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# PROJECT OVERVIEW

- Title: European wide field trials for residential fuel cell micro-CHP (ene.field)
- Call topic: SP1-JTI-FCH.2011.3.7 Field demonstration of small stationary fuel cell systems for residential and commercial applications
- Duration: 1 Sept 2012- 31 Aug 2017 (5 Years)
- Total Budget: € 53 million (FCH-JU funding: € 26 million)
- Purpose: Through a roll-out of a large scale deployment of stationary FC mCHP, to drive down production costs, to encourage the development of supply chains and the growth of skills to support commercial micro-CHP rollout
- Stage of implementation: 22 months or 36% of the total project duration of 5 years



# PROJECT TARGETS AND ACHIEVEMENTS

Status before project	AIP target	Project Target	Current status/achievements	Expected final achievement
~200 u installed under the Callux project by different manufacturers	>25 identical units in the range of 1-10 kWe	39– 174 identical units from each manufacturer	Installations on initial phase	100%
~200 u installed under the Callux project by different manufacturers	Increase the operational experience of FC in Europe and provide training of personnel.	<ul style="list-style-type: none"> <li>- 8 FC CHP products trialed in up to 1,000 demo sites.</li> <li>- Monitoring for up to 2 year period</li> <li>- Installations representing housing sector market throughout Europe. Operation in various climatic regions.</li> <li>- Manufacturers will perform training on basic installation and maintenance of the system</li> </ul>	<p>Installations and monitoring ongoing</p> <p>Installers trained for installation and maintenance as trials goes on.</p>	100%

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Pre-production	Provide proof of suitable supply chain increase capability including scaling up European manufacturing capacities	stable supply chains will be established to allow the scale-up required for future widespread commercial deployment.	Installations on initial phase (>50 units in FR/DE/CH IT/DK/AT)	100%
None	Estimate full life cycle costs and revise periodically, carry out an environmental sustainability assessment	LCC and LCA will be delivered on 2016	LCC and LCA underway	100%
30% electrical efficiency  70-85% overall efficiency	Efficiency minimum of 35% (electrical) and overall efficiency >85% (LHV)	All products in the trial will meet and exceed 35% electrical efficiency and 85% overall efficiency.	Verified in lab tests. Installations and monitoring ongoing	100%

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Status before project	AIP target	Project Target	Current status/achievements	Expected final achievement
3 years	Progress towards economic lifetime target of 8-10 years	All systems expected lifetime >10,000 hours without stack replacement, with the majority of units expected to achieve >20,000 hours	Installations and monitoring ongoing	90%
Status before project	MAIP target	Project Target	Current status/achievements	Expected final achievement
~200 u installed under the Callux project	Target 2015 - 1,000 units / 10,000 € per system (1kWe + household heat)	960 units by Q4 2015	>50 units deployed	80%

# PROJECT TARGETS AND ACHIEVEMENTS

- Achievements:
  - Manufacturers further investing in design and manufacture
  - New channels to market and substantial supply chain developments
- Next steps in the coming year:
  - Additional manufacturers joining the project
  - Strengthening of new channels to the market
  - Best practices and lessons learnt on training and qualifications during the project
  - First full analysis of the LCA/LCC (2016)
  - Recommendations on the current status of any grid connection issues for mCHP and how to overcome them (end 2014)
  - National dissemination workshops to promote the project and its outcomes
  - Active dissemination of project outcomes among the different stakeholders.

# RISKS AND MITIGATION

- Objective no. 1 - Risk to total deployment of 960 units end 2015
  - A. Partner change (CERES Power withdrawal)
    - Mitigation:
      - Addition of new manufacturing partners
      - Inclusion of CERES on the advisory panel of the project
    - B. Structural changes in utility market => new channels to deploy the units
      - Mitigation
        - Develop new routes to market and direct end-users engagement
        - Adaptation of some products to markets
        - Close assessment of the units at risk
        - Mitigation options underway

# SYNERGIES WITH OTHER PROJECTS AND INITIATIVES

- Interaction with other FCH JU projects
  - **HyGUIDE** - LCA/LCC
  - **Hyprofessionals** - Field support reports
  - **SOFT-PACT** -demonstration project
- Interaction with other national/international projects:
  - **Callux** (Germany) - Frequent contact & advisory panel
  - **Enefarm** (Japan) - Frequent contact & advisory panel
  - **Danish mCHP initiative** - Frequent contact
  - U.S. Department of Energy (Fuel Cell Technologies Program) - Advisory panel

# HORIZONTAL ACTIVITIES

- Training and education:
  - Manufacturers are training installers in the products and maintenance with installations in field trials in different member states.
  - Reports:
    - State of the art of field support arrangements, training and certification (Feb2013)
    - Final review on the lessons learned on training and qualification (beginning 2015)
- Safety, Regulations, codes and standards
  - Report on Regulations Codes and Standards
- COGEN Europe and HyER are the dissemination partners connecting with policy makers and industry.

# DISSEMINATION ACTIVITIES

- Dissemination and Communication Plan structured in 3 phases
  - Initial - (years 1-2)
    - Addressed to general public and utilities to increase awareness and engage them into the project
  - Deployment (Years 2-4; current phase)
    - Focus on engagement of end-users into the project and to increase Communication towards policymakers
  - Findings (years 3-5)
- Presentations at National and international conferences (Spain, France, Netherlands, Belgium, Germany, UK, Italy)
- 3 workshops organised by the project at national level (ES/DE/IT)
- Different press releases (7)
- Newsflashes (4)
- Website adapted to direct end-users engagement

# EXPLOITATION PLAN/EXPECTED IMPACT

- Exploitation and impact:
  - Partners of the project are using results to position themselves for full commercial introduction of FC mCHP
  - New channels to the market are being explored and developed
  - Results of studies are used to influence decision makers to create a supportive regime for FC mCHP commercialisation (through COGEN and HyER activity in Brussels)
- Next stages after the project ends:
  - Further efforts needed to, through volume, lower production costs.
  - A further bridging to market effort for FC mCHPs which reaches significant early stage market levels of deployment is advisable to make full value of the ene.field efforts.