Programme Review Days 2016

Panel 3: Technology validation in stationary applications

Moderator: Mirela ATANASIU, FCH JU Head of Unit
Co-moderator: Hans Aage HJULER, Danish Power Systems

In the agenda

09:40	**12:05**	**TECHNOLOGY VALIDATION IN STATIONARY APPLICATIONS: CHP, back-up power (Panel 3) Moderated by Mirela ATANASIU and Hans Aage HJULER**
09:40	09:50	Portfolio presentation
09:50	10:05	DEMOSOFC
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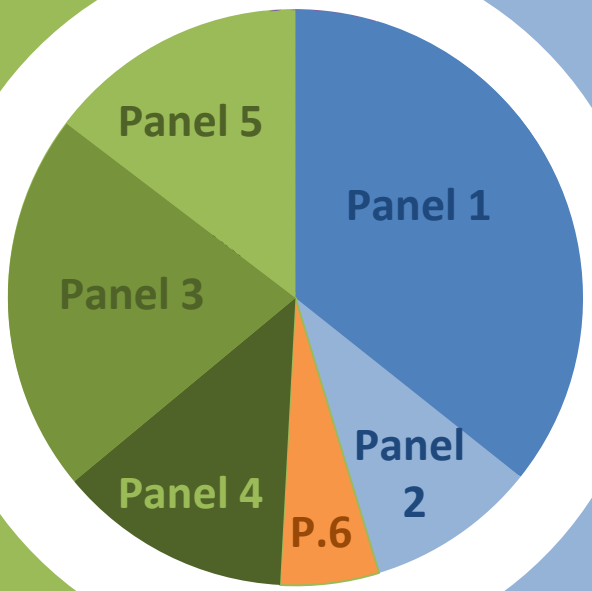
185 projects supported for 638 M€

Similar leverage of private funding: 681 M€

ENERGY
106 projects

- Hydrogen production and distribution
- Hydrogen storage for renewable energy integration
- Fuel cells for power & combined heat & power generation



TRANSPORT
45 projects

- Road vehicles
- Non-road vehicles and machinery
- Refuelling infrastructure
- Maritime, rail and aviation applications

Cross-cutting, 32 projects

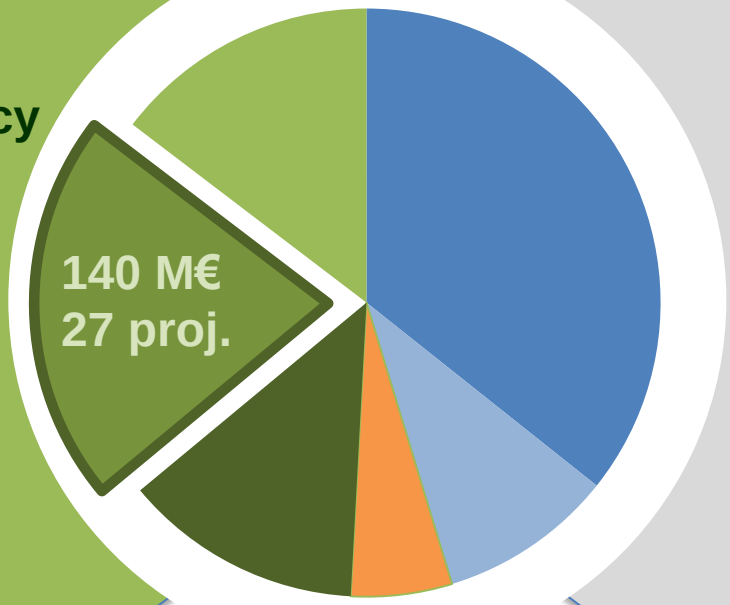
(e.g. standards, safety, education, consumer awareness, …)

Panel 1 – Transport validation	Panel 2 – Transport research	Panel 3 – Stationary validation	Panel 4 – Stationary research	Panel 5 – H_2 prod, distrib., storage	Panel 6 – Cross-cutting

Panel 3: Technology validation in stationary applications

Related FCH JU goal

- Increase the efficiency and the durability of fuel cells for power production, while reducing costs



Panel 3: Technology validation in stationary applications

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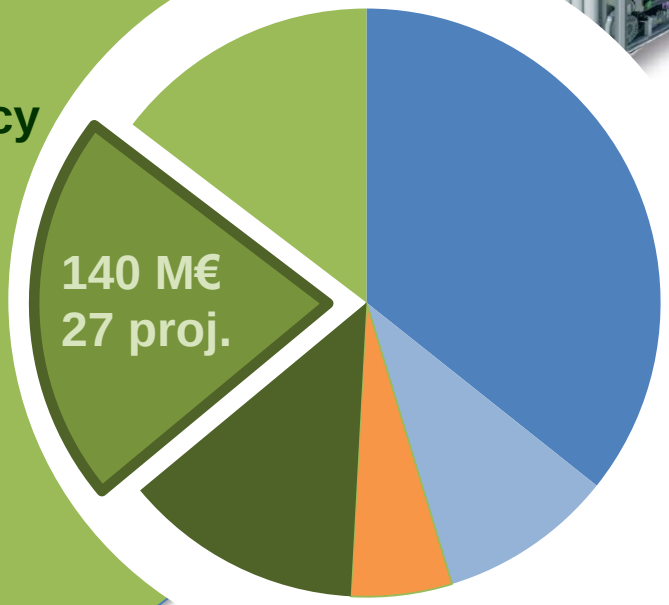
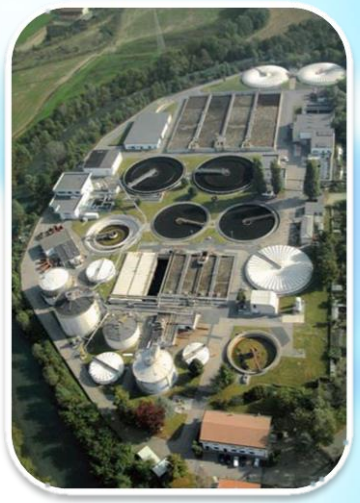
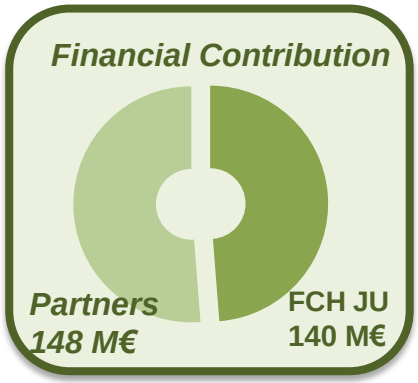
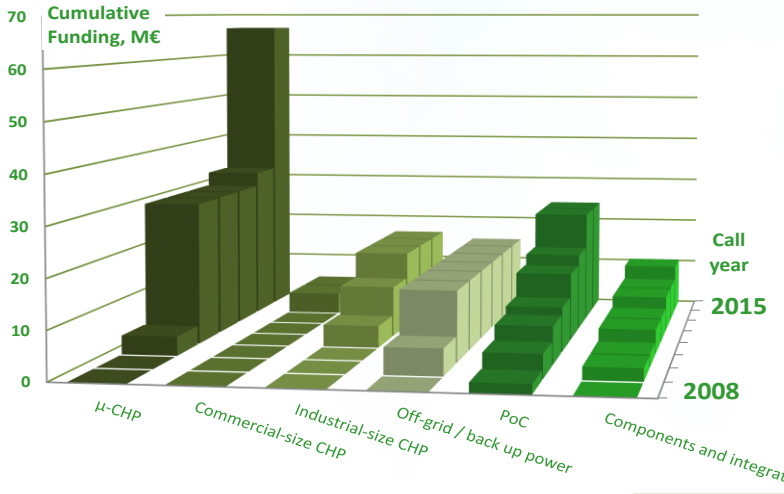


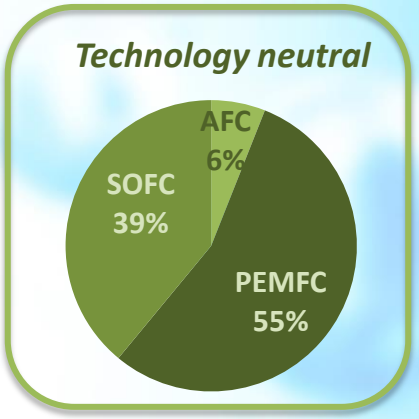


Increased support to field demonstration

27 projects for 140 M€







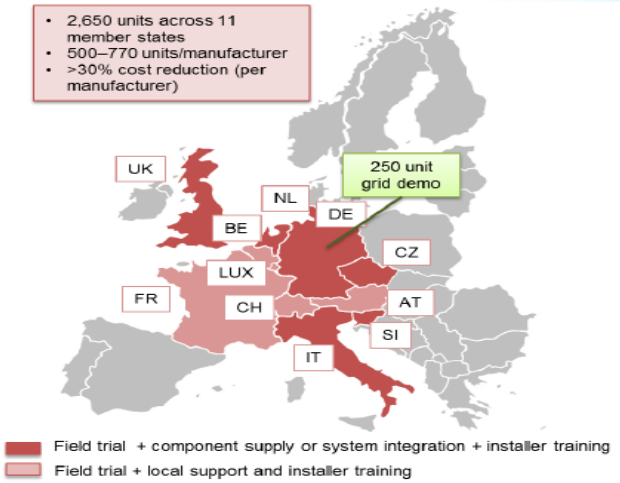
EU supply chain for components

170 kW on biogas from waste-water treatment plant

Pathway to a Competitive European FC mCHP market (over 3000 units)

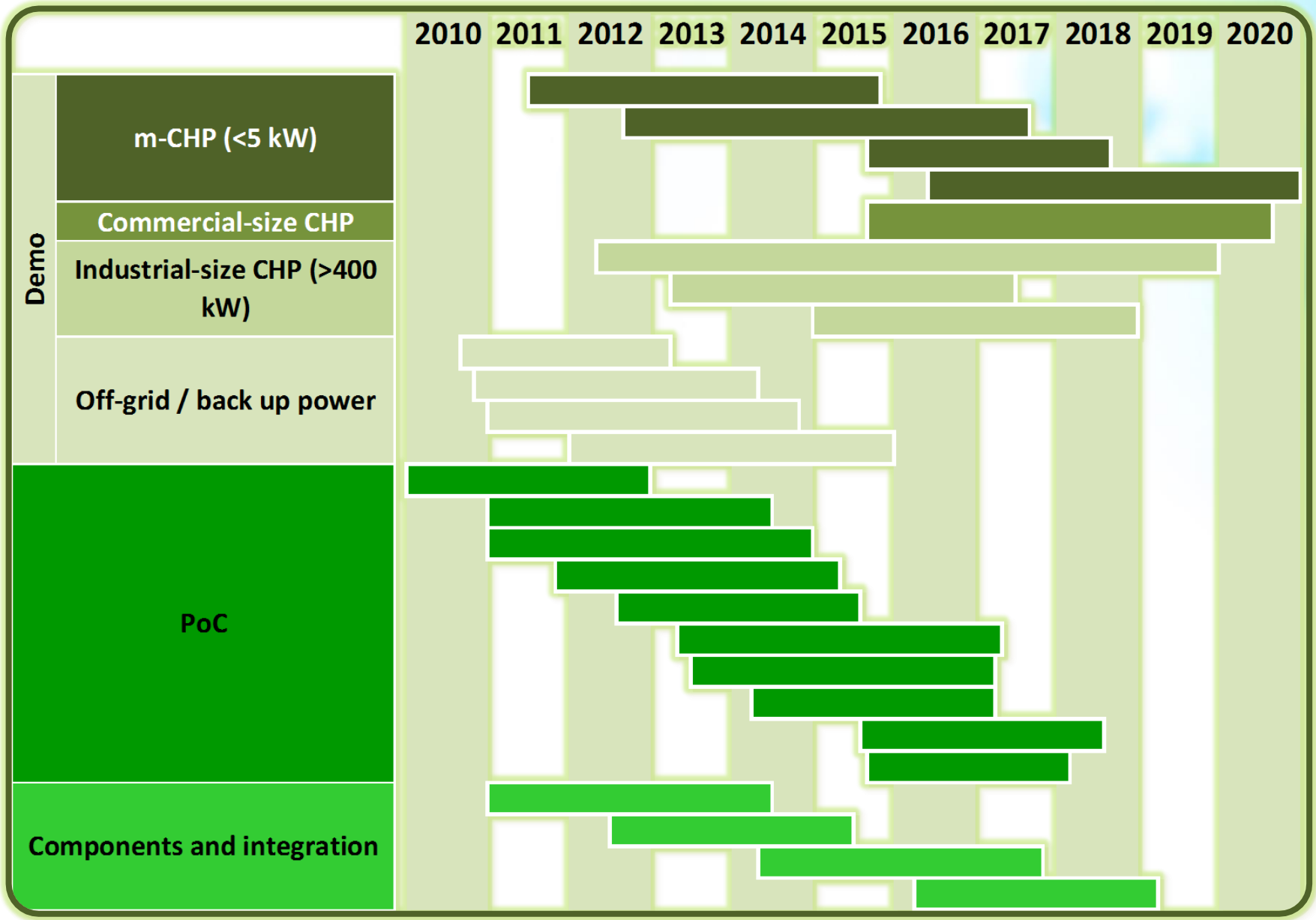
Tens off-grid and back-up power for remote areas/ emerging economies

2 MW using waste H2 from clor-alkali plant in China

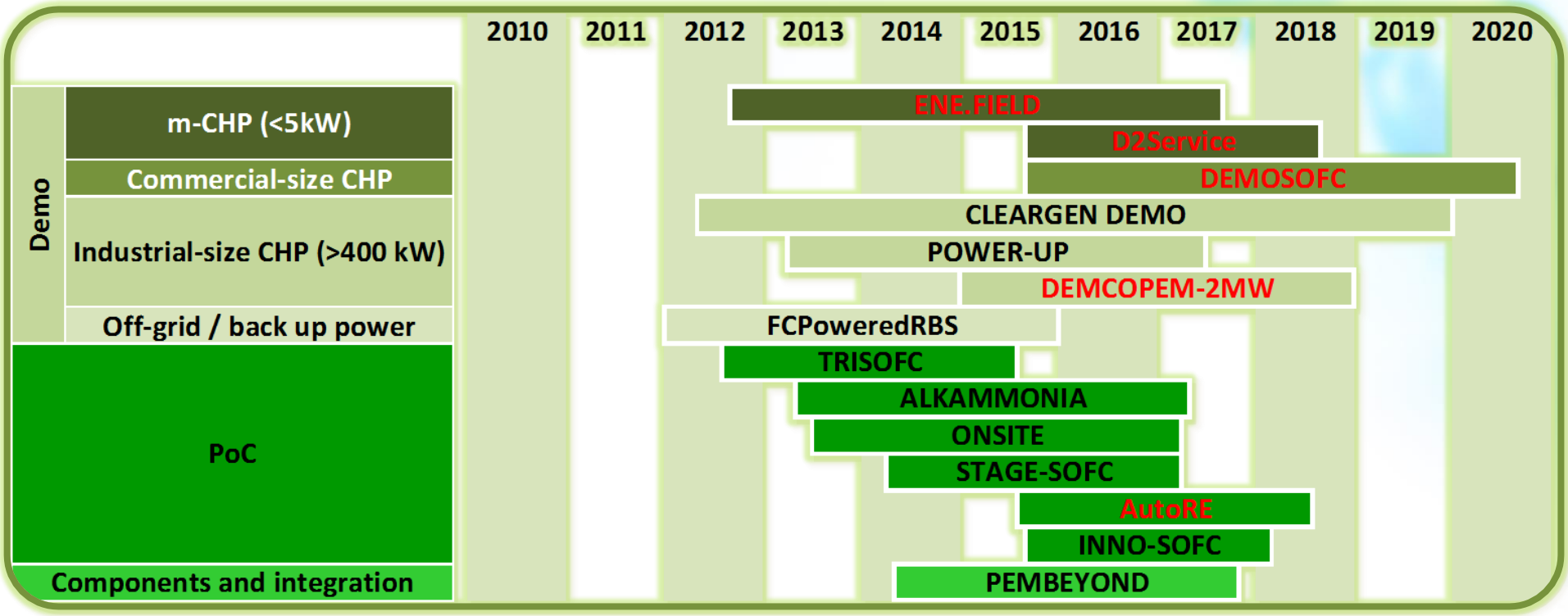


R&D and field demonstration projects still necessary

Scope based on expected learning effects and required volumes



14 projects (72 M€) in the 2016 Programme Review



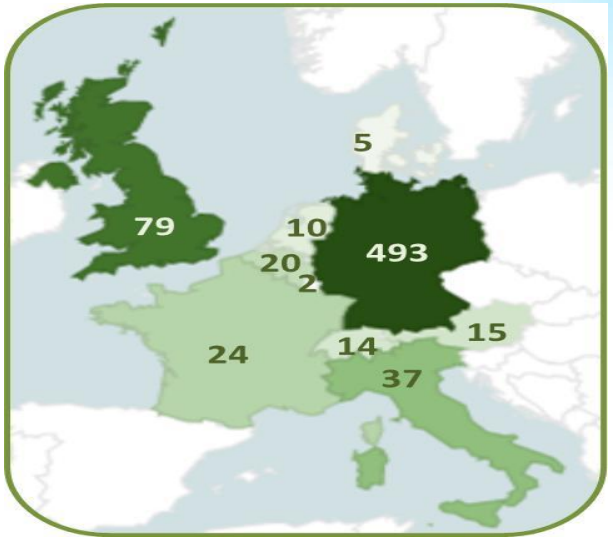
m-CHP: from National to EU initiative and back to roll-up
initial volume uptake, market readiness

	FCH JU project results 2015	Objectives 2017	Non-European SoA
CAPEX, €/kW	⚠	< 14,000	6,100-7,200
Durability, y	⚠	> 12	10-20
Electrical efficiency, %	✓	33-60	39-52
Thermal efficiency, %	✓	25-55	35-56
LCOE, €/kWh	-	< 2.5*grid parity	0.62-0.90
NO_x emissions, ppm	-	< 2	

European Regulations: labelling of FC mCHP found to be unfair compared to other energy systems !

Close to 700 m-CHP systems installed so far in 11 countries across the field trials (by 10 active manufacturers)

Main drivers of cost reduction: Reduce system complexity, Standardisation of component lines, Automation of manufacturing, Increasing volumes



Generating their own electricity allows home owners to cut energy costs by EUR 800 -1,300 per year and reduces exposure to rising electricity prices

Summary

μ-CHP: Pathway to a Competitive European market

FC solutions integrated in industrial processes

Exporting industrial CHP

Off grid for remote areas and emerging economies

Thank you for your attention

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Further info :

- FCH JU : http://www.fch.europa.eu/
- HYDROGEN EUROPE : http://hydrogeneurope.eu/
- N.ERGHY : http://www.nerghy.eu

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