

Fuel Cells and Hydrogen Joint Undertaking

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8th National Hydrogen and Fuel Cell Conference
9 December 2010

Content

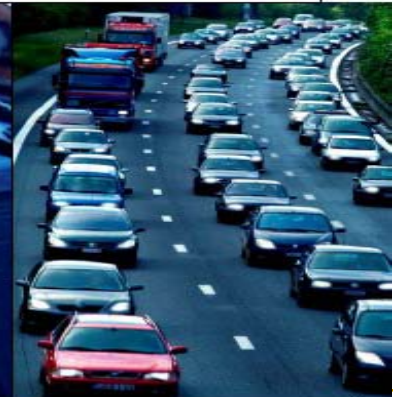
- EU Energy Policy Context
- Fuel Cells and Hydrogen Joint Undertaking (FCH JU)
- FCH JU 2008, 2009 & 2010 call overview
- FCH JU future activities and perspectives

EU Energy Policy Context : Policy Challenges

- Sustainable development
- Security of supply
- Competitiveness

The European Strategic Energy Technology (SET) Plan has identified fuel cells as a key technology for Europe towards the 20 20 20 goal.

AN ENERGY POLICY FOR EUROPE



energy for a changing world

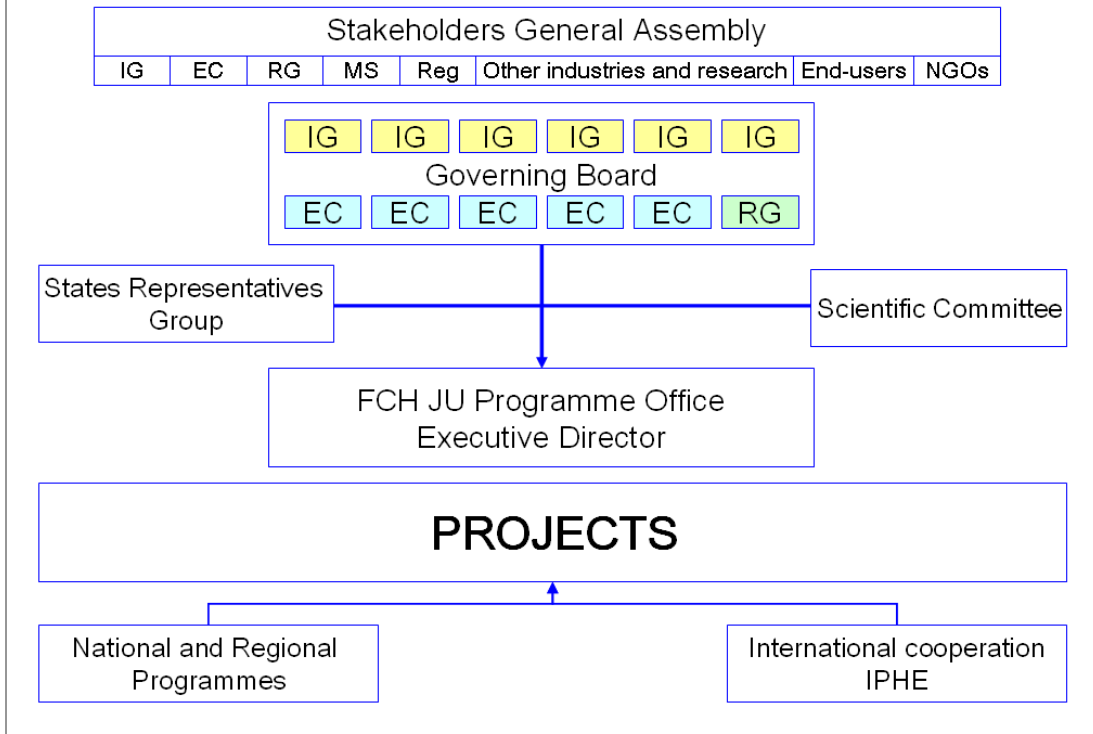
FCH JU : Strong Public Private Partnership with Focused Objectives

FCH JU - Objectives

- Bring resources together under a cohesive, long-term strategy : **public private partnership**
- Ensure **commercial focus** by matching RTD activities to industry's needs and expectations
- Scale-up and intensify links between Industry and the Research Community

To accelerate the development of technology base towards commercialization from 2015 onwards

FCH JU – Governance structure



FCH JU : Establishing

Preparatory phase

JU Programme
Office (in EC)

