Fuel cells and hydrogen

Joint undertaking

Program Review Days 2013

Introduction to portfolio of cross-cutting projects

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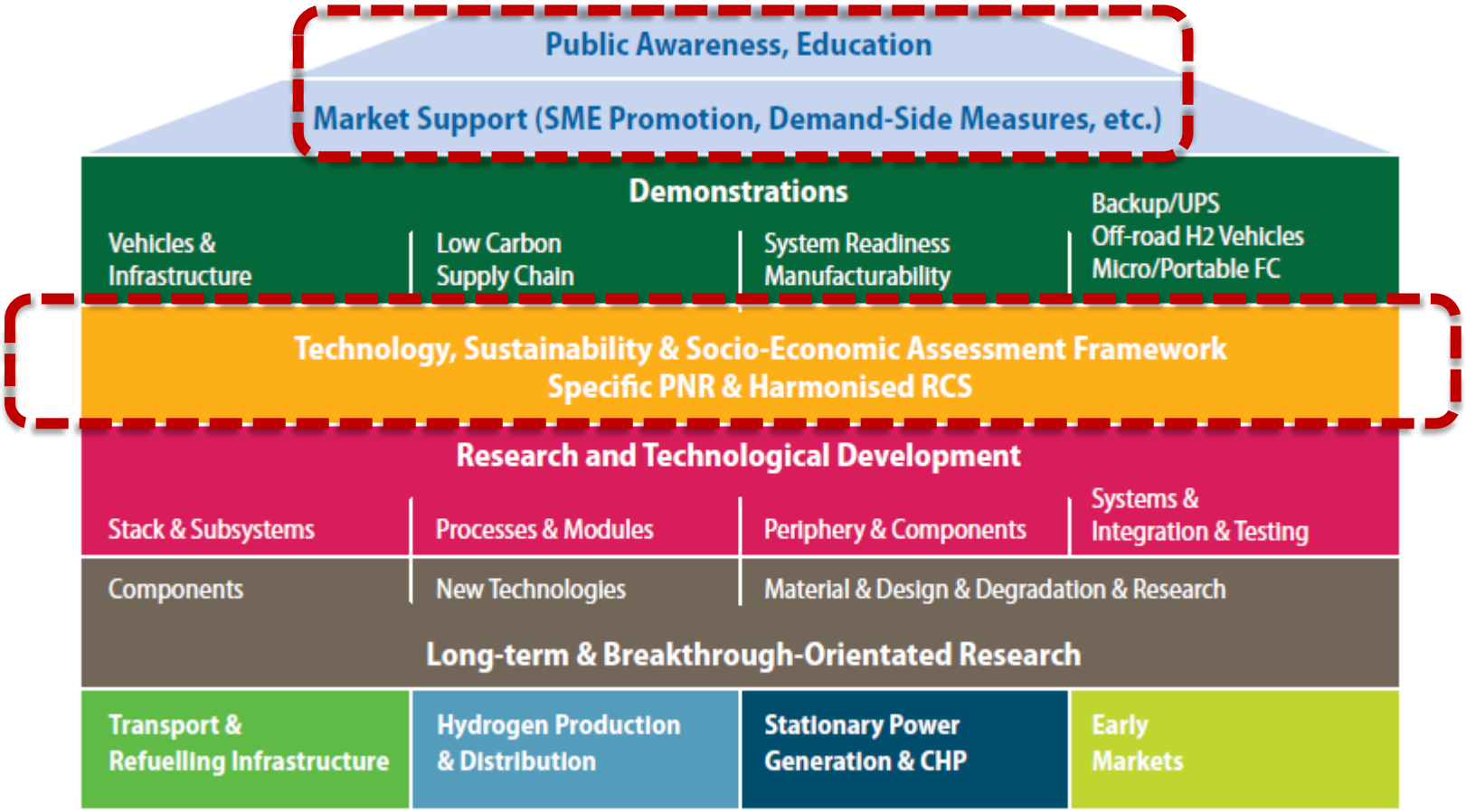
New Energy World JU

