

PRESS RELEASE

Using Hydrogen to Generate Energy in Your Own Home: efc is Backing a Detailed Knowledge Strategy

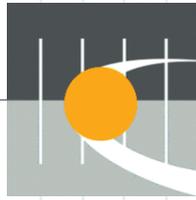
Baxi subsidiary, european fuel cell (efc), strengthened by refinancing program – BC Partners come on board as new principal shareholders of Baxi Group Ltd – Rapid expansion of partnerships with energy suppliers and specialist installation companies in Germany

Hamburg – "The Baxi Group is now approaching an exciting period of growth, and its strategy to further develop the fuel cell has turned out to be absolutely right", Guido Gummert is happy to report. The Managing Director of european fuel cell gmbh (efc), formerly a subsidiary of the Hamburg energy supplier, Hein Gas, has just come back from successful talks with his English parent company, Baxi Group Ltd in Derby. And, indeed, a reinforced market position along with good progress in fuel cell research give him good reasons to be pleased.

Mr Gummert went on to explain that "the acquisition of Baxi by BC Partners, the private equity firm, demonstrates both how highly valued this area of industry is, and the ever increasing general interest that it attracts". Armed with plenty of experience in the sanitary and heating technology businesses, a good nose, boundless energy and even more financial resources, BC Partners is on the look-out for pearls in the investment market. And now, with the Baxi Group and its subsidiary efc, the leading partnership affiliate company in Europe has found one. And, in the present market conditions, that is worth its weight in gold – as, for a long time now, in a tense European market environment, the heating technology business all over Europe has been dogged with companies being driven out of business and ever-increasing mergers. All the specialists in the field agree that the saturation of the market in traditional product areas such as burners, boilers and ventilation will lead to even further consolidation in 2004. Against this background, says Mr Gummert, efc is an attractive business partner for local power and distribution companies and installers.

Innovation potential Made in Germany

In Germany the effects of the directives for energy saving and national emission levels will be visible in the heating sector business by 2005 at the latest – as installations are replaced and modernised. The first markets to benefit from this, however, will be the markets for environmentally acceptable models of standard condensing boilers – or for compact electricity and heat generation systems that use conventional combined heat and power generators, such as the Dachs, developed by the



Senertec company in Schweinfurt, Germany. The true potential of the fuel cell heating unit, however, lies in the long term – in the opening up of new markets for decentralised energy and heat generation in single or multi family houses.

Having a fuel cell in your house is good for your wallet as well as for the environment. You can reduce your mains electricity requirement by up to 75% with energy produced in your own basement. According to Mr Gummert, efc is currently several steps ahead in the development of a fuel cell heating unit for the European market. While other attempts are being carried out incorporating fuel cell units from abroad, efc is concentrating on suppliers and partners in their home market. "We still need eight to ten years before the fuel cell heating units are ready for serial production and we can have clean, cogenerative energy and heat produced in the cellar of every home," he says.

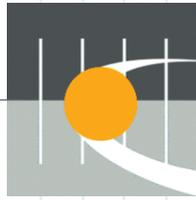
When fuel cell heating units are ready for production, however, the units must sell at a price that is equivalent to the standard price of a boiler plus an additional cost for electricity generation. These costs can then be set off against the significantly more efficient electricity production from the fuel cell in the first four or five years.

By obtaining the best possible component compatibility for the electricity and heat generator, an efficiency of over 80% can be reached with output levels of 1.5 kW electricity and around 3 kW heat. An integrated 15 kW auxiliary heating device will cover any peak heat requirements. The beneficial effects to the environment and your pocket are then clear to see, as private households account for at least a third of the primary energy consumption in Germany. In 2003, that was equivalent to 489 million tons in coal units according to the German Institute for Business Research (Deutsche Institut für Wirtschaftsforschung).

Development with attention to detail. Specialist efc engineers fine-tune each and every module of the system

18 specialist efc engineers and technicians are busy developing the Beta phase prototype units in their laboratory in Ausschläger Elbdeich in Hamburg, based on virtual simulations on PCs. A central part of their work involves checking each component in detail and further developing or adapting it in cooperation with suppliers and research partners. Only after such a selection process, will the modules for the fuel cell heating units be produced. In Mr Gummert's words, "We will have reached our target when each individual module has its own technical integrity within the fuel cell heating system as a whole. This is particularly true of the two key components, the fuel cell stack and the reformer. With this development strategy, we occupy a special position in the market".

"As we have consistently worked with European suppliers in this development, we are not dependent on any American modules. And as we are in constant consultation with each of our development partners, we are able to achieve the best possible configuration of function and size for each technical module in the unit." This is important



for Mr Gummert, who says "just one defective temperature sensor, for example, worth maybe ten Euros, can have a negative influence on the potential performance of the whole technology."

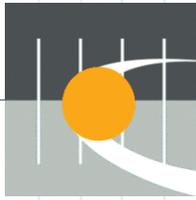
By simulating the operation of the fuel cell heating unit on the basis of the consumption curves of a single-family household you can see the first signs of its possible economic potential. "The software can choose between ten different types of weather conditions and, in this way, it can fairly accurately calculate the individual consumption of a four-person family household – under external conditions that are typical for spring or autumn, for example," says Thomas Winkelmann, the efc product manager. In the simulation monitor, a house with a basement can be seen in cross-section. For purposes of comparison, this is heated by means of traditional heating equipment, and with the fuel cell system. Every day, additional test data from the development laboratory is added to further improve the system and to document the advantages of the efc technology.

In the competition between the old and the new technology on the PC, there is already a clear winner. Under "dull winter weather" test conditions, the value indications for gas and electricity input, energy output and volume of CO₂, show a saving with a fuel cell unit which amounts to several hundred Euros a year (see diagram). "Greater efficiency saves on resources – and this will be considerably more acceptable for the environment", says Mr Gummert. "The BC Partners' financial stake provides great moral support for the strategic development of the efc fuel cell as described and, in the end, that benefits all the efc development partners," said Mr Gummert about this important competitive advantage.

Development subject to the care principle

In the years 2005 and 2006, a hundred field test units are going to be put into daily operation on the premises of energy provider companies. These will be the Beta units – based on the knowledge gained from our experience with the first generation – and will be put into operation one after the other. As Mr Winkelmann puts it, "the amount of energy the unit produces is always limited by how much heat is required". The question of creating awareness, among our future heating system installers and fitters, of the new challenges faced by a forward-looking energy market has also been considered. To this end, efc is looking into ways to include fuel cell technology in the vocational training of heating engineers. To begin with, the Hamburger Gewerbeschule (a Hamburg vocational school) has already been presented a fuel cell device for training and learning purposes.

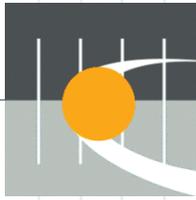
"The experience gained from operating the Beta units under real conditions will provide us with some important pointers for further development of the Gamma phase," Mr Winkelmann explains. "This will provide us with information on, for example, the reliability of the unit, the lifetime of the fuel cell stack and the degree of maintenance required."



In their development of the fuel cell heating unit, driven by hydrogen rich natural gas, into a marketable product, efc can count on the cooperation not only of its English parent company, Baxi, but also of its German subsidiaries, Senertec and Brötje. This cooperation will allow efc to draw on important resources when it comes to manufacturing and selling their units in the future.

Efc is the first German company to receive the ISO 9001 certification for quality management in the development of fuel cell heating equipment. "As we head towards the marketing of our product, care and patience are still what is needed, rather than rashly broadcasting every advance we make," Mr Gummert believes. "The high costs of the unit, combined with a fuel cell lifetime which is too short, are currently our biggest hurdle," he says, but he is convinced that "In the end, it will be the application of streamlined energy conversion technology – not the energy source – that gives us a truly decisive lead."

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About the Company:

+ + + european fuel cell gmbh + + +

European fuel cell gmbh was founded in 1999. It was formed from HGC Hamburg Gas Consult, a 100% subsidiary of Hein Gas Hamburger Gaswerke GmbH and previously part of the E.ON Group. In August 2002, Britain's Baxi Group Ltd., Europe's third largest boiler and heating system manufacturer, acquired the Company.

The Company's business objective is to develop products and concentrate on the effective use of fuel cell heating systems for the single family home. The advantage of the group affiliation lies in the opportunity of being able to fall back on a technically mature corporate structure as well as obtain synergies for more environmentally friendly energy systems through a dialogue with specialists. With regard to the further development of individual components, suppliers are also tasked to propose improvements.

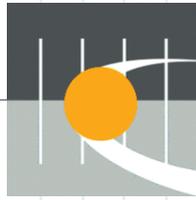
+ + + The Baxi Group + + +

Baxi Group Ltd., headquartered in Derby, UK, is sub-divided into Baxi Technologies, Baxi Heating and Baxi Non-Heating operation companies.

With a turnover of more than 1 billion euros and almost 6,000 employees the Baxi Group is one of Europe's leading companies in the heating system market and the sector's largest in the UK. The Group operates production plants in six European countries and is represented Europe-wide by brand names such as Baxi, Potterton, Aqualisa, Valor, Heatrae Sadia, Andrews, Chapée, Ideal, Baymak and Brötje.

Brötje, the German subsidiary in Rastede, is well-known for its modern heating systems and radiators. The company, which was founded in 1919, produces and markets energy saving heating technology and has been awarded the rating "very good" by Stiftung Warentest for several of its boilers.

The Baxi Group was established in November 2000 through the merger of Newmond plc with Baxi Holding plc. The Group is owned by the companies BC Partners and Electra Investment Trust and financed by the Royal Bank of Scotland. With 650,000 heat generators and more than 600,000 hot water heaters manufactured each year, the Group is Europe's third largest producer in this industry.



+ + + Baxi Technologies + + +

Baxi Group set up Baxi Technologies as its answer to the challenges posed by the government, environmental protection and the changed market. The key aim: to orientate the Company towards new, efficient technologies and advance the development of environmentally friendly energy systems for heating technology.

The switch to cogeneration is the most important change in the heating industry. Cogeneration plants have an extremely effective technology that simultaneously generates electricity and heat. Cogeneration plants achieve an overall fuel efficiency of up to 90%, while conventional technology converts around 30 to 50% of fuel into energy only.

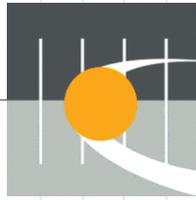
The technical concept for combined heat and power production differentiates between small equipment for one and two family houses and larger units for industry and multiple dwellings.

Cogeneration is currently realised with engine operated power units, and in future with fuel cells. Baxi Technologies will continue this strategy with a combination of research projects and company takeovers.

SenerTech GmbH of Schweinfurt is, with 6,500 installed power units, the market leader of small engine driven cogeneration plants. Under the ownership of Baxi Technologies annual production increased to 1,500 units. With a production orientated sales and service structure, SenerTech already offers access for other cogeneration technologies such as fuel cells.

With the integration of european fuel cell gmbh, Baxi Technologies has strengthened its research capabilities. The aim is to develop fuel cell heating systems that meets the currently challenges of the heating technology sector. On the long development path a field test with the second fuel cell generation is already planned.

Sponsorship for a leading British university: The Group has sponsored the "Baxi Chair for Sustainable Energy Systems" at the School of the Built Environment at Nottingham University. Research and development projects with colleges and universities in Germany are also on the agenda. Close contact with university partners will be maintained by master's theses and traineeships.



Picture captions

Figure 1

Full speed ahead in the development of fuel cell heating units: Guido Gummert, Managing Director of european fuel cell gmbh in Germany, is strengthened in his role as developer of fuel cell heating units for single family homes by the appearance on the scene of the financially powerful private equity firm, BC Partners, as the new main shareholder of Baxi Group Ltd.

Figure 2

Attention to the smallest detail. All components are subjected to test conditions: Making sure each component works as efficiently as possible within the fuel cell heating unit, as seen in the inverter test here, is, according to Guido Gummert, Managing Director of efc, an important part of the product development process. This is because the effectiveness and reliability of the fuel cell heating unit has to be guaranteed in everyone's home.

Figure 3

Something for people who own their own homes to build on in future: According to efc, it will be possible to generate electricity and heat by cogenerative means, and in a way that preserves the environment, from your very own cellar – and this, far more efficiently than can be achieved by today's separate electricity and heat generation processes.

Figure 4

The fuel cell unit as an economic control centre for household energy: The computer simulation makes it all clear by showing input values for each day, registered at one-minute intervals. With these test values, confirmed in several simulation operations, you can get an overview of the operation of a fuel cell heating unit throughout the year, covering almost 6,000 hours. A heating system set up in this way can provide you with savings of several hundred Euros per year when compared with using only conventional heat generation devices. The fuel cell unit, driven by hydrogen (H₂), provides both electricity and heat together in a way that preserves the environment and saves energy. The chemical element Hydrogen is currently obtained from natural gas.