Autonomous JU
Programme Office

Sept '07

- Transition from Hydrogen & Fuel Cell Technical Platform
- Drafting strategic and operational guides & plans
- Hand over to interim structure

Dec '08

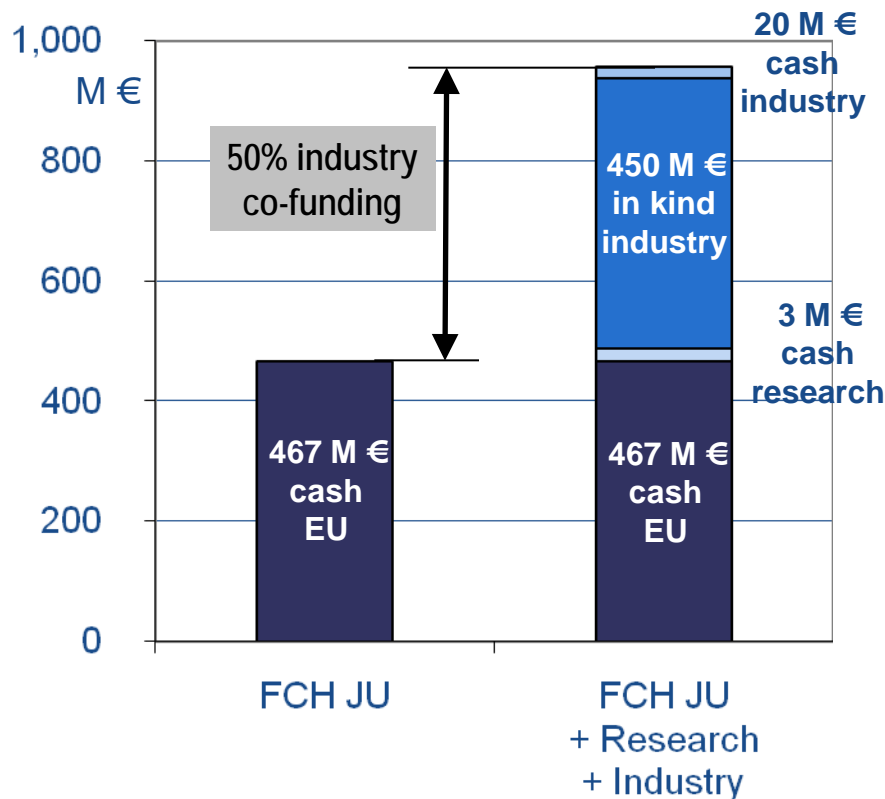
- Launch first 3 calls
- Establish the Programme Office
- Establish JTI official bodies
- Launch cooperation with MS and regions
- Recruit and train staff
- Achieve autonomy

Nov '10

- Implement last 3 calls
- Make operations efficient & effective : simplify
- Establish global ties
- Reinforce cooperation with MS and regions
- Learn and adapt activities to reality

