



Introduction to portfolio of Transport demo Programme Review Days 2015

Enrique Girón - Project Manager



<http://www.fch.europa.eu/>

This session

PARALLEL SESSIONS ON TECHNOLOGY DEMONSTRATION PROJECTS

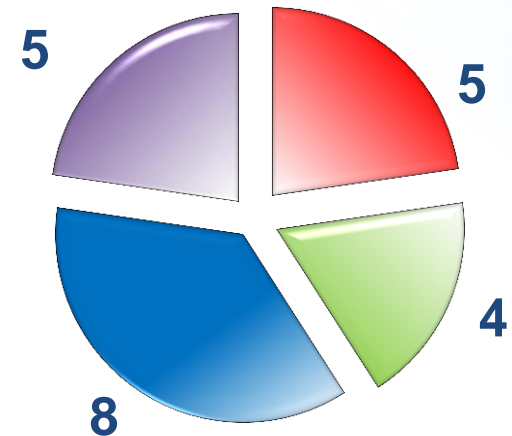
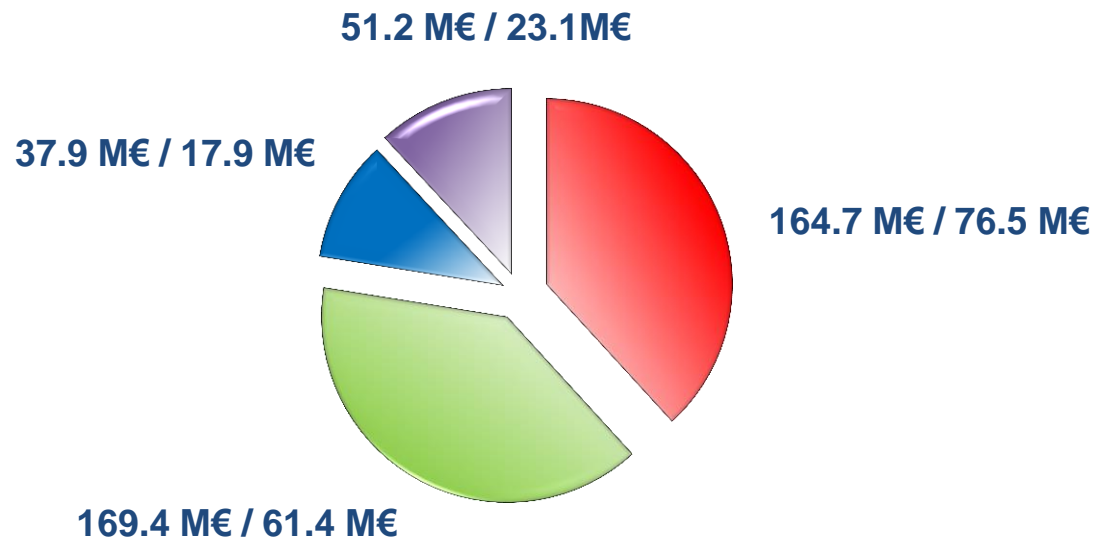
14:45 - 15:00	Introduction to Transport portfolio: Enrique Girón (Lord Jenkins Room, ground floor)	Introduction to Energy portfolio: Mirela Atanasiu (Alcide de Gasperi Room, 2 nd floor)
15:00 - 15:05	Q&A	Q&A
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	Panel - Cars	
	Moderators: Carlos Navas and Eden Mamut	Moderators: Mirela Atanasiu and Deborah Jones
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Transport demonstration projects

Combined financial contribution: 183.1 M€

Budget: total/financial contribution

Number of projects funded

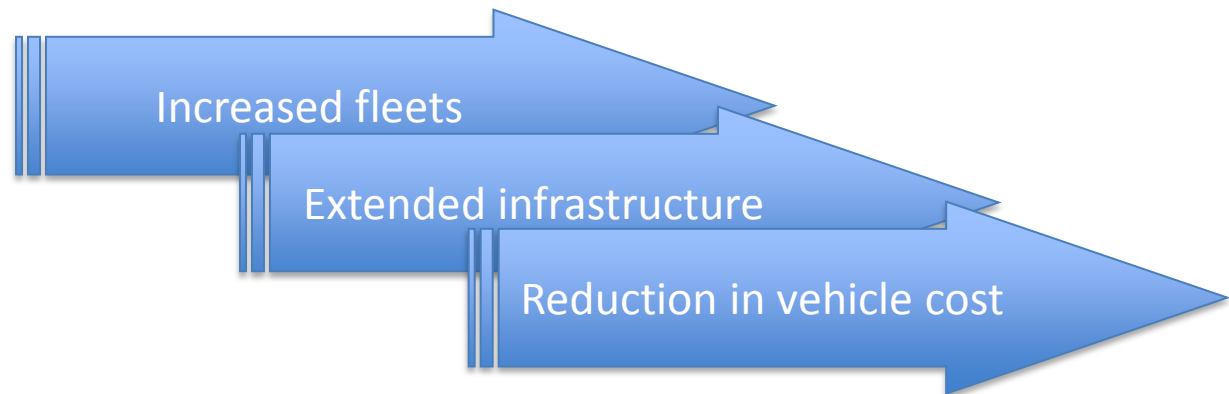
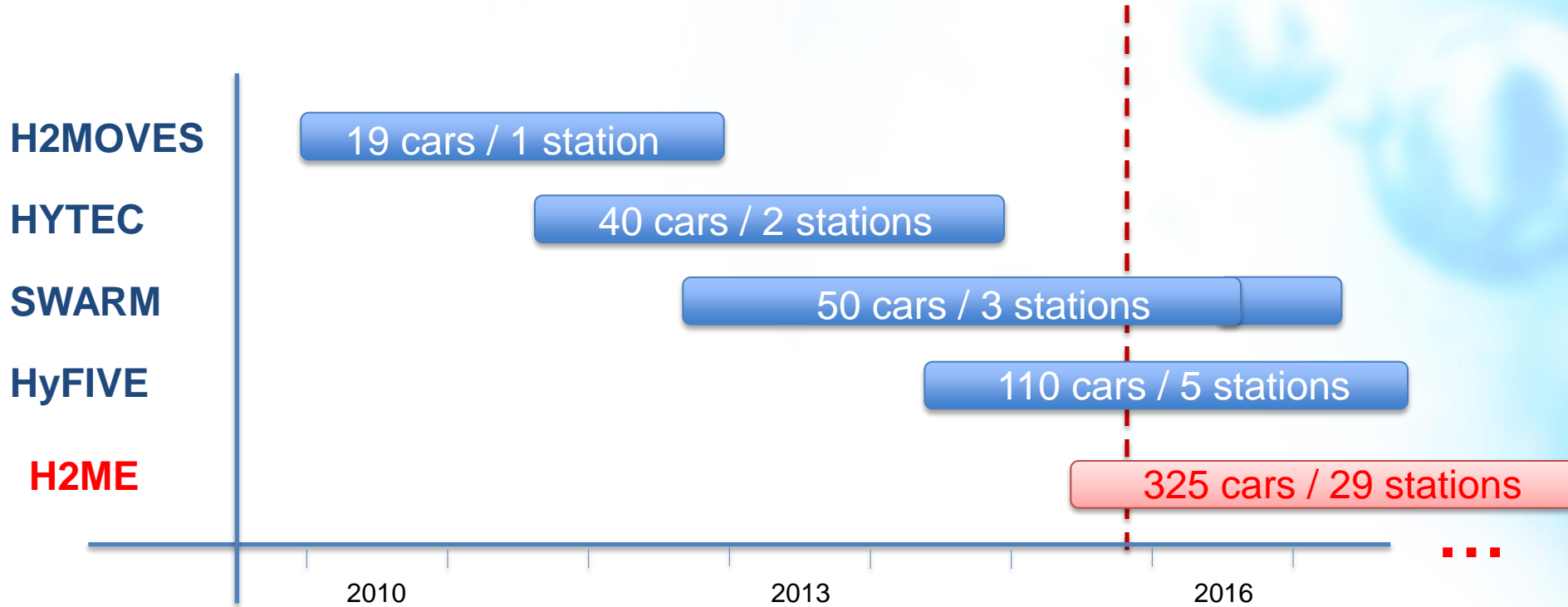


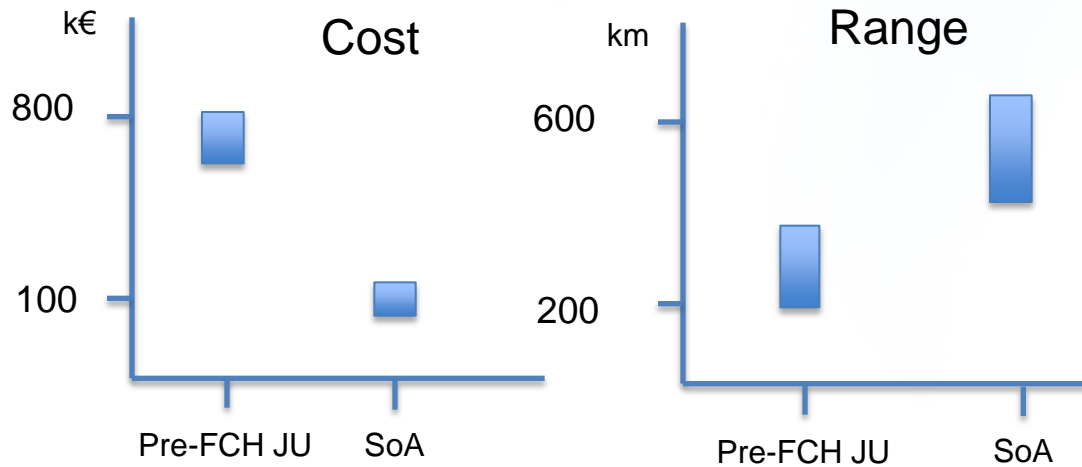
 Cars

 Buses

 APUs

 MHV





Cold start



Refilling time



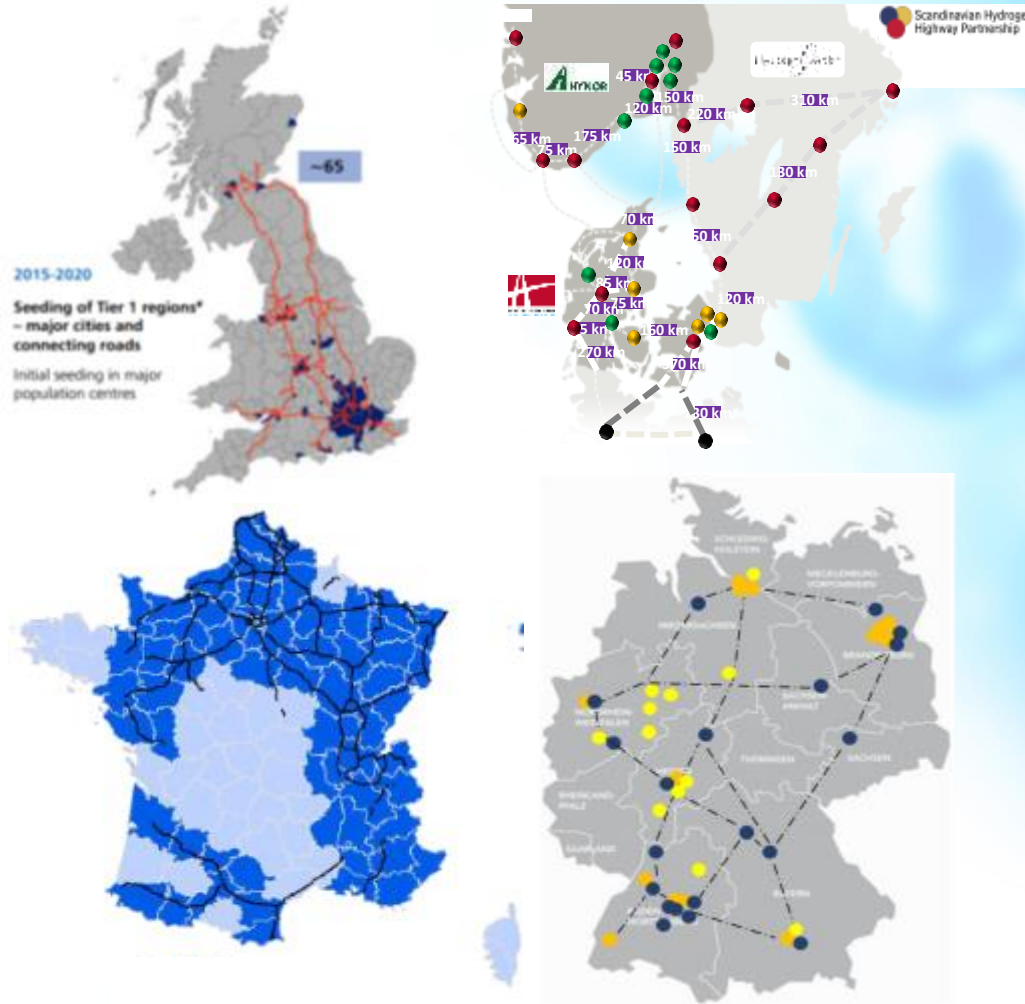
- Product ready for commercialization
- Range extenders
 - An option to increase volumes
 - Different business model

Infrastructure:

- Availability problems
- Need for redundancy - refilling station net density

Advanced FCEV and HRS programs

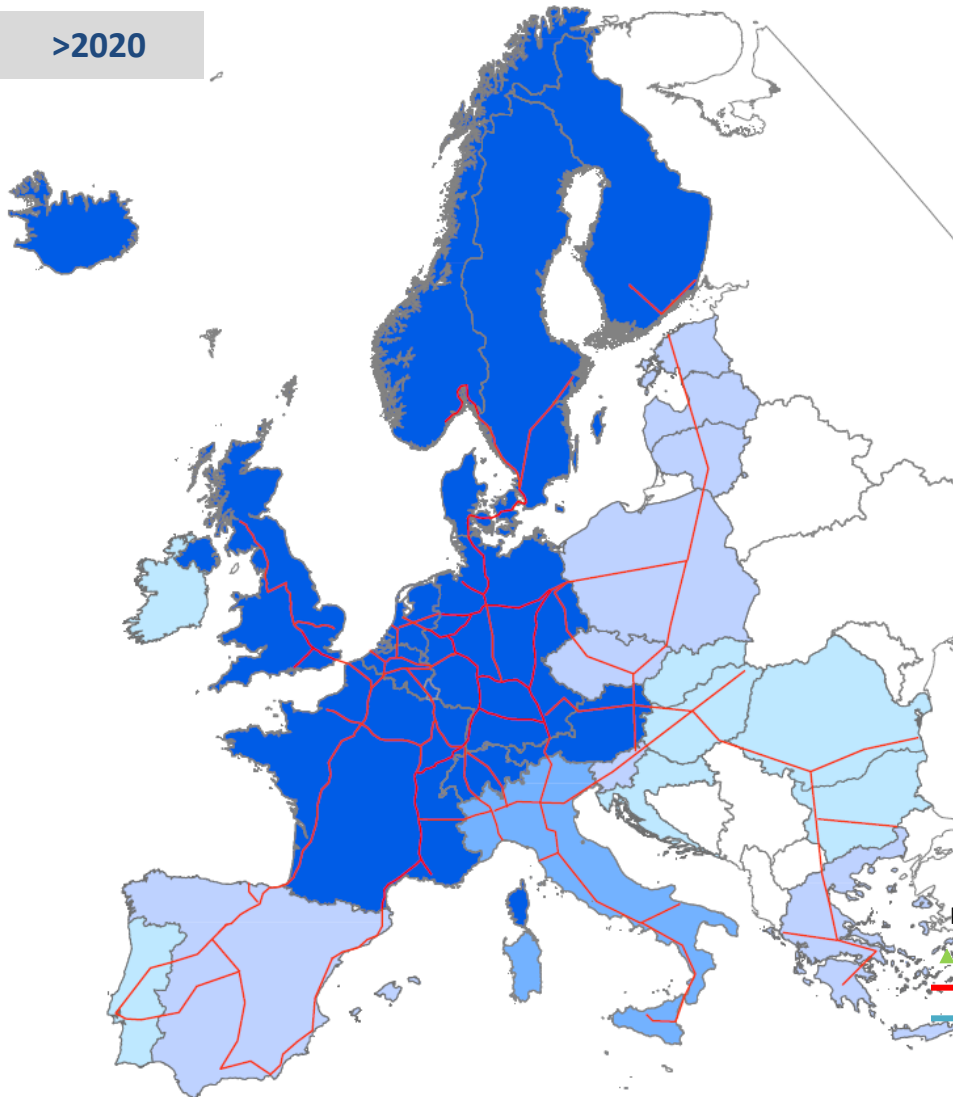
- **France** – a large private consortium has agreed a strategy based on a transition from captive fleets to nationwide infrastructure for FCEVs.
- **Germany** –
 - 50 H2 stations by end of 2015 under the Clean Energy Partnership. Government and industry invest jointly over 40 M€.
 - the H2Mobility project has already signed a “term sheet” linking six industrial players to deploy 100 stations by 2017 and 400 by 2023 for 350 M€.
- **Scandinavia** – An initial network provides coverage for FCEVs, which can be purchased at equivalent ownership cost.
- **UK** – a consortium with significant Government presence has agreed a strategy based on seeding a national network of 65 stations by 2020. 7.5M€ have been committed by the Government for 15 HRS by 2015.



Similar initiatives are starting or running in other countries: **Austria**, **Belgium**, **Finland**, **Netherlands** (plan to be published before the end of 2014), **Switzerland**.

Likely implementation of the network by 2020 onward (>80 kg/day stations)

>2020



France 🇫🇷

- The French network will keep on expanding with **30-40 HRS** by 2020 and **100 HRS** by 2023

Germany 🇩🇪

- The German network will keep on expanding with **400 HRS** in 2023

Netherlands 🇳🇱

- The Dutch network will keep on expanding with **20 HRS** by 2020 and **40-50 HRS** by 2023

Scandinavia 🇩🇪 🇸🇪 🇳🇴 +

- The Scandinavian network will keep on expanding with **35-40 HRS** by 2020 and **50 HRS** by 2023

UK 🇬🇧

- The UK network will keep on expanding with **60-70 HRS** by 2020 and **100 HRS** by 2023

Key:

>80 kg/day HRS by 2015

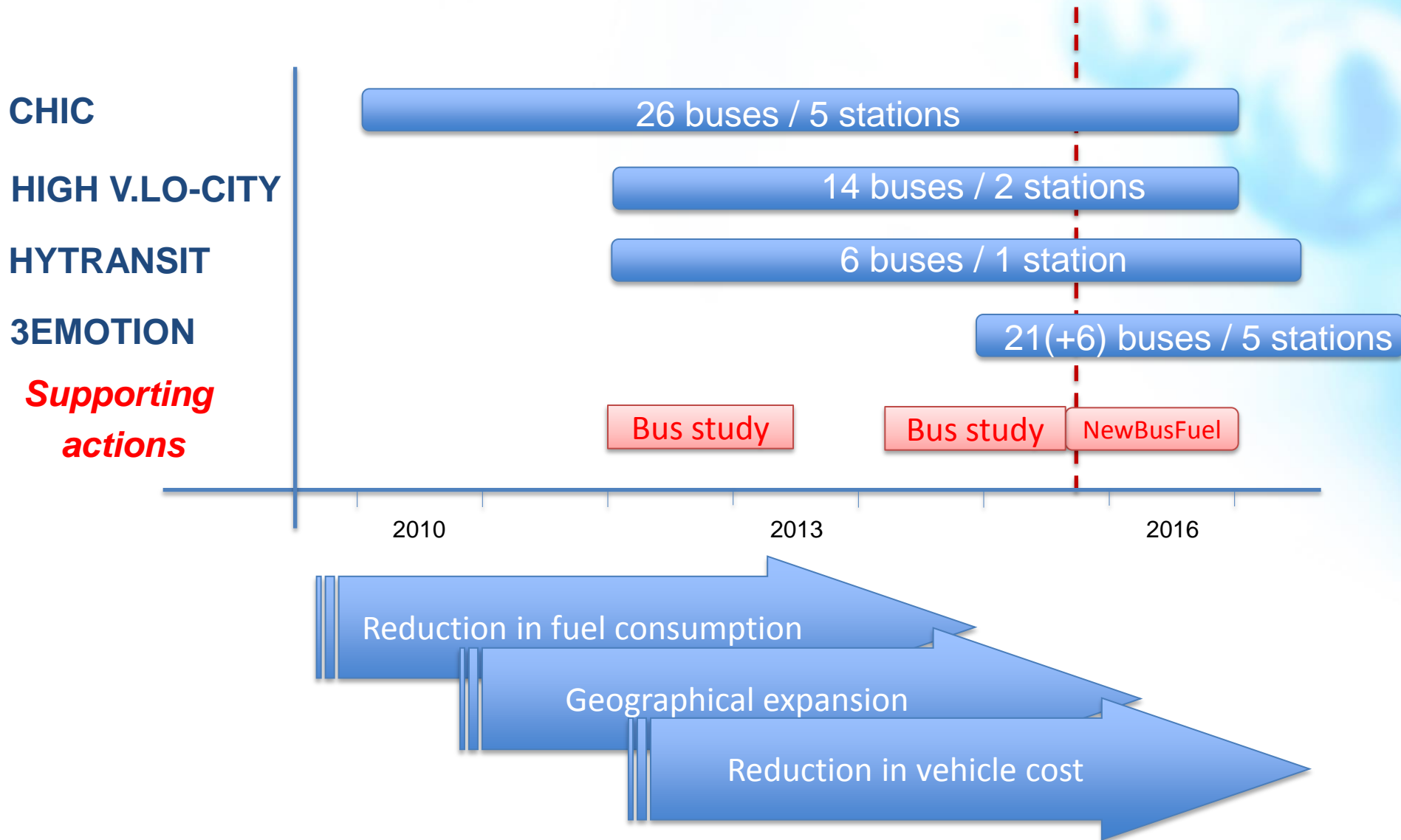
TEN-T Corridors

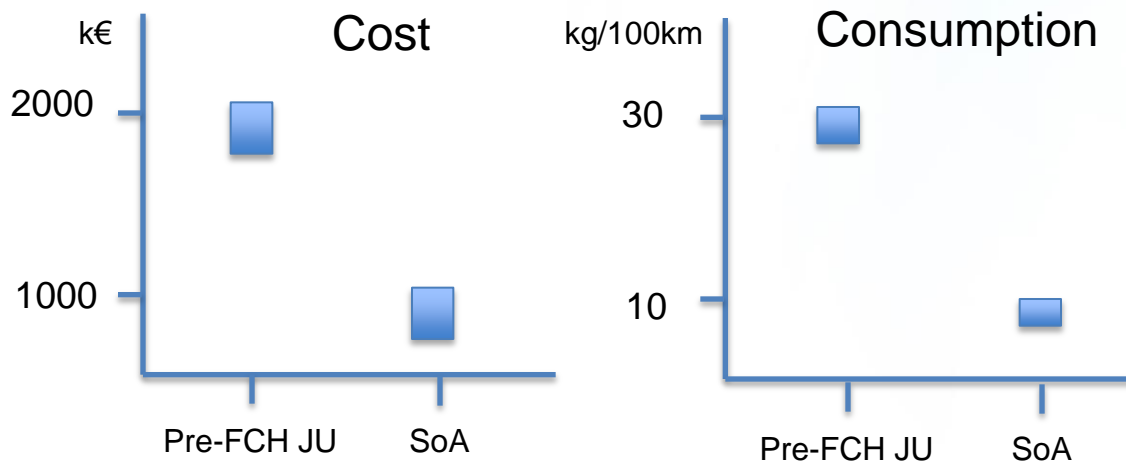
TEN-T Corridors linked by early HRS

■ Nations with H₂Mobility initiatives

■ Nations with some activity and/or H₂Mobility initiatives starting

■ Follower countries starting to develop infrastructure





Refilling time

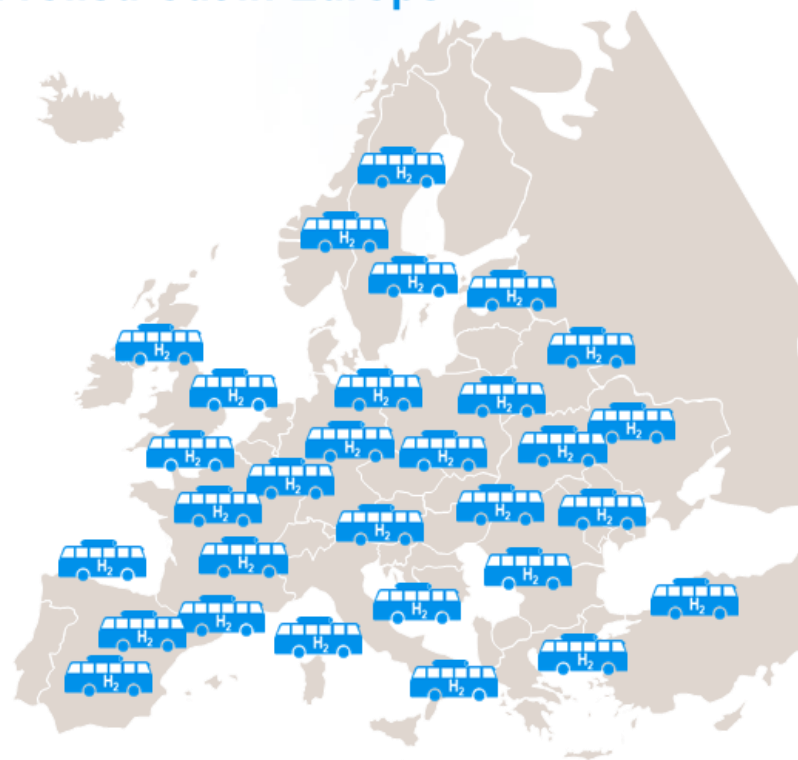


- Availability and price remain the main barriers
- Teething problems of new generation hybrid buses
- Uncertainty about large fleets per depot

Infrastructure:

- Availability: solved through redundancy
- Uncertainty about larger scale HRS

**VISION –
FC electric buses commercially viable
and rolled-out in Europe**



2020 onwards

A broad stakeholder coalition of > 80 organizations has been established
 - Operators and local governments from 45 locations

Participating locations



Industry coalition members

Bus manufacturers



Infrastructure/H₂ providers

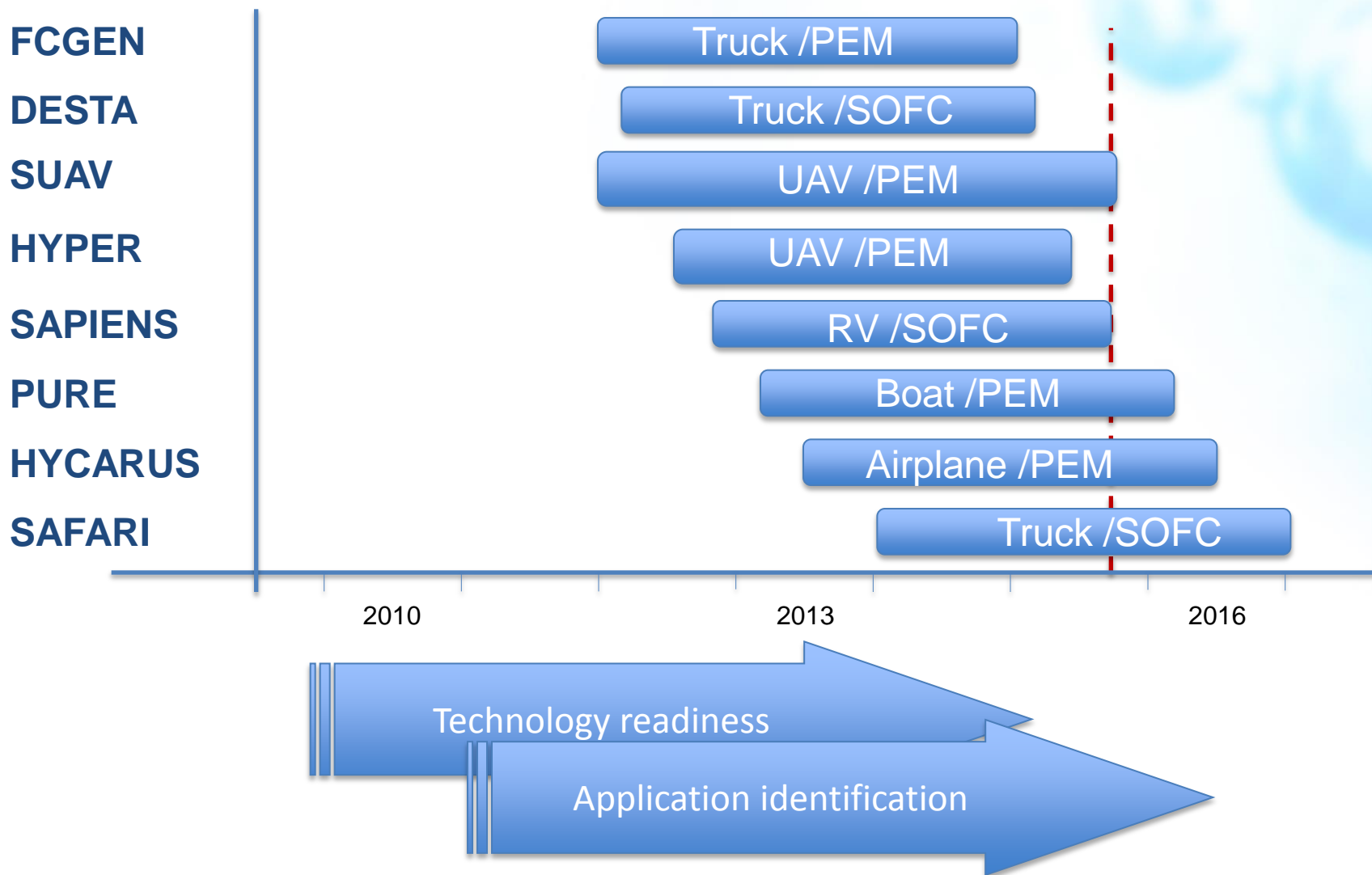


Technology providers

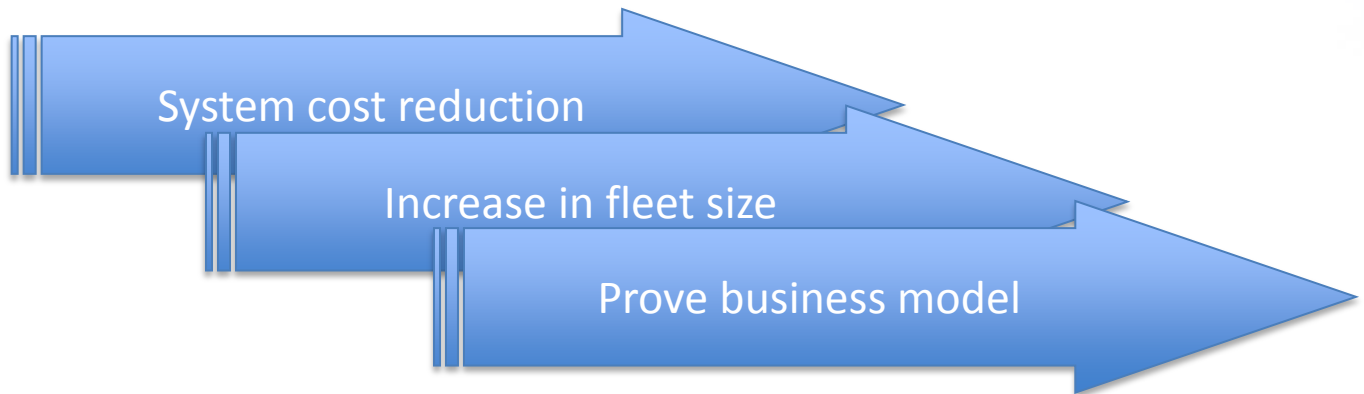
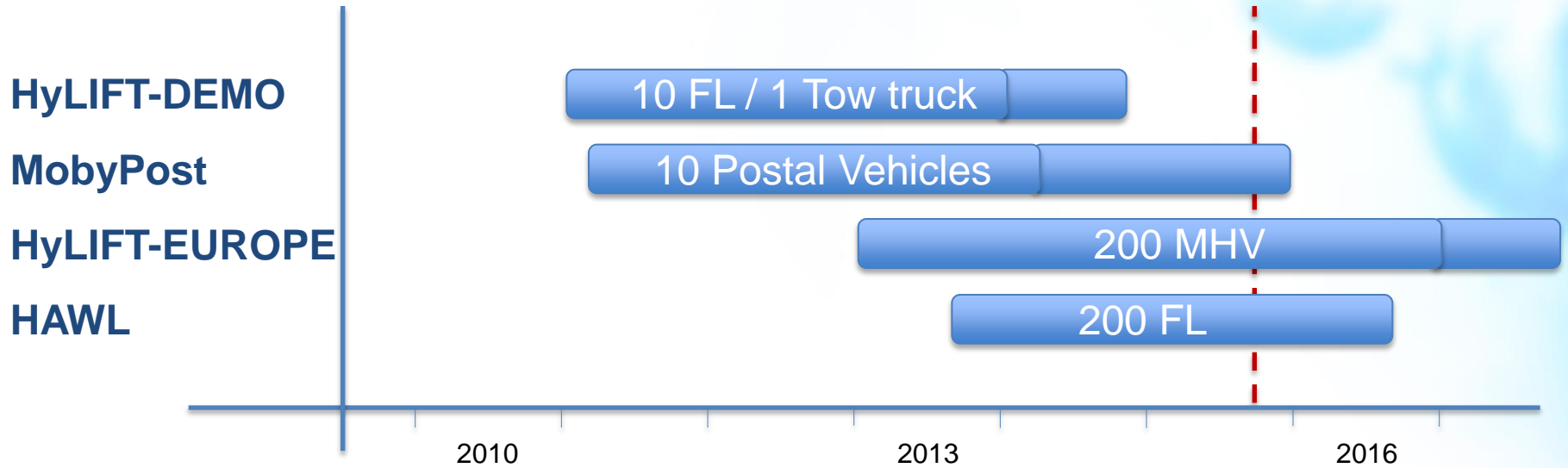