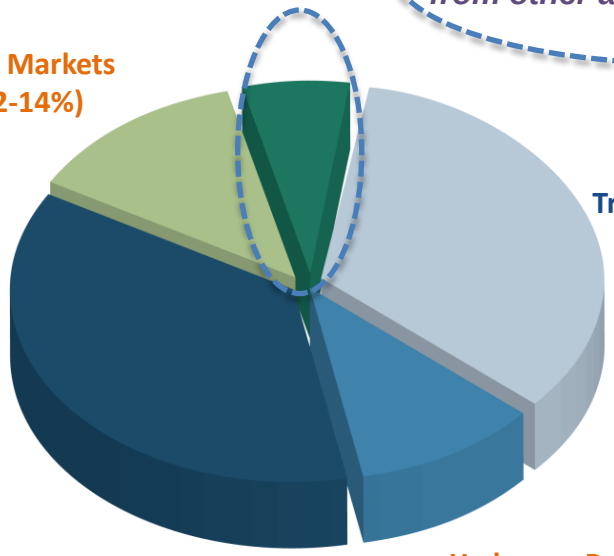
fuel cells & hydrogen for sustainability

http://www.fch-ju.eu/

Multi-Annual Implementation Plan
2008 - 2013



MAIP objectives
Planned budget



11 projects

RCS & PNR

Harmonised standards

5 projects

Education & Training

4 projects

Socio-economic & Benchmarking

3 projects

Safety issues

2 projects

LCA

1 project

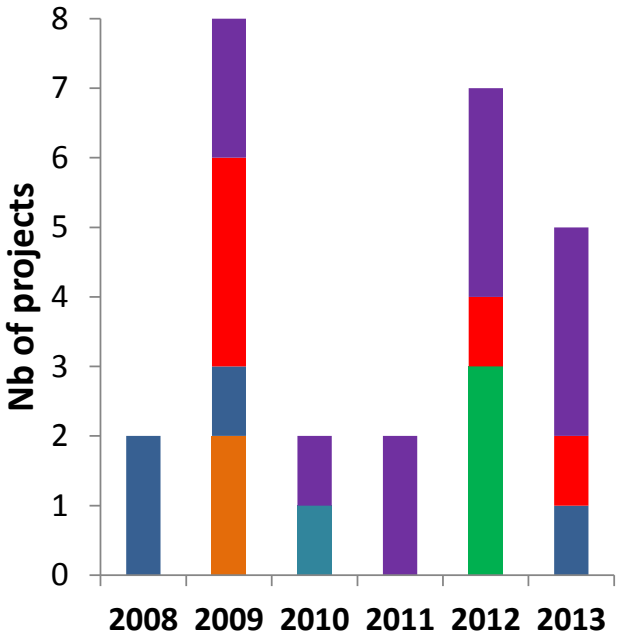
TMA

Overview of projects portfolio (1)

Number of projects

Up to call 2013: **26 projects** funded on cross-cutting activities

→ 9 projects finished, 12 projects running, 5 under negotiation (call 2013)



PNR — **11** *8 running projects + 3 under negotiation*

Education & Training — **5** *3 projects finished + 1 running project + 1 under negotiation*

Safety issues — **3** *3 running projects*

Socio-economic & Benchmarking — **4** *3 projects finished + 1 under negotiation*

TMA — **1** *1 project finished*

LCA — **2** *2 projects finished*

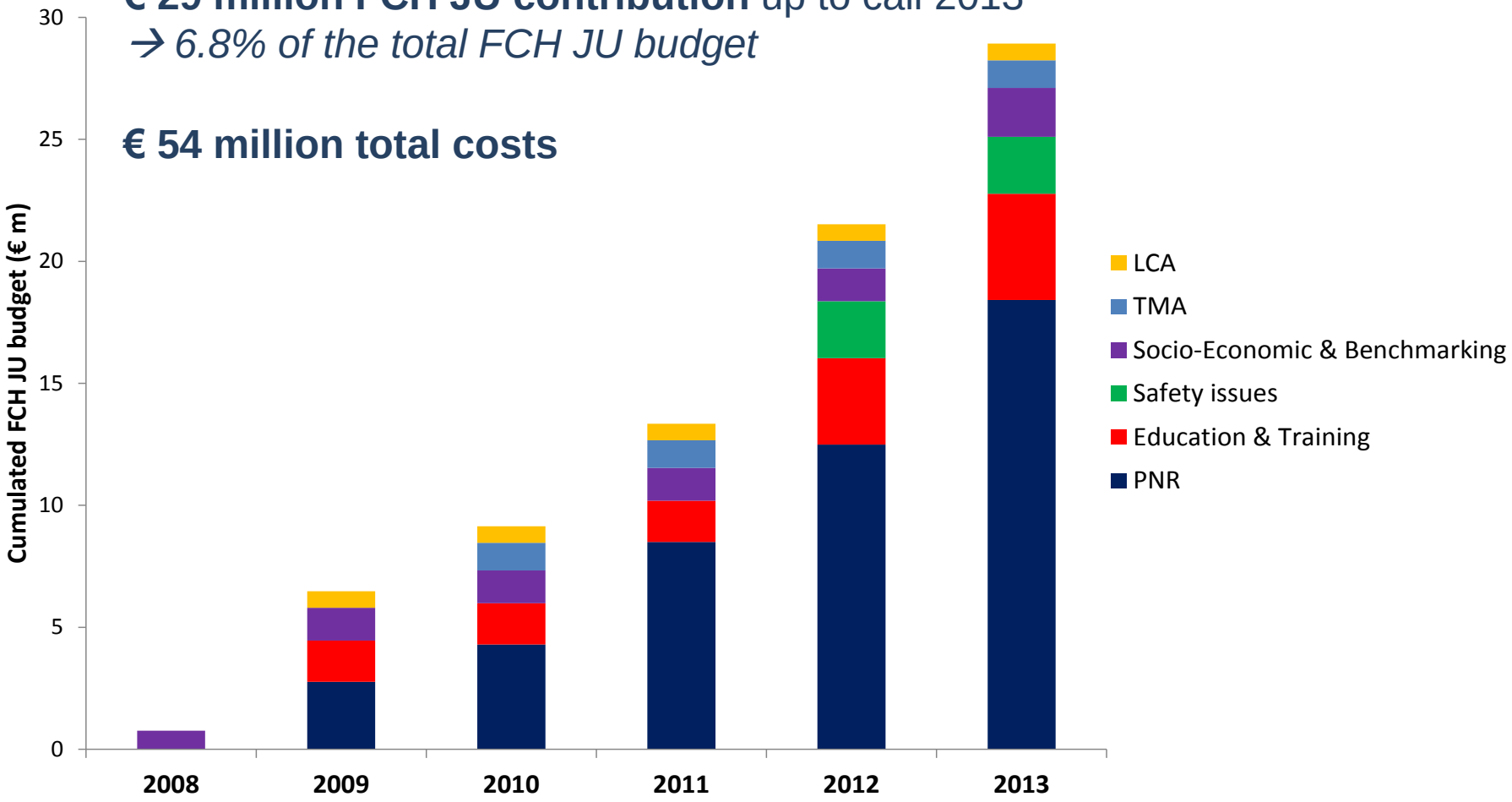
Overview of projects portfolio (2)