Dec '17

FCH JU - Operational budget



Budget : 2008 ~ 2013 : (min.) 940 M €

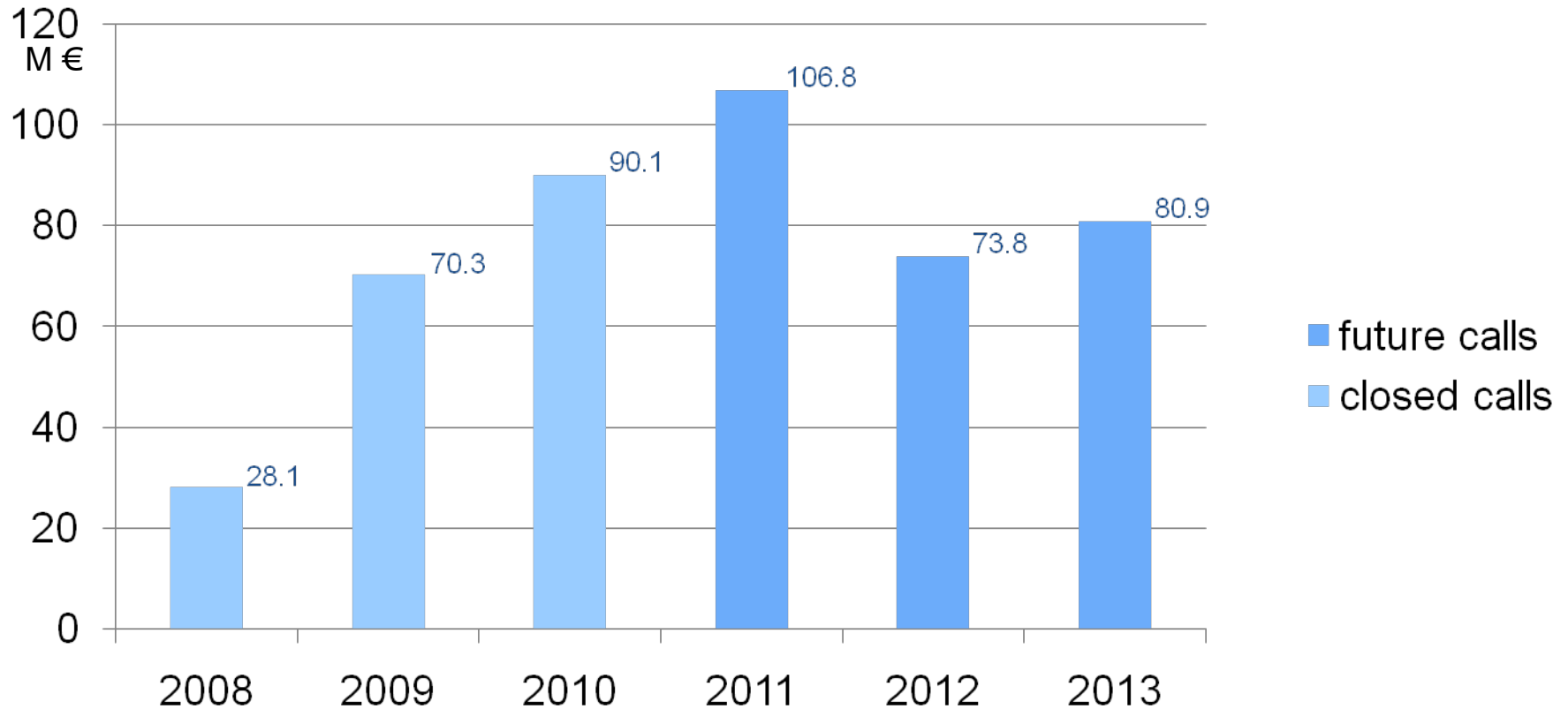
Operations : to launch annual, open and competitive calls for project proposals

Principle : 50/50 cost-sharing between the EU and Industry

Limit : The requested FCH JU (cash) funding has to be matched by industry co-financing (in kind) at call level; in case of mis-matching, the FCH JU funding is reduced.

Correction factor : in order to reflect the reduced FCH JU funding, a correction factor is applied to all funding schemes; for the call 2009 : 0.67

