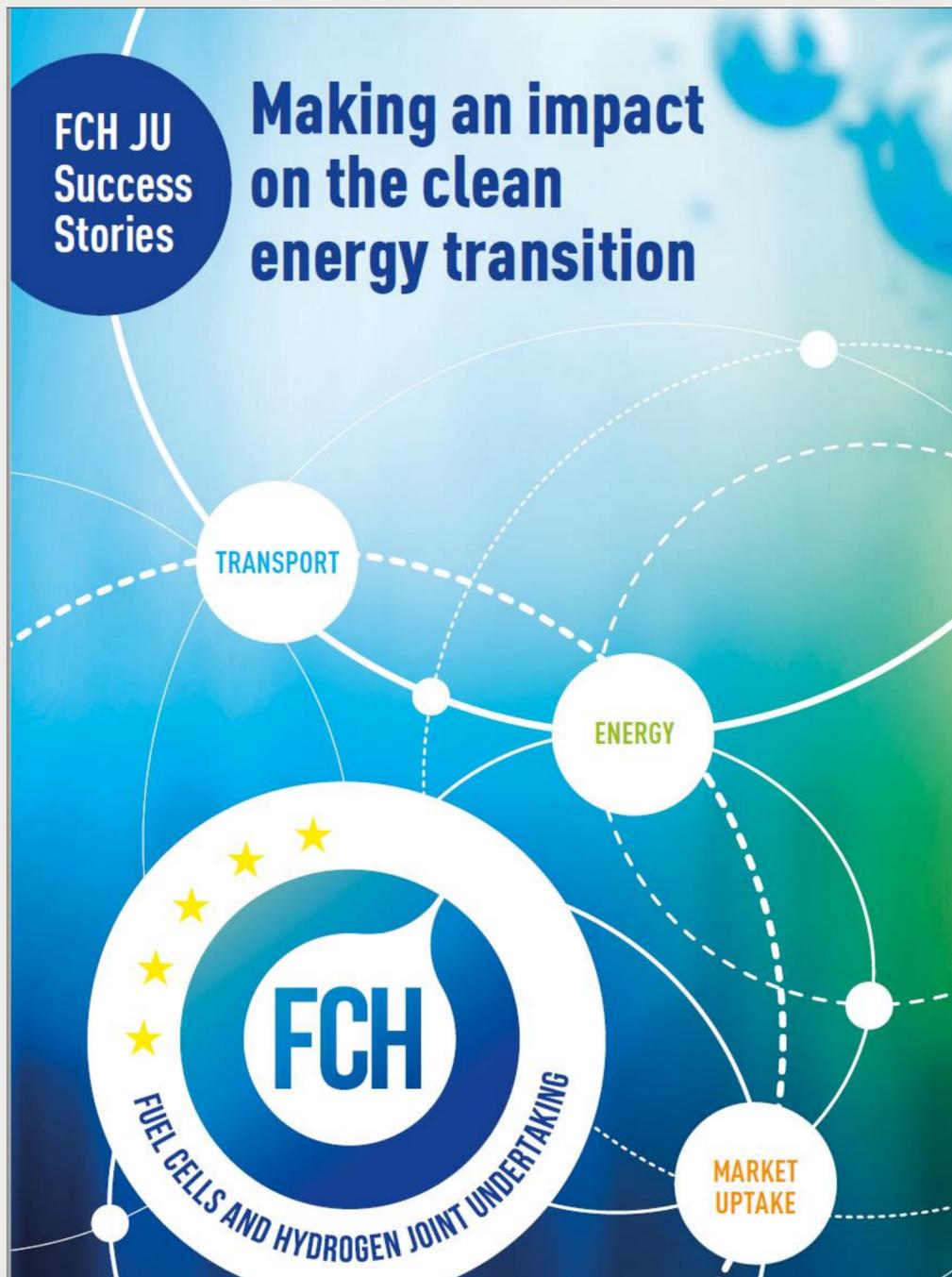
Metering



Safety

A collection of continuous success stories

Success Stories New Brochure



FCH JU AWARDS 2019

12 NEW Success Stories
12 NEW Project Innovations

~7000 votes

For →

- ✓ Best Success Story
- ✓ Best Project Innovation

Join us for the Awards Ceremony
on the 20th Nov. 2019
@Museum of Fine Arts



Annual Programme Review 2019

Exceptional effort of projects consortia, JRC and Programme Office



- **Annual Programme Review:** annual exercise of PO with support of EC Joint Research Centre (independent experts);
- Analysis by JRC of ongoing portfolio of projects (**81 projects** active in 2018 in this case) against SoA, targets and **Key Performance Indicators** set by the Multi-Annual Work-Plan (MAWP) and Annual Work-Plans (AWPs);
- Collection of annual input from projects (dedicated **EU-Survey Questionnaire**), in addition to contractual documents and project reports; parallel exercise of annual data collection from projects (**through TRUST templates**);
 - *Effort of team of project officers and knowledge management to validate, clean and analyse/extract data for publication; however, substantial amount of data still confidential;*
- Programme Review Days is a **two-day annual event (and communication of results)**:
 - Selected ‘**success stories**’ presentations in **7 different sessions**;
 - **81 project posters** (digitally displayed);
- **Final Programme Review Report (autumn 2020).**

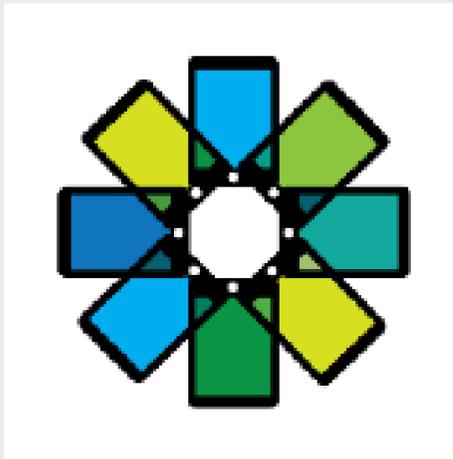


PRD & SF Mobile APP

5 simple steps !



Download the app by going to App Store or Google play and search for “**AppInConf Conference & Events**” icon:



Code “fch2019”

Download FCH 2019



1. Scan QR Code & download

--- OR ---

1. Search for “AppInConf Conference & Events” on App Store or Google Play



2. Click on the +
3. A text field will appear
4. Type in the code: fch2019
5. Downloading will begin
6. FCH 2019 is ready to use



Access: the programme, projects presentations, posters and sli.do



POLLS, Project Questions, Q&A: SLIDO!

Interact and engage through Sli.do



During the Programme Review Days 2019, use Sli.Do! to ask your questions and answer our questions/polls...

Use your smartphone; go to www.sli.do and insert the code **#PRD2019**

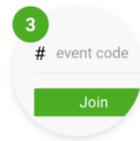
3 easy steps
for your audience to join in



Open browser



Go to slido.com



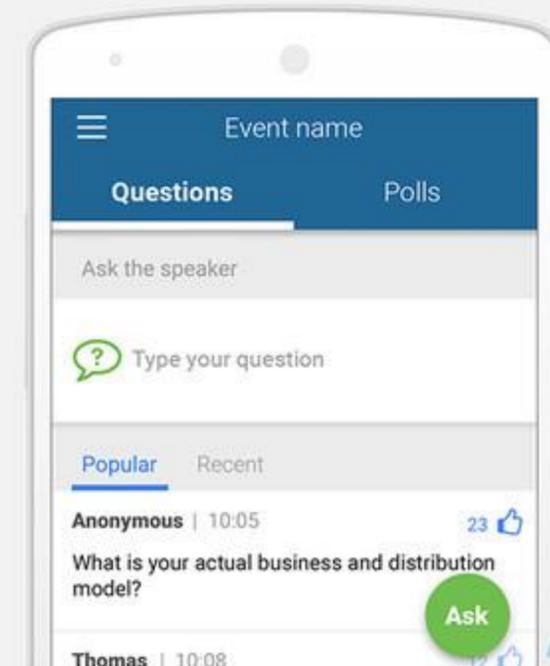
Enter event code

Or



Join the conversation
at your event

- ✓ ask questions
- ✓ vote on live polls





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