

Fuel cells and hydrogen

Joint undertaking

Program Review Days 2013

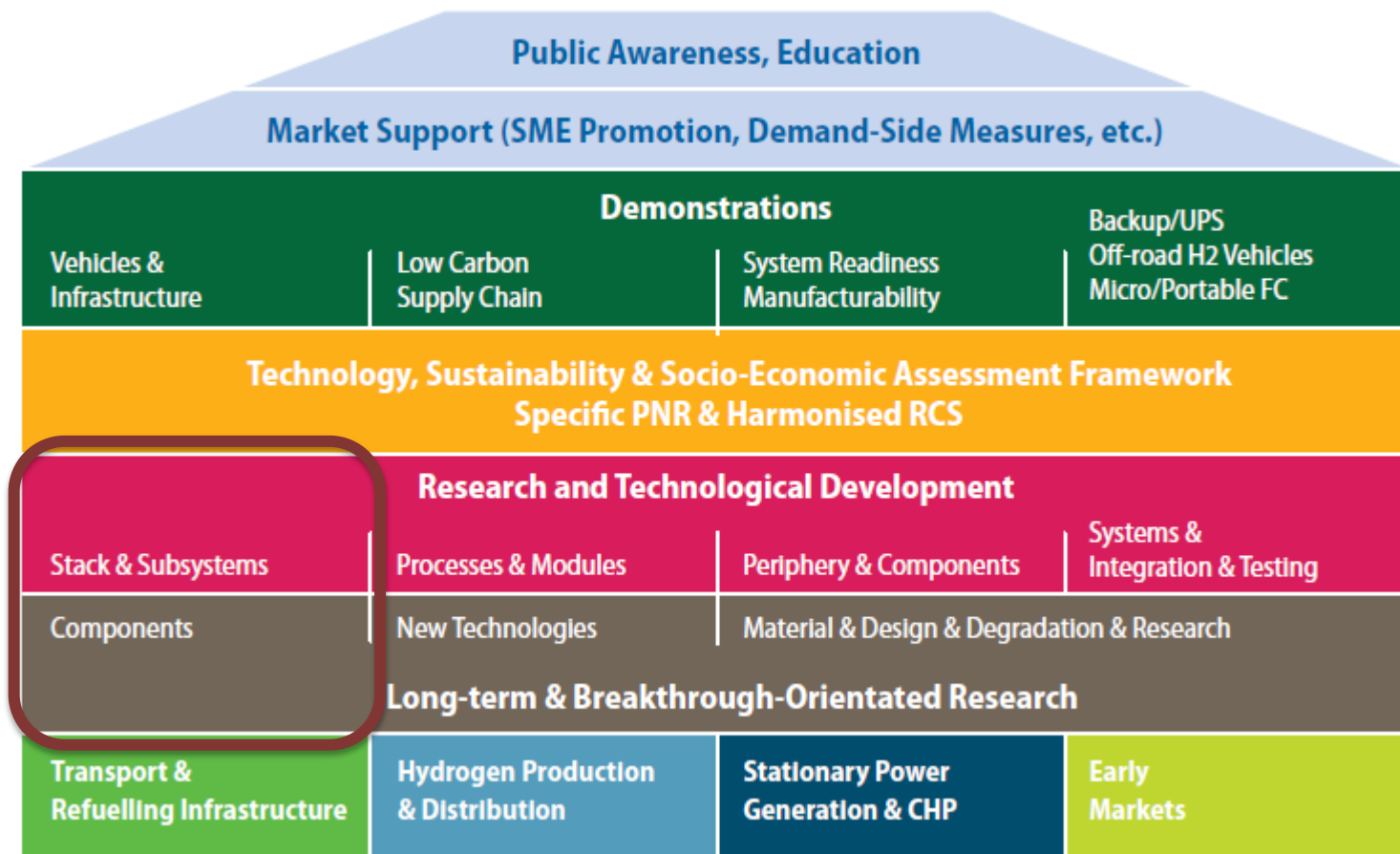
Introduction to R&D projects in Transport



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

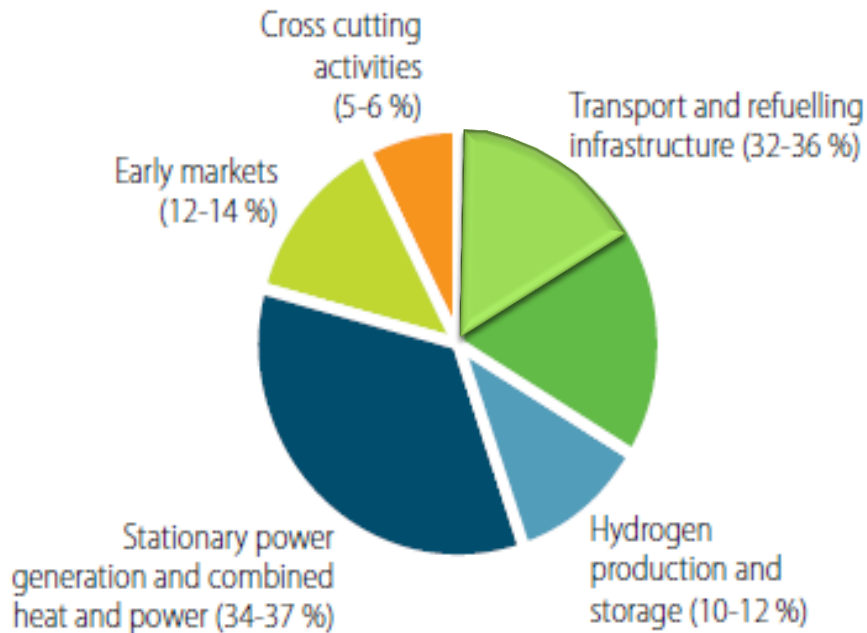
Carlos Navas, Project Manager

Multi-Annual Implementation Plan 2008 - 2013



MAIP Objectives

— Budget distribution

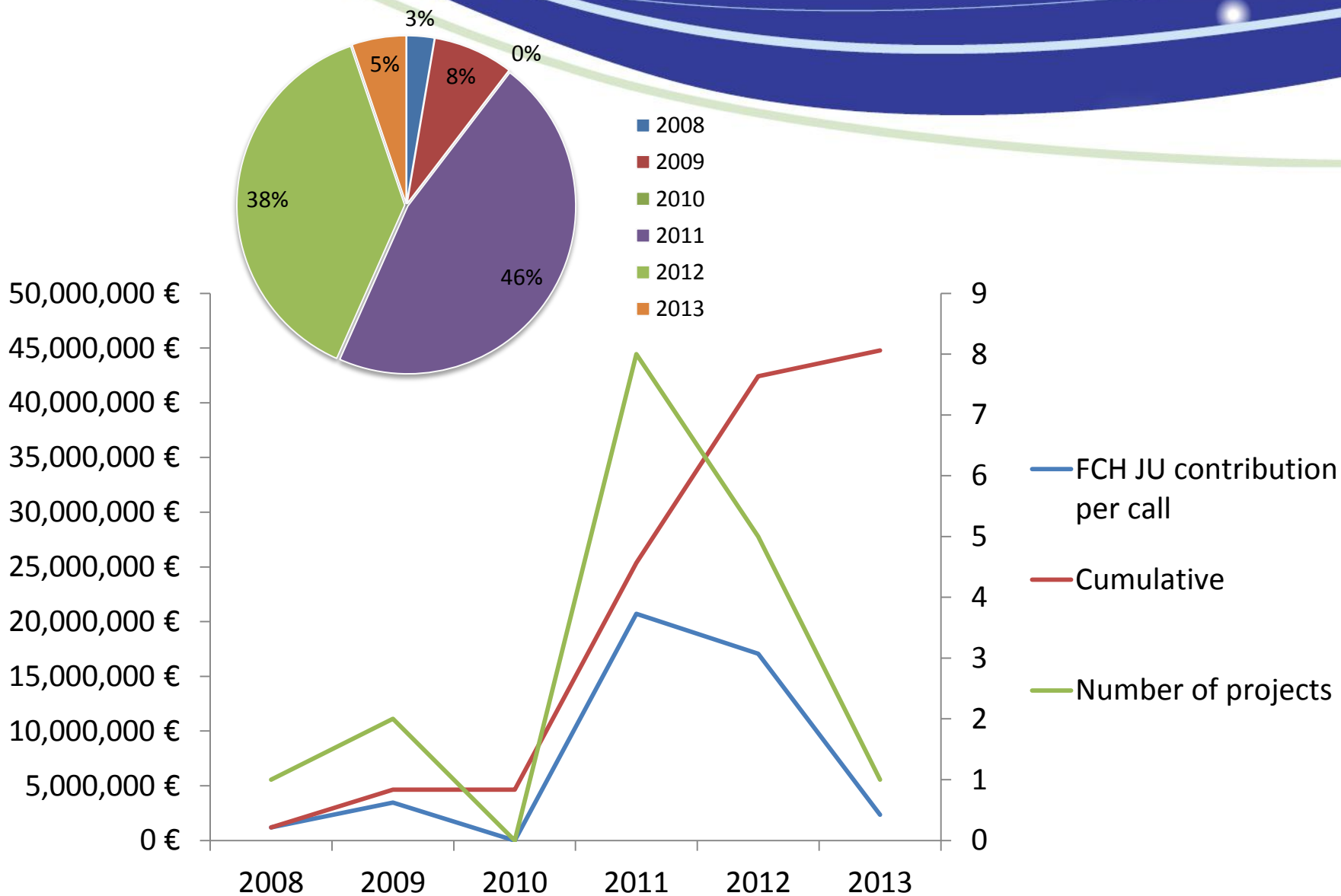


Expected budget of 42.5M€

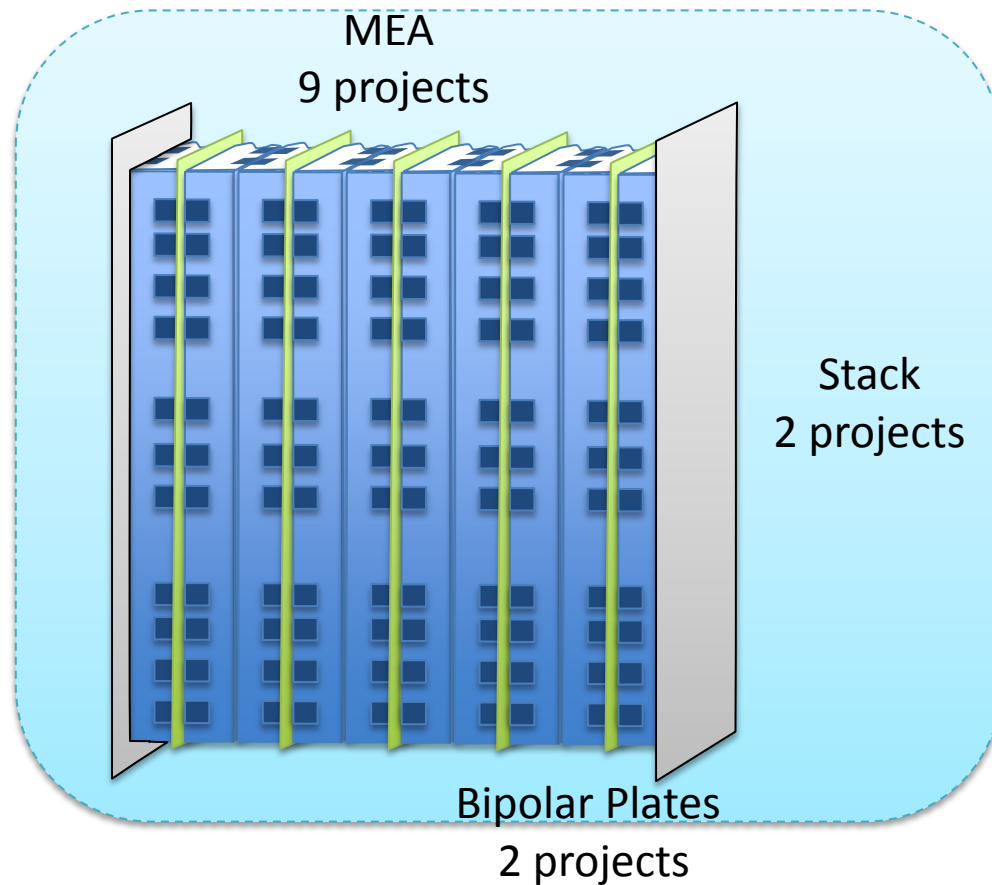
Covering:

- Membranes
- Catalysts
- Bipolar Plates
- Manufacturing and process development
- Methodology and tools
- System components
- Advanced components for HRS

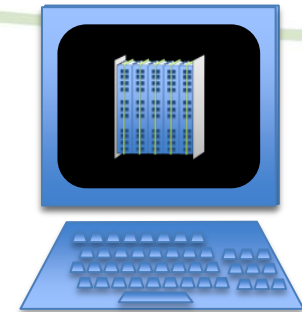
FCH JU Funding



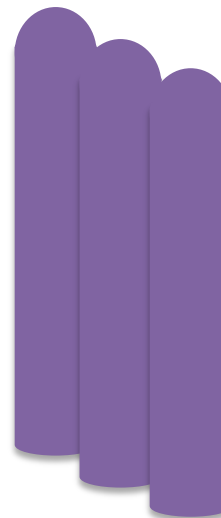
MAIP Coverage



Modelling
1 project

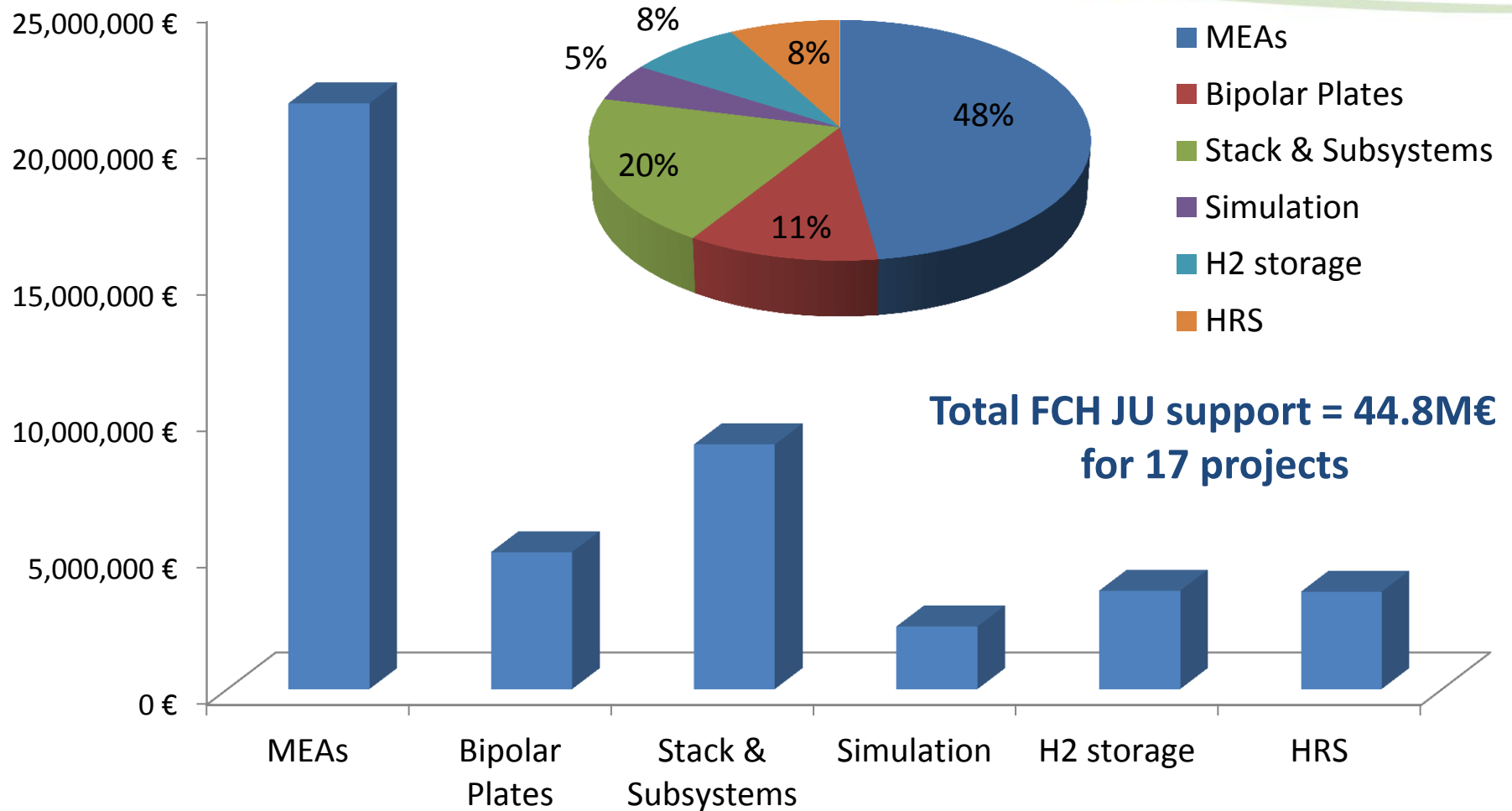


Advanced HRS
1 project



H₂ Storage
2 projects

FCH JU Funding Breakdown



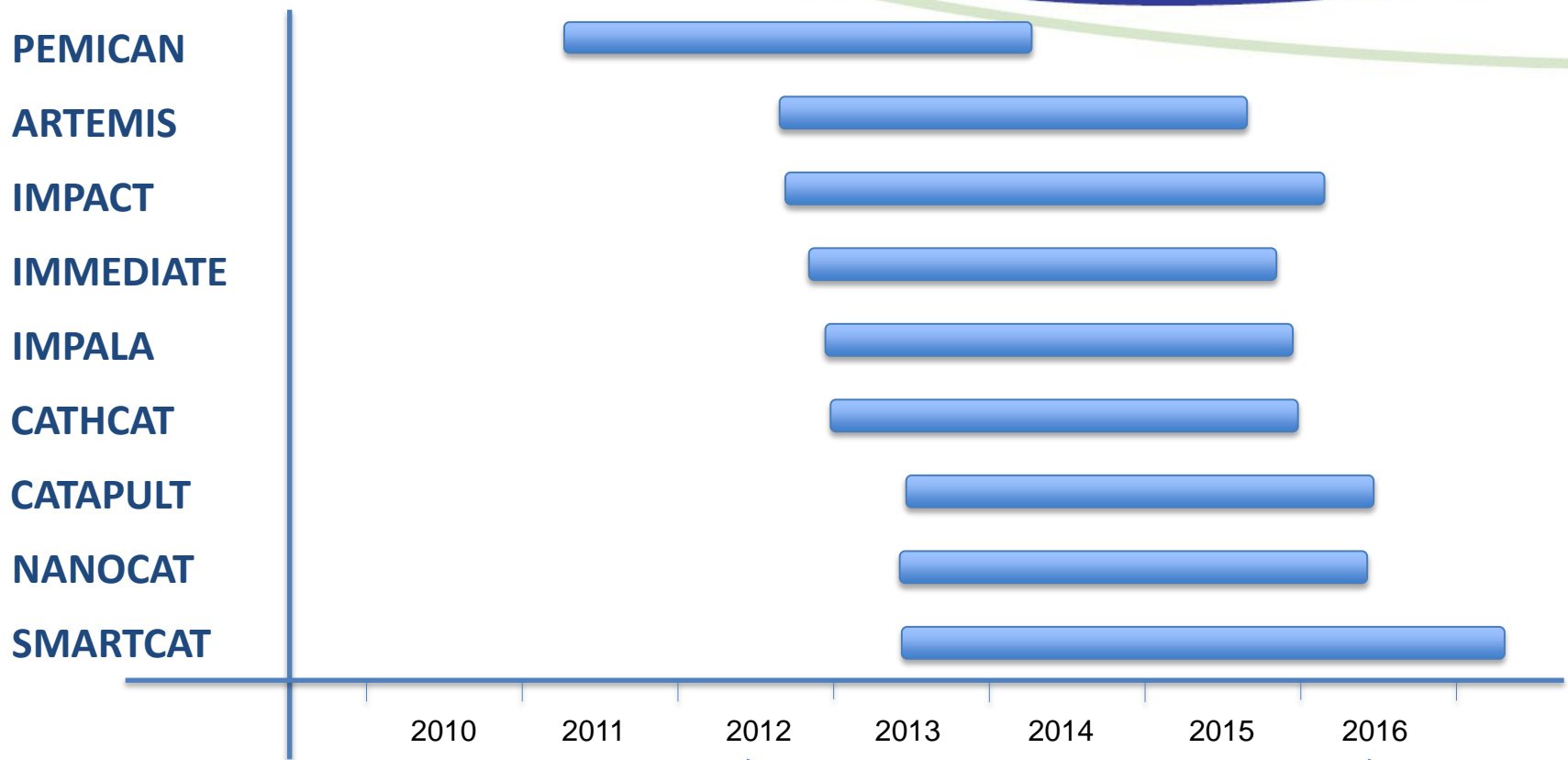
MAIP coverage

MAIP R&D areas	MEA									Bipolar Plates		Stack & Subsystems		Modelling & Simulation	H2 storage		HRS
	PEMICAN	ARTEMIS	CATHCAT	IMMEDIATE	IMPACT	IMPALA	CATAPULT	SMARTCAT	NANOCAT	STAMPEM	COBRA	AUTOSTACK	AUTOSTACK -CORE	PUMAMIND	SSH2S	COPERNIC	PHAEDRUS
Membranes	X	X	X	X	X			X				X	X				
Catalysts	X	X	X	X	X		X	X	X			X	X				
GDL*				X	X	X						X	X				
Bipolar plates										X	X	X	X				
Manufacturing & process development										X		X	X			X	
Methodology & Tools	X	X			X	X	X							X			
BoP components															X	X	
HRS (adv.)																	X

* Not identified in the MAIP

Achievements & Status (1)

— MEAs

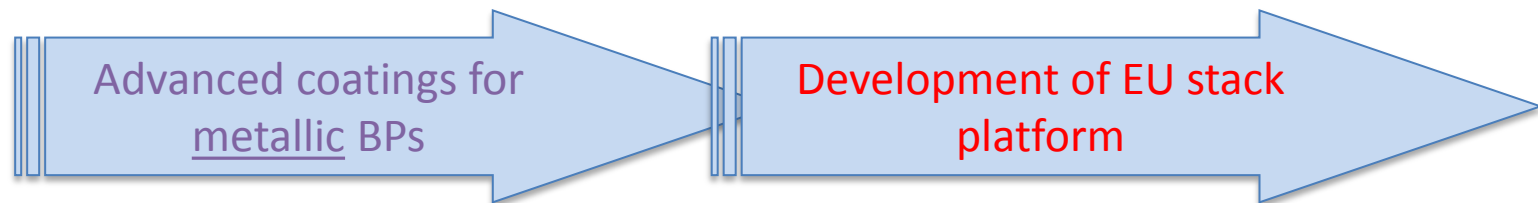
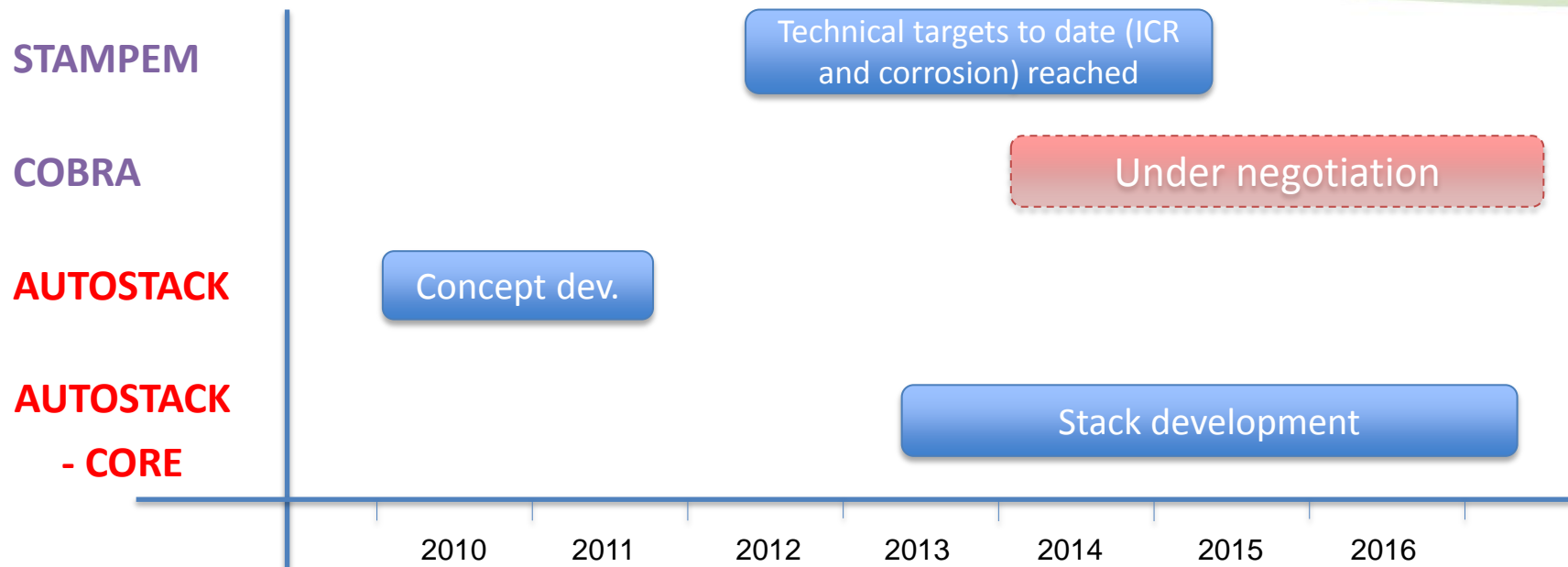


1. Broad range of approaches for membranes, catalysts and GDL

2. Bulk of results to come later

Achievements & Status (2)

— Bipolar Plates & Stack



Achievements & Status (3)

— Modelling, Storage and HRS

PUMAMIND

SSH2S

COPERNIC

PHAEDRUS

4.5 wt% H₂- stable cycling
w/ hydrides

Improve manufacturing &
reduce costs (cylinders)

Functionality of all
components proven

2010

2011

2012

2013

2014

2015

2016

Cell level modelling

Both solid state &
CGH2

Electrochemical compression + PEM
electrolysis + advanced dispensers

Conclusions: R&D in Transport

- **Comprehensive level of MAIP coverage:**
 - All areas identified receive funding
 - Level of support in line with expectations
- **Strong focus on FC components (MEA, BP)**
- **R&D supported mostly in calls 2011 & 2012 (74% of total)**
 - Bulk of impact to come 2015+



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>