



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

***The important role
of Regions and
cities in Hydrogen***

Bart Biebuyck
17 10 2019 Groningen NL



Strong public-private partnership with a focused objective

A combined private-public of 1.85 billion Euro has been invested to bring products to market readiness by 2020



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**Hydrogen Europe**
Industry grouping
>130 members
50% SME

**European Commission**

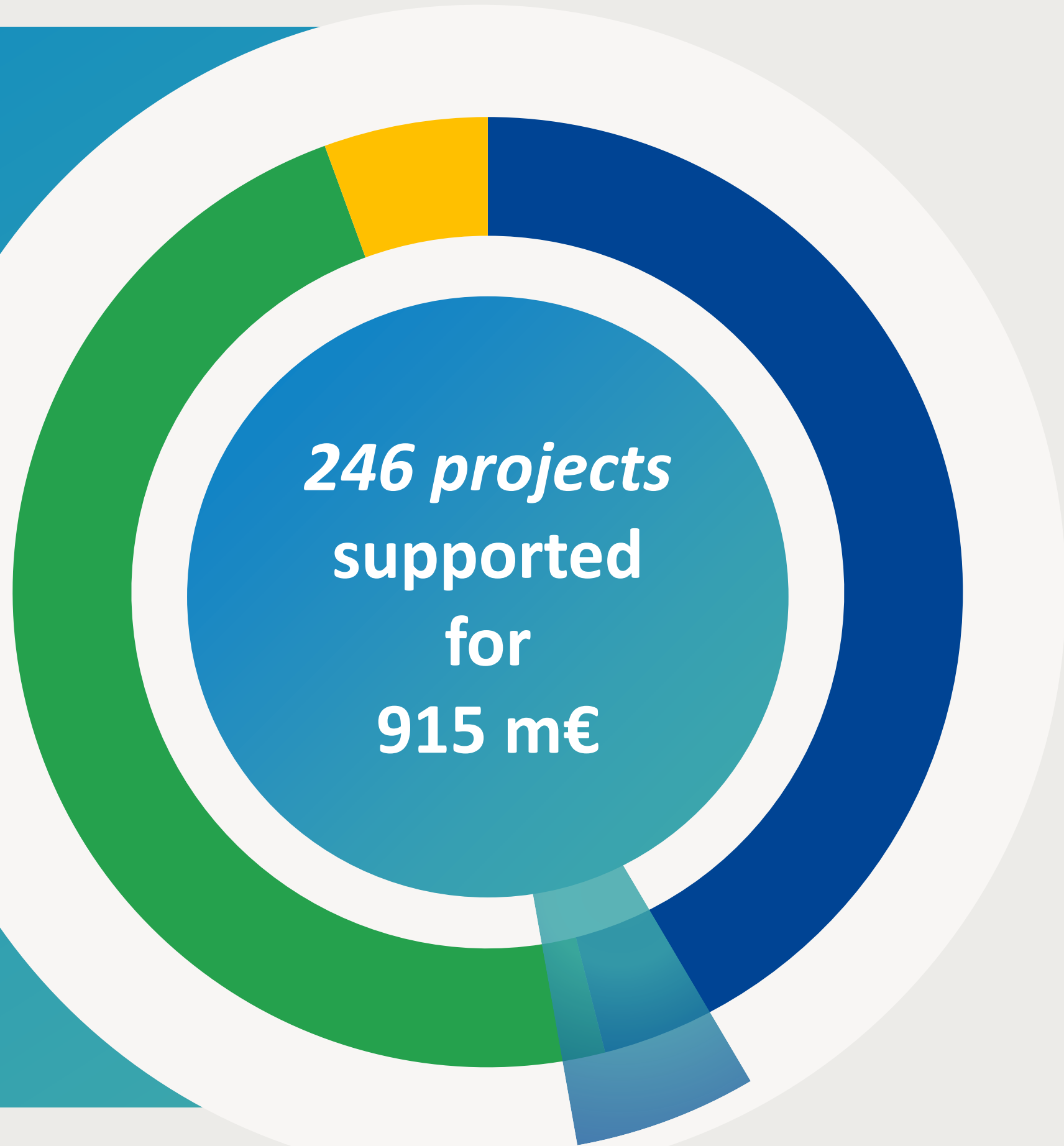
**Hydrogen Europe Research**
Research grouping
70 members




Energy
H₂ production and distribution
H₂ storage
F/C for CHP

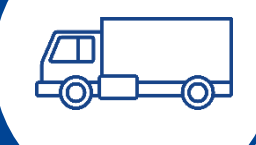
Transport
Road vehicles
Non-road vehicles
Refueling infra
Maritime, rail and aviation applications

Cross-cutting
standards, safety, education, consumer awareness, ...