FCH JU funding

€ 29 million FCH JU contribution up to call 2013

→ *6.8% of the total FCH JU budget*

€ 54 million total costs



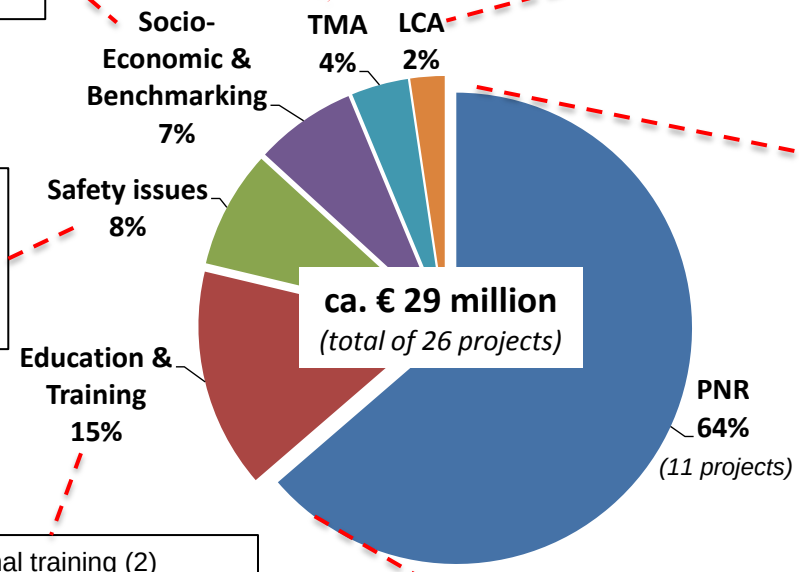
Overview of projects portfolio (3)

FCH JU budget per type of activity

- Benchmarking (1)
- Social acceptance (1)
- Roadmaps (2)