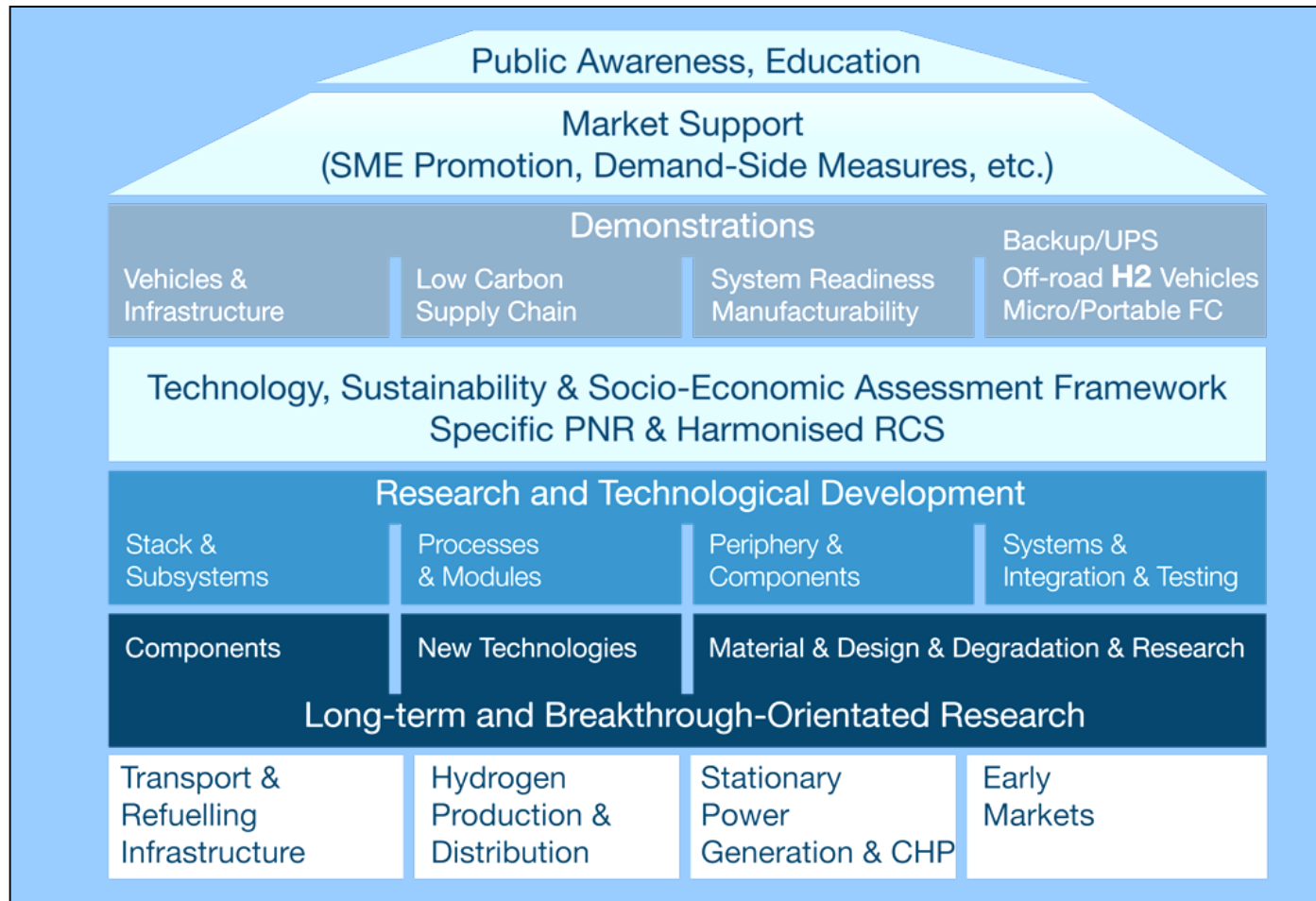
FCH JU - Operational budget for annual calls (2008 – 2013)



FCH JU Multi-Annual Implementation Plan 2008 - 2013

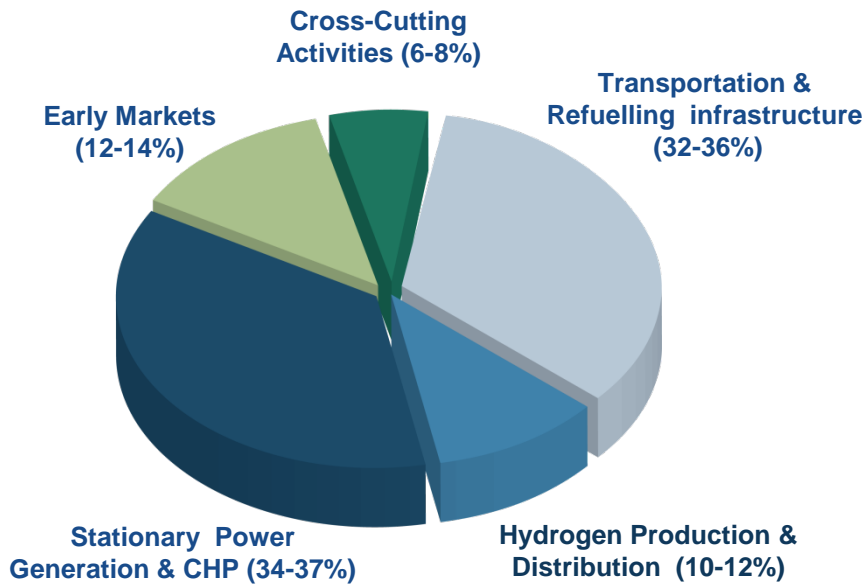
Adopted in
May 2009

Currently
under review

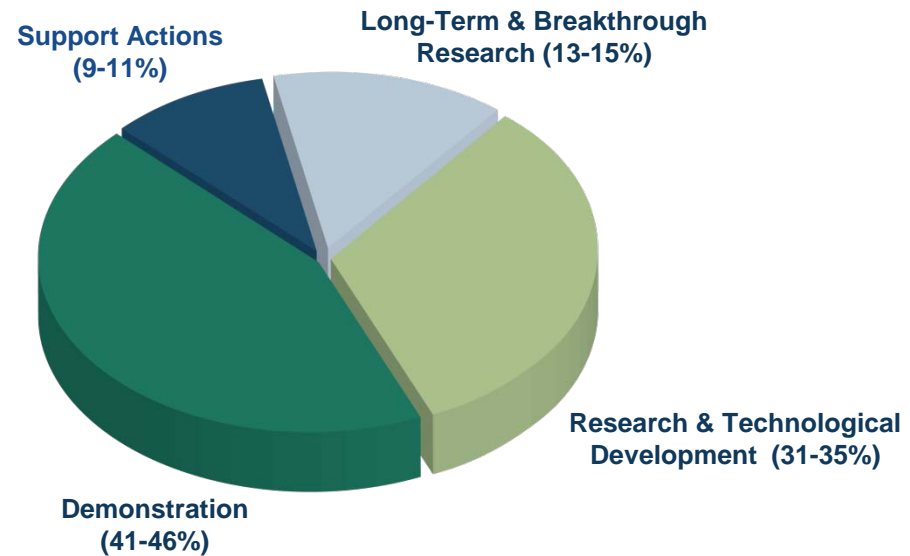


FCH JU Budget Breakdown^(*) 2008-2013

By Application Area

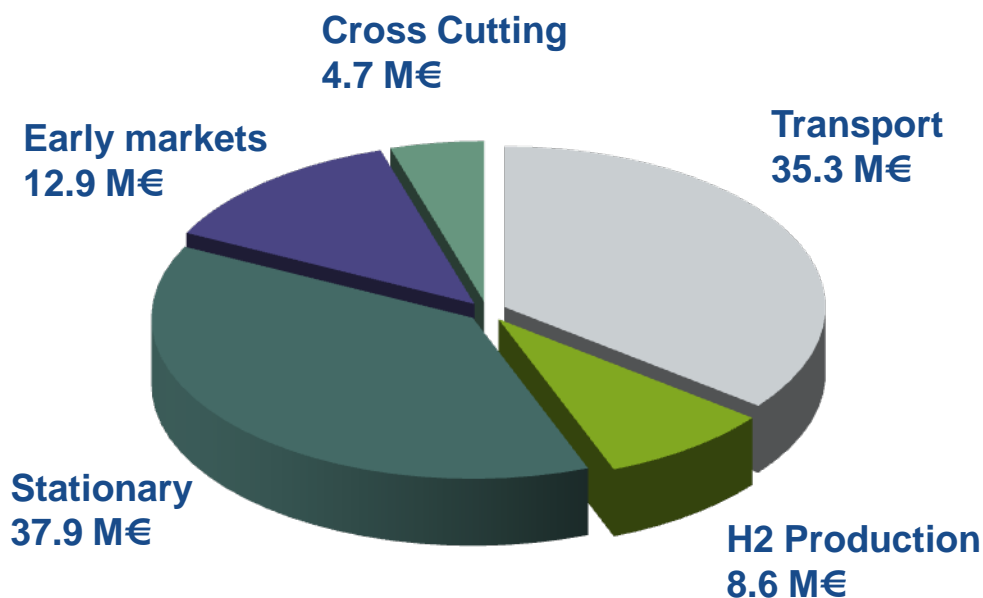


By Activity Type



* as stated in the Multi Annual Implementation Plan

FCH JU Budget Breakdown – call for proposals to date



Call 2008 :
Budget : 28.1 M€
16 projects were granted
funding in December 2009

Call 2009 :
Budget : 71.3 M€
50 proposals received
28 proposals in negotiations
in April 2010

Call 2010 :
Budget : 90 M€
71 proposals received

Budget division to date
By application area based on preliminary call distribution

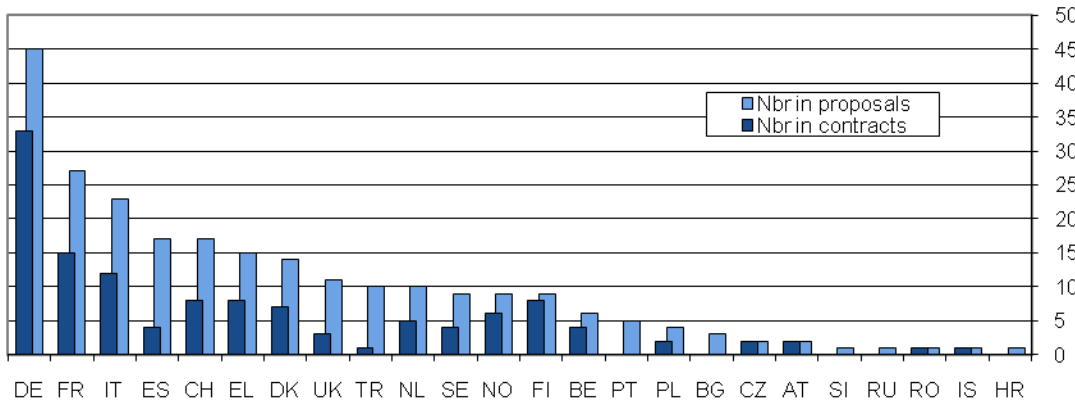
Overview of Call 2008

- Publication date: 8 Oct 2008
- Deadline: 15 Jan 2009
- Budget: 28.1 M€
- Topics in areas:
 - Transportation and refuelling infrastructure (8.9 M€)
 - Hydrogen production & distribution (2.9 M€)
 - Stationary power generation & CHP (12 M€)
 - Early Markets (2.6 M€)
 - Cross-cutting issues (1.7 M€)

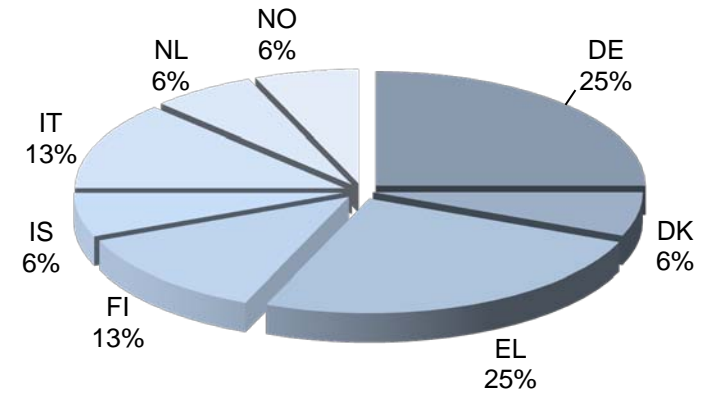
 **16 projects running**

Geographical distribution of project participants (2008 call)

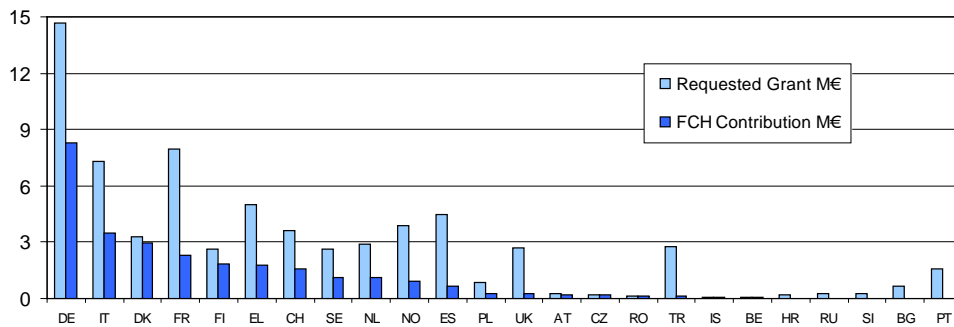
Project participants



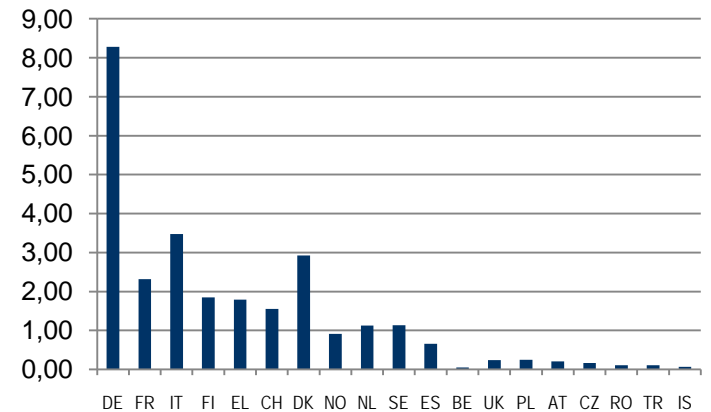
Project coordinators



Requested grant vs contribution in M€



Project funding in M€



FCH JU Call 2008 : Types of project supported

<p>TRANSPORTATION & REFUELLING INFRASTRUCTURE</p>	<p>Demonstration of hydrogen fuelled road vehicles and refuelling infrastructure (1) Preparation for large scale vehicles demonstration in Europe (1) European fuel cell stack cluster (1)</p>	<p>A collage of images related to hydrogen fuel cell vehicles and infrastructure. It includes three small cars (silver, red, and blue) at the top. Below them is a large hydrogen refueling station with a canopy. To the right is a wind turbine and a car parked in a field.</p>
<p>HYDROGEN PRODUCTION & DISTRIBUTION</p>	<p>Efficient PEM electrolyzers (2) Water decomposition with solar heat sources (1)</p>	<p>A collage of images showing hydrogen production and distribution. It features a large industrial electrolyzer stack, a close-up of a hydrogen storage tank with 'H2' written on it, and a perspective view of several hydrogen pipes.</p>
<p>STATIONARY POWER GENERATION & CHP</p>	<p>Operation diagnostic and control (1) Component and system improvements (1) Degradation of life time fundamentals (5)</p>	<p>A collage of images related to stationary power generation. It shows a complex industrial system with pipes and tanks, and a close-up of a GenCell power stack.</p>
<p>EARLY MARKETS</p>	<p>Fuel supply technology for portable and micro fuel cells (2)</p>	<p>A collage of images showing early market applications. It includes a laptop displaying a fuel cell interface, a blue fuel cell component, and a warehouse with a forklift.</p>
<p>CROSS- CUTTING ISSUES (planning of socio-economic activities (1))</p>		

Focus on demonstration projects : H2moves Scandinavia

Gaining customer acceptance for fuel cell vehicles in Scandinavia:

- Roll-out latest state-of-the-art hydrogen fuel cell vehicles operated by customers
- Consolidate existing hydrogen-fueling hub in southern Norway and add one new station of latest design in Oslo (70 MPa, capacity min. 200 kg/day)
- Carry out five European vehicle road tours (extended vehicle fleet) supported by mobile refueler.
- Communicate on project performance
- Actively link Scandinavian Hydrogen Highway Partnership (SHHP) to European network

Participating vehicles:



10 Daimler
B-Class F-CELL

2 Alfa Romeo
Mito FCEV

5 Think
FC city cars

- Refueling stations
 - 1 refueler with 70 MPa, pre-cooling (-40°C)
 - 1 mobile refueler for EU demo tours
- Certification & project safety
 - Improvements in regulations, C&S
 - Safety relevant emergency mechanisms
- Project key data :
 - Budget ~20 M€ (~8 M€ EU + ~2 M€ (DK, NO))
 - Start 1 Jan 2010, duration 36 months



DAIMLER



NEXTHYLIGHTS

Project structure and expected results

Passenger Cars



City Buses



Other Vehicles



International, national and regional H₂ & FCEV strategies

International industry strategies to commercialize vehicles and H₂ infrastructure

Demo projects and programs with focus on Europe

Status of technology development and techno-economic benchmarking

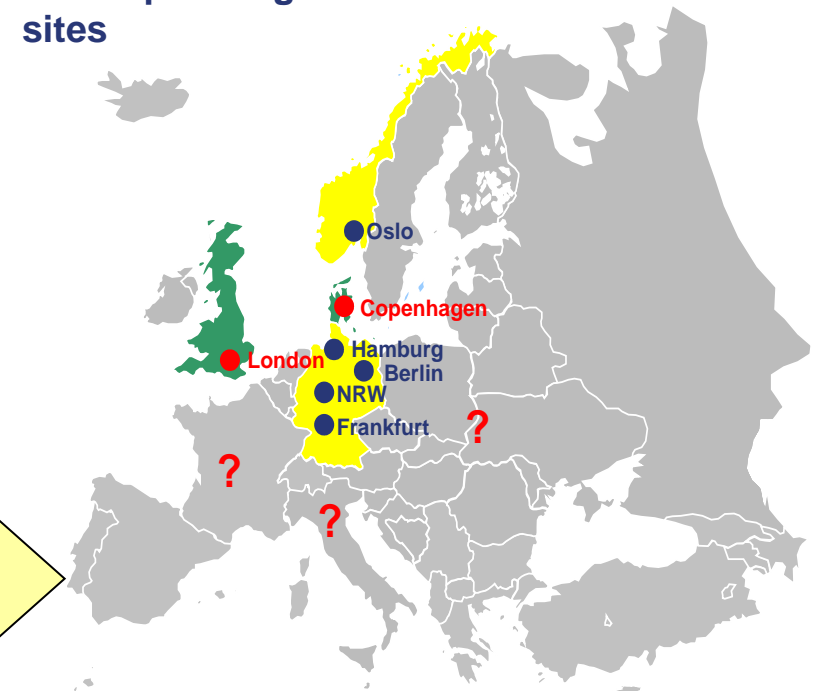
Regions & municipalities commitment

Cross-sectional infrastructure synergies

Environmental analysis and public acceptance

Business plan for roll-out strategy

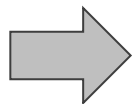
Active passenger car demo sites



- Existing LHP cluster or LHP cluster in preparation
- Current proposal

Overview of Call 2009

- Publication : 2 Jul 2009
- Deadline : 15 Oct 2009
- Budget: 71.3 M€
- Topic areas:
 - Transportation & refuelling infrastructure (26.4 M€)
 - Hydrogen Production & distribution (5.7 M€)
 - Stationary power Generation & CHP (25.9 M€)
 - Early markets (10.3 M€)
 - Cross-cutting issues (3.0 M€)



28 projects currently under final negotiation

Demonstration projects

Clean Hydrogen in European Cities (CHIC)

JTI-FCH objectives

Approval + Certification

Measurement + Monitoring

Safety

CHIC Project Concept

H₂ Infrastructure and FC Bus Operation



Assessment framework

Evaluation

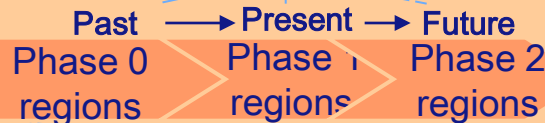
Performance and Sustainability Assessment

Environment Economy Society

Dissemination to new cities

Public awareness

Dissemination



Key figures

- 28 partners from 10 countries worldwide (8 European, 2 North American)
- 5 cities
- 26 fuel cell buses
- 2 filling stations per city
- Demonstration phase 2010-2016
- at least 3 different bus manufacturers



Early markets

- Key to early commercial success
 - Focus on demonstration
- Call 2009 Proposals in negotiation stage:
 - 40 forklifts at 6 sites (2 projects)
 - 10 postal vehicles at 2 sites
 - 19 backup power units at 11 sites
- Total costs : 26.8 M€
- Recommended funding : 12.3 M€



Overview of Call 2010

Publication of call	➤ 18th June 2010
Deadline for submission of proposals	➤ 13th October 2010
Evaluation of proposals	➤ November 2010
Evaluation Summary Reports sent to proposal coordinators ("initial information letter")	➤ December 2010
Invitation letter to successful coordinators to launch Grant Agreement negotiations with the FCH JU	➤ February 2011
Signature of first FCH JU Grant Agreements	➤ From June 2011
Letter to unsuccessful applicants	➤ From June 2011

Overview of Call 2011

- Publication : ~ May 2011
- Funding budget available : 106.8 M€
- Details : http://ec.europa.eu/research/fch/index_en.cfm
- Funding schemes (excluding correction factor)

Type of organisation	Type of Activity		
	RTD	Demonstration	Other (including management)
Industry (other than SME)	CP: max. 50%	CP: max. 50%	CP: max. 100% CSA: max. 100%
SME	CP: max. 75%	CP: max. 50%	CP: max. 100% CSA: max. 100%
Non-profit public-bodies, universities & higher education establishments, non-profit Research organisations	CP: max. 75%	CP: max. 50%	CP: max. 100% CSA: max. 100%

CP: Collaborative project

CSA: Coordination and Support Action

FCH JU PO Future activities and perspectives

- Standardisation of processes and improvement of the functioning of the Programme Office
 - ✦ Reduce time to grant
- Thorough forward planning and consultation of stakeholders
 - ✦ Development of strategic direction (MAIP)
- Closer cooperation FCH PO and projects : go and see
 - ✦ Deep understand reality
- Communicate with one voice on Fuel Cells and Hydrogen
 - ✦ Optimisation of visibility and awareness raising initiatives in close coordination with all partners and stakeholders

FCH JU PO Future activities and perspectives

- Communicate with one voice on Fuel Cells and Hydrogen
 - Deployment of FCH in Europe : A Joint Effort



- Call for tender for commercialization studies
- FCH JU Annual Implementation Plan 2011
- Contribution to 8 Framework Programme and other EU policy initiatives

Thank you for your attention