47 % 


428 million euros
136 projects

42 % 

388 million euros
66 projects

6 % 

53 million euros
40 projects

 5 %

46 million euros
4 projects



Similar leverage of other sources of funding: 935 m€

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



2

~560 Mt

annual CO₂ abatement²



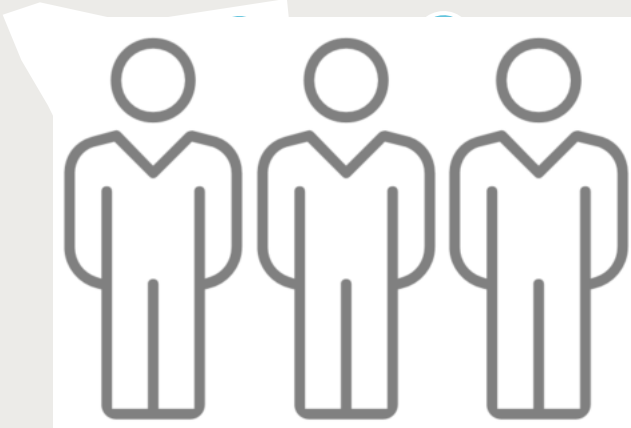
~EUR 820bn

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

Overview of FCH JU activities in the Netherlands



THE NETHERLANDS

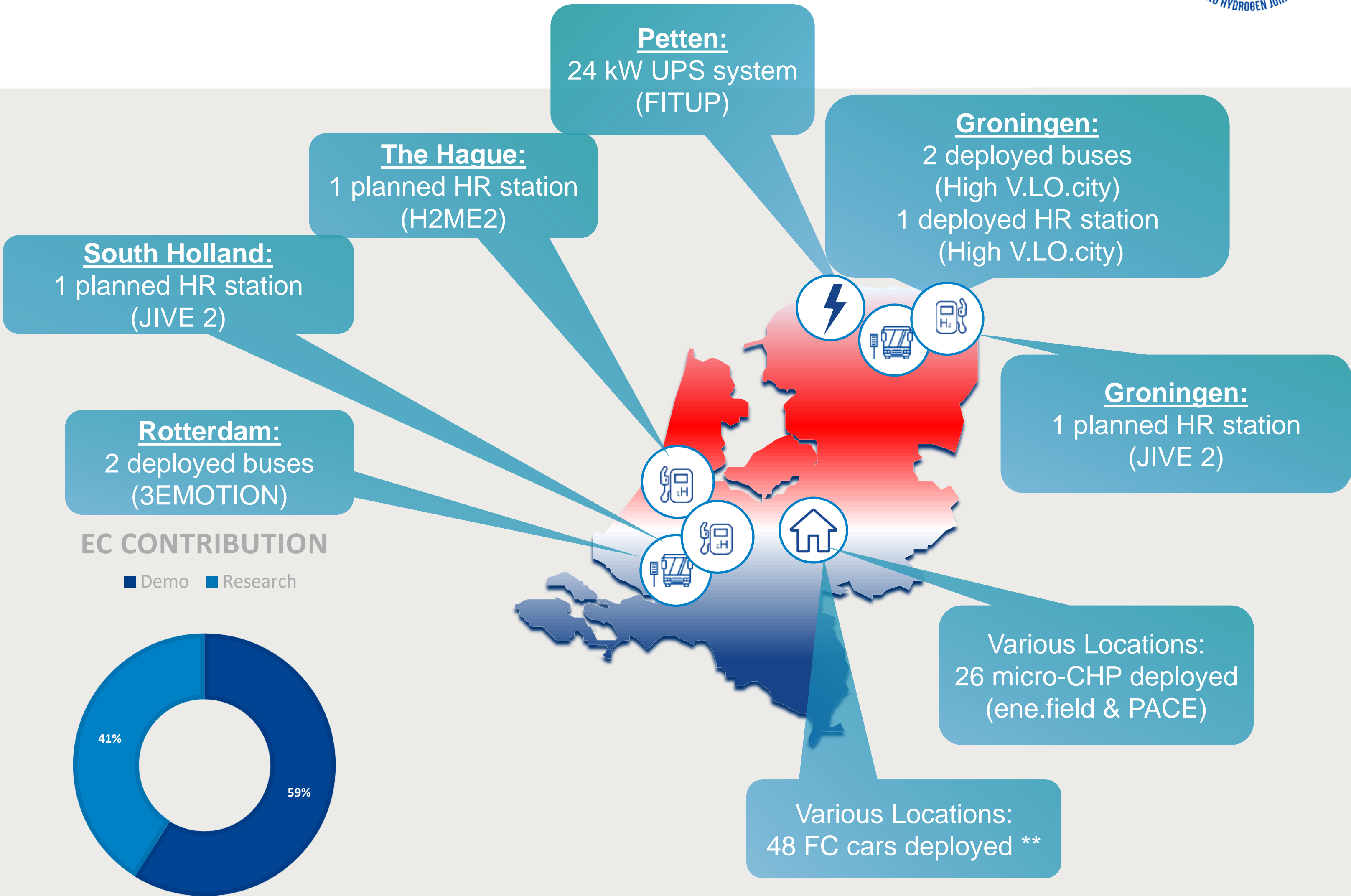
54.7 Mil € FCH JU contribution*
50 Beneficiaries
73 Projects



