

Press Release

Specialist forum 'f-cell': Boost for fuel cell technology

The National Innovation Program (NIP) for hydrogen and fuel cell technology was one of the top issues at this year's fuel cell specialist forum 'f-cell' on September 29 and 30 in Stuttgart. Investments totaling 1.4 billion euro show: Politics and business in Germany are backing the environmentally friendly technology of the future. In 65 lectures, experts provided information on the state of the art, on demonstration projects, and on market strategies. New national and international 'f-cell' fair exhibitors are identifying market opportunities.

Stuttgart (eos) – The fuel cell sector is getting into gear: This is the impression given by speakers and exhibitors at the eighth international fuel cell specialist forum 'f-cell' on September 29 and 30 in Stuttgart. Approx. 650 visitors from 20 countries acquired information in 65 lectures, some of which were held in parallel, and at 47 fair booths on the latest research into and applications of the environmentally friendly technology. "This year the proportion of foreign guests was a splendid 20%," says Dr. Walter Rogg, chief executive of the Wirtschaftsförderung Region Stuttgart, the economic promotion body that organized the established specialist forum for the eighth time together with the Peter Sauber agency for trade fairs and conventions. "We have succeeded in establishing Baden-Württemberg as an important fuel cell location on the world map of this industrial sector." The Ministry for the Environment in Baden-Württemberg, cooperation partner of the event, also wants to maintain Baden-Württemberg's top position in the research and development of fuel cell systems and accelerate market launches: "Since 2006, we have invested a total of three million euro in the research package 'fuel cell challenge'," said Dr. Albrecht Rittmann of the Ministry for the Environment in the state. "At the start of 2009, the first public hydrogen filling station in the state will go into operation at Stuttgart airport. The State Foundation of Baden-Württemberg is providing 800,000 euro."

NIP: A national promotion program with a signal effect

The federal government is also hoping that hydrogen-driven fuel cells will ensure a long-term, sustainable, climate-friendly energy supply. Within the framework of the National Innovation Program for hydrogen and fuel cell technology (NIP), a total of 1.4 billion euro will flow into the technology in the next ten years. "This will give the field an incredible boost," says Dr. Klaus Bonhoff, chief executive of the National Organization for Hydrogen and Fuel Cell Technology (German acronym: NOW). "We are now starting comprehensive lighthouse projects that broadly demonstrate what this technology can do. We also promote research and development activities. The final stretch is the market launch." The lighthouse project "Callux" is just starting up: By 2012, German energy suppliers will install a total of approximately 800 fuel cell heaters from different manufacturers at pioneer customers. This year's main sponsor of 'f-cell', EnBW Energie Baden-Württemberg AG from Karlsruhe, is involved in this project.

222 fuel cell heaters at pioneer customers in Baden-Württemberg

"Over the next four years, EnBW wants to install 222 fuel cell heaters in Baden-Württemberg. The systems will run on natural gas," says Dr. Wolfram Münch, manager of the research, development, and demonstration division at EnBW. The proportion of the costs to be covered by the energy supplier for the demonstration project amounts to approximately 10.5 million euro. EnBW installed fuel cell heaters at customers and partners as long ago as 2001. So far, a total of 28 units have been set up. The figures clearly illustrate: Things are really beginning to happen now. Callux, an artificial word derived from the Latin words for heat and light, means EnBW is multiplying the number of test systems by ten. "That does not mean, however, that we are not doing anything else," says Markus Edel, project manager at EnBW Vertriebs- und Servicegesellschaft mbH in Stuttgart. "NIP is a national program in which local companies are integrated, but we still also collaborate with international partners, because the fuel cell needs a worldwide network."

Creating the basis for series production

Kai Klinder, also a chief executive at NOW, explains the intention of the 'lighthouse': "The relatively high unit volume is intended to enable the supply industry, which is also integrated in the program, to develop systems and structures for the manufacture of components. This will take us away from laborious single unit manufacturing, create the basis for series production, and lower the costs." Klinder describes the NIP as an economic promotion program that will culminate in marketable products and energy services.

New players on the market

A tour of the 'f-cell' trade fair makes it clear: The fuel cell industry is developing enormous appeal. Dieter L. Gernandt of Sontronic GmbH in Munich, which sells test and measuring systems, is exhibiting for the first time at the 'f-cell', treading completely new ground. "Sontronic products are interesting to the fuel cell industry in two respects: Our electronic load resistors, which we use in power electronics test systems, can also be used to test fuel cells. We also offer our services as a sales partner." Achim Edelmann, manager of the new technologies division at Graebener Maschinenteknik GmbH & Co. KG from Netphen-Werthenbach in Northrhine-Westphalia, also sees himself as a 'lateral entrant': "We are classical mechanical engineers. However, since 2003, we have also been producing metallic bipolar plates for fuel cell stacks." With the so-called hydroforming process, the manufacturer has succeeded in producing the prescribed plate geometry with marked precision. And that's not all that is unusual: Graebener could start immediately with series production of the bipolar plates. "Approximately 1.3 million units per year would not be a problem," says Edelmann. At the moment, however, the medium-sized family company is not earning much in the fuel cell sector. "It only begins to become economical at a unit volume of 100,000. The manufacture of bi-polar plates is a strategic decision, an investment in the future," says Edelmann.

Medium-sized firms as a solid basis for the fuel cell industry in Europe

The chairman of the board of directors of the German Hydrogen and Fuel Cell Association, Dr. Johannes Töpler, thinks this attitude is an exception. "Increasingly short-term thinking in companies has developed into a real stumbling block for new technologies," he criticizes. "The result is that we are walking into a climate and energy catastrophe with our eyes open. Combined worldwide efforts and the intensive promotion of hydrogen and fuel cell technologies by national governments – as in Germany by the NIP – could prevent this." Töpler also says that companies who are taking their future market position seriously staked their claims in the coming hydrogen economy a long time ago. Until recently, 'f-cell' visitor Dr. Olaf Conrad, head of the electrochemical and fuel cell materials division at Next Energy, a research center of the energy provider EWE at the University of Oldenburg, was working in the USA. He says: "From a US point of view, the fuel cell environment in Europe seems very fragmented and poorly coordinated – but that is now changing due to the NIP and the Joint Technology Initiative (JTI) for fuel cells and hydrogen of the European Union. The strength of



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the economy here lies in a broad, highly productive midmarket, which is a very acceptable foundation for the fuel cell industry. This is the advantage we have over the American scene, which is dominated by a small number of research centers and corporate groups."

Certification for micro and portable fuel cell appliances

It can also be seen at the booths of exhibitors who have been attending 'f-cell' for many years: Things are getting serious with regard to market launches – at least in the first areas of application. The Fraunhofer Institute for Solar Energy Systems (ISE) in Freiburg, for example, together with the VDE, the Association of Electrical Engineering, