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# analyst view

## ene.field gears-up for deployment

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*ene.field is a European-based residential micro-CHP project. Image: Fuel Cell Today.*

The ene.field project was launched six months ago, at the end of September 2012, so what progress has been made during that time? Fuel Cell Today has reported on a few announcements regarding the launch of its website and knowledge sharing sessions with CALLUX participants, and we recently spoke to Fiona Riddoch, Managing Director of COGEN Europe, the project coordinator for ene.field to find out more.

The project is expected to cost €53 million (with €26 million in European funding from the EU's Seventh Framework Programme (FP7/2007-2013) under grant agreement number 303462), is scheduled to run for five years, and aims to install around 1,000 fuel cell micro-combined heat and power (micro-CHP) units in residential homes across Europe. The EU in its strategic energy technology (SET) plan identified the need to "bring to mass market more efficient energy conversion and end-use devices and systems, in buildings, transport and industry, such as poly-generation and fuel cells". The ene.field project hopes to nurture the fuel cell micro-CHP industry through the ramp-up phase, setting up the necessary supply chain and reducing costs which leads to reduced investment risk once the industry nears full commercialisation.

A total of twelve countries are taking part, with homes in each having differing requirements for both heat and electricity. The number of units to be demonstrated in each country does vary, with some countries expecting over 200 units and others fewer than ten. There have been subtle changes to the

planned distribution of systems since the beginning of the project, which is to be expected as the project continues to take shape, but the overall scale of the distribution has remained the same. What is particularly encouraging is that the total number of systems has not changed, so has not diminished over time like so many other historical fuel cell projects worldwide.

Fuel cell manufacturers account for nine of the 26 project partners, with each company having its own take on how fuel cell technology should be deployed. The fuel cell systems range in size from 300 W up to 5 kW and are a mixture of wall-mounted and free-standing units. Solid oxide fuel cells (SOFC) and proton exchange membrane fuel cells (PEMFC) are both represented, with high and low temperature variants of each available, meaning the systems can be selected to suit the heat and electricity needs of the consumer. Data generated during the project will therefore include a range of property sizes and provide quite an attractive dataset for manufacturers and utilities interested in the deployment of fuel cell micro-CHP in the region.

**Baxi Innotech's** Gamma 1.0 is a PEMFC system which produces 1 $kW_e$ and 1.7 $kW_{th}$; it boasts high electrical efficiency at both full and partial loads and load following capability resulting in higher system utilisation. **Bosch Thermotechnology** recently announced its plans to launch an SOFC micro-CHP system from 2014 in Germany, France, the UK and The Netherlands; it will import the fuel cell technology from Japan. **Ceres Power** is also targeting SOFC technology, but using its own stacks developed in the UK. It recently underwent restructuring and is interested in attracting integrators to help bring its product to market. **Dantherm Power** has tested its 1 kW micro-CHP in domestic trials in Denmark and has plans for a full market launch before 2015. **Elcore** gained CE certification for its Elcore 2400 micro-CHP unit, which it claims will retail for less than €9,000. Its high-temperature PEMFC unit is smaller than most others in the project, producing 300 $W_e$ and 600 $W_{th}$, and is designed specifically to meet the baseload power requirement of a 4-person German home. **Hexis** has already gained knowledge about how its 1 $kW_e$ Galileo 1000 N SOFC system performs from its inclusion in the German Callux project; it claims the unit has a total efficiency of 95% (LHV). **RiesaerBrennstoffzellentechnik's** (RBZ) inhouse5000 is one of the larger units in the scheme, capable of producing 5 $kW_e$ and 7.5 $kW_{th}$. It is a PEMFC system, claiming high total efficiencies of around 92%, similar to other units in the scheme. **SOFC Power's** EnGen unit is produced in both 500 W and 1 kW sizes with electrical efficiencies of between 30–32%, similar to other SOFC systems in the scheme. **Vaillant** completes the list of fuel cell manufacturers with its 1 $kW_e$ SOFC unit (which also produces 2 $kW_{th}$). Vaillant also participated in the Callux project, so already has experience of its units operating in the field.

Fuel Cell Today understands the first fuel cell units are likely to be deployed in people's homes imminently; however, while we have our suspicions, we must wait for the official release to confirm which company will be deploying the systems and where.

Currently ene.field is actively seeking interested parties, particularly utilities, who may be interested in participating in the trials to facilitate the deployment of fuel cell units in the various countries. As we mentioned above, the results of this project will prove invaluable to anyone seriously interested in learning more about the potential for fuel cell technology in Europe because large deployments of this type are a rare occurrence. If you are interested in learning more about participating in the project, contact Fiona Riddoch at COGEN Europe.

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