**6 % of FCH JU funding is higher than NL European union contribution*

On the road to deployment..

- 19 pre-ordered FC cars
- 54 planned FC buses
- 11 planned FC trucks
- 67 planned micro-CHP



During the next few months, 3 more contracts will be signed related to NL for > €30 M

** Not directly related to FCH JU activities

Towards a H₂ Valley

FCH-JU initiative: 92 Regions/Cities from 22 countries (about 25% of EU) study to:

- (1) assess FCH applications,
- (2) identifying financing/funding options
- (3) develop roadmaps,
- (4) engage their stakeholders



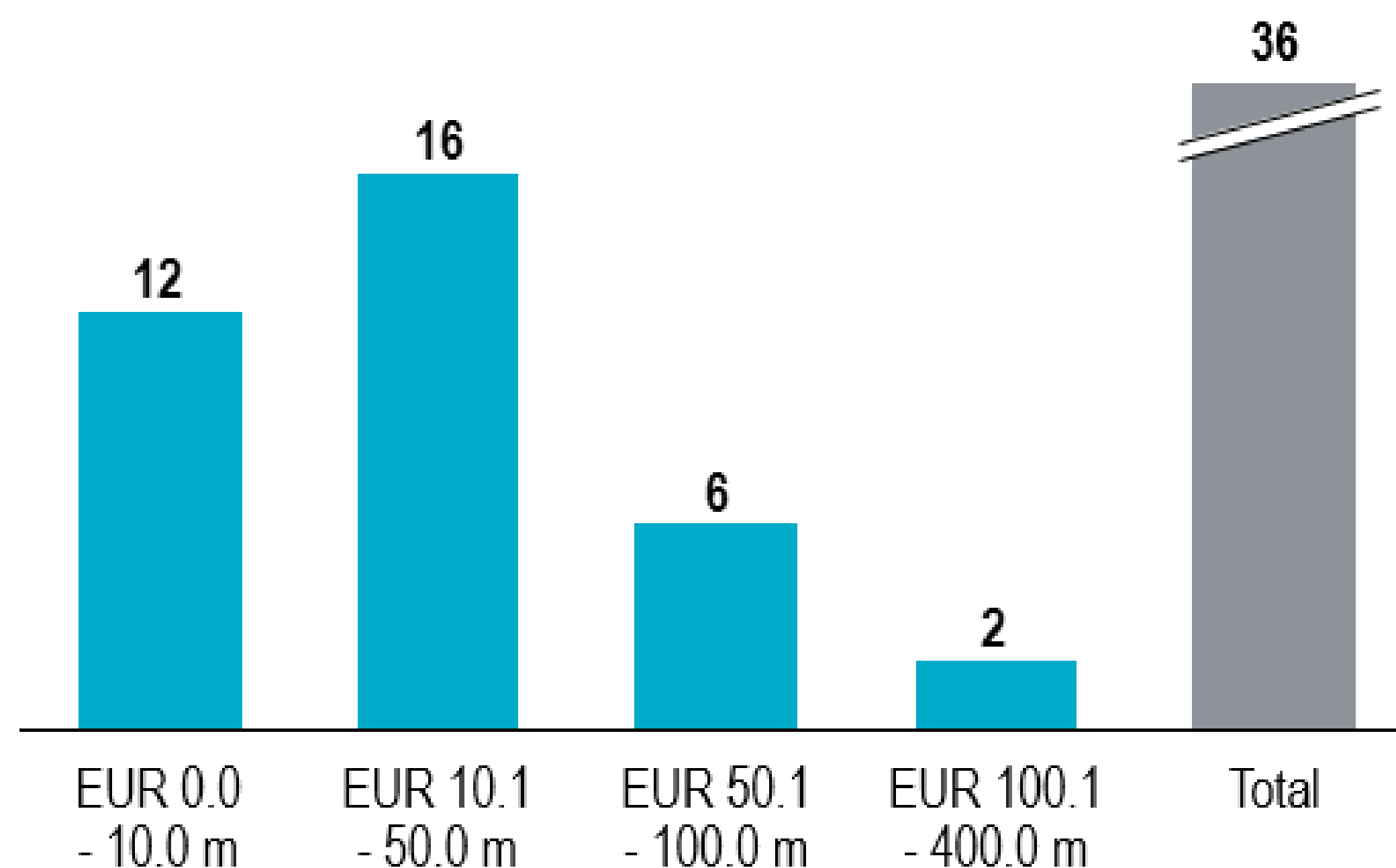
Signing ceremony 23 Nov. 2016 with CoR President Markku Markkula + FCH-JU and 40 regions

Planned deployments result in total investments of >EUR 1.8bn in the next 5 years – Majority small to medium sized projects



Envisaged investment volumes for next implementation projects

Total investment volume [EUR m]	51.3	528.9	499.1	770.0	1,849.3
Ø project budget [EUR m]	4.3	33.1	83.2	385.0	51.4



High future FCH investment volumes

- > Participants indicate significant investments in FCH projects in the next 5 years and beyond
- > Typically, regions with no FCH experience so far start with smaller projects and investments
- > Nevertheless, some newcomer regions intend to make significant investments of up to EUR 50 m as well
- > Overall investment volume is driven by a few very large projects which aim at realising very ambitious investment plans



H₂ Valley Support for 20 Million Euro (Call Jan. 2019)

6 proposals received and 1 selected to start the grant preparation



HEAVENN KEY FACTS:

- North Netherlands (Groningen / Delfzijl / Emmen)
- Total project circa 90 million Euro
- 31 partners (public + private)
- Project supported by 65 parties (Nat. + Int.)
- Electrolysis for green H₂ production,
- H₂ Mobility: buses, passenger cars and trucks
- H₂ Refueling stations
- E-Kerosene for aviation
- H₂ for an inland water transport barge
- Domestic Heat applications
- Underground H₂ storage (Hystock)



Hydrogen Valleys Partnership (European + Worldwide)