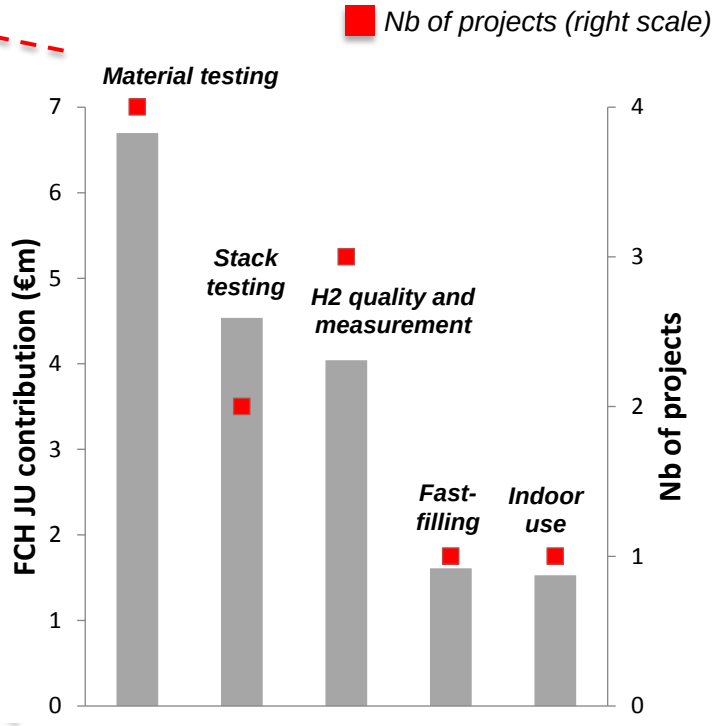
TEMONAS

FC-HyGuide



- Safety knowledge assessment (1)
- H2 sensors (1)
- CFD evaluation protocol (1)

- Vocational training (2)
- Post-graduate, scientists (1)
- Public safety officials (1)
- First responders (1)



Key achievements

→ A guidance document was developed (project FC-HyGuide) on how to perform LCA of FCH technologies. Document available on the FCH JU website.

For more info: http://www.fc-hyguide.eu/

→ Preparation of large demo projects on H2 vehicles (Nexthylights), benchmarking data for stationary power generation(FC-Eurogrid)

→ A specific TMA tool (TEMONAS) has been developed for the FCH JU so as to monitor and evaluate progress towards the FCH JU objectives and vis-à-vis external developments. For more info: http://www.temonas.eu/

→ Education and Training

- HyProfessionals - Vocational H2 training status in the EU, 4 pilot actions attended by 353 students (253 person/week), assessment of the human resources required to cover several FCH market needs (more info at: http://hyprofessionals.eu/)
- HyFacts - Development of a training package for regulators and public safety experts (more info at: www.hyfacts.eu/)
- TrainHy - Development on an International Curriculum on FCH technologies (more info at: http://www.hysafe.org/TrainHyProf)

→ On-going impacts of PNR projects on RCS (e.g. ISO TC 197, IEC TC 105) – International collaboration is crucial!

On-going PNR projects

Material/stack testing

• **HyCOMP** - Enhanced Design Requirements and Testing Procedures for Composite Cylinders intended for the Safe Storage of Hydrogen (01/01/2011 - 31/12/2013; €1.4 million FCH JU funding)

• **StackTest -** Development of PEM Fuel Cell Stack Reference Test Procedures for Industry (01/09/2012 - 31/08/2015; € 2.9 million FCH JU funding)

• **MATHRYCE** - Material Testing and Design Recommendations for Components exposed to Hydrogen Enhanced Fatigue (01/10/2012 - 30/09/2015; € 1.3 million FCH JU funding)

• **FireComp** - Modeling the thermo-mechanical behavior of high pressure vessel in composite materials when exposed to fire conditions (01/06/2013 - 31/05/2016; € 1.9 million FCH JU funding)

H2 measurement

• **HyAC -** High measurement accuracy of hydrogen refueling (01/10/2013 - 30/09/2014; € 0.5 million FCH JU funding)

Fast transfers of compressed H2

• **HyTransfer** - Pre-Normative Research for Thermodynamic Optimization of Fast Hydrogen Transfer (01/06/2013 - 30/11/2015; € 1.6 million FCH JU funding)

Safe indoor use of H2 and FC

• **HyIndoor** - Pre Normative Research on the indoor use of fuel cells and hydrogen systems (02/01/2012 - 01/01/2015; € 1.5 million FCH JU funding)

Other on-going projects

First responders

• **HyResponse** - European Hydrogen Emergency Response training programme for First Responders (01/06/2013 - 31/05/2016; €1.9 million FCH JU funding)

Safety knowledge assessment

• **H2Trust** - Development of H2 Safety Expert Groups and due diligence tools for public awareness and trust in hydrogen technologies and applications (01/06/2013 - 30/11/2014; € 0.8 million FCH JU funding)

Assessment of best practices in use of CFD for safety analysis

• **SUSANA** - Support to Safety Analysis of Hydrogen and Fuel Cell Technologies (01/09/2013 - 31/08/2016; € 1.2 million FCH JU funding)

Hydrogen safety sensors (first FCH JU/US DoE common project)

• **H2Sense** - Cost-effective and reliable hydrogen sensors for facilitating the safe use of hydrogen (01/06/2013 - 31/05/2014; € 0.4 million FCH JU funding)

Thank you for your attention!

Further info:

- **FCH JU : http://fch-ju.eu**
- **NEW-IG : http://www.new-ig.eu**
- **N.ERGHY : http://www.nerghy.eu**