Other organisations



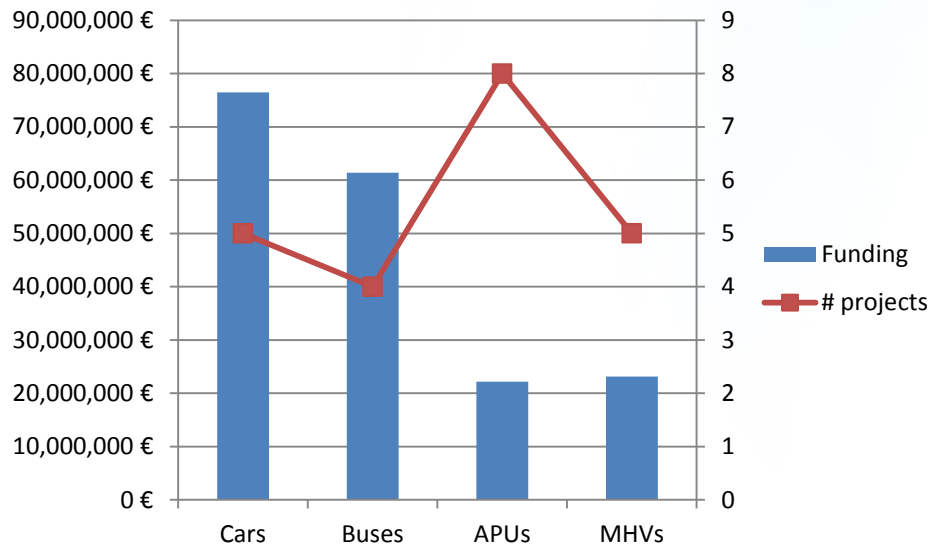


- Trucks
 - Viability demonstrated: interest shown
 - Further development needed
- Airborne
 - UAV propulsion needs further development
 - Current size and weight too high for UAVs to fly
 - APUs in airplanes: pending results
- Recreational vehicles
 - First (lab) results show viability of the design. Still pending demonstration results
- Boats
 - System design ready. Pending demonstration results



- Business case
 - Very different from USA
 - Need for large fleets to pay for infrastructure
 - Price of the FC system has come down
- Client acceptance
 - Need to demonstrate reliability (create trust)
 - In current demonstrations it has been over 90%
 - Need to provide full range of models (certification)
 - Concerns due to few FC system suppliers
- Infrastructure
 - No technical problems reported
 - Hydrogen price is a big issue

Summary



Total FCH JU support:

- 242M€ for 42 projects
- 183.1M€ for 22 demos



- Total of 544 passenger cars in 5 projects
 - Of which 125 with FCs as range extender
- Total of 40 refuelling stations



- Total of 67 buses from 4 projects in 12 locations



- Over 400 MHVs in 4 projects
- MHVs operated for 12,413hrs = 2200 shifts with overall availability of 95%
- 4,000 refuellings with 99.5% HRS availability



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Thank you for your attention !

Further info :

- FCH JU : <http://www.fch.europa.eu/>
- NEW-IG : <http://www.new-ig.eu>
- N.ERGHY : <http://www.nerghy.eu>