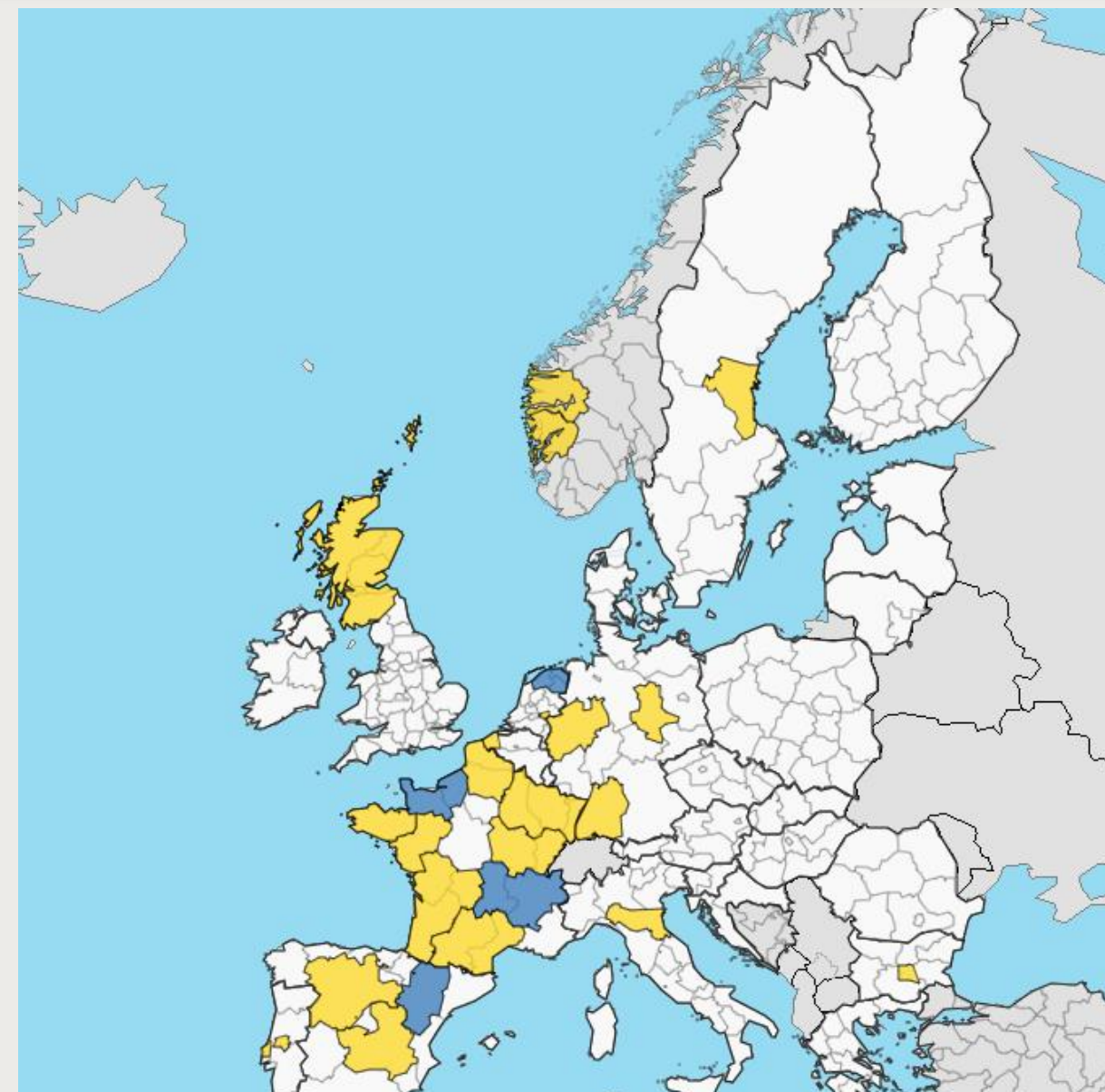
Established under the EC smart specialization platform for Industrial Modernization



European Hydrogen Valleys Partnership launched May '19 at EVS 32 in Lyon



<http://s3platform.jrc.ec.europa.eu/hydrogen-valleys>



Partnership led by:

- North of Netherlands (NL)
- Auvergne-Rhône Alpes (FR)
- Le Normandy (FR)
- Aragon (ES)

32 regions joined and more will follow.

Mission Innovation IC#8 hydrogen Workshop

(27/28 March '19 Antwerp, BE)



Tender: Platform for Exchanges Between Worldwide Initiatives on Hydrogen Valleys:

To set-up a global Information Sharing Platform within MI-IC8, to facilitate the emergence and implementation of large-scale hydrogen projects and leveraging the knowledge where IPR issues are less sensitive.

STATUS: Several proposals received, evaluations on-going, more info will follow soon

NEXT

Yearly program review days and stakeholder forum



Program Review days
19 & 20 Nov. 2019
Stakeholder Forum
21 Nov 2018
Charlemagne building Brussels,
Belgium

Registrations just opened





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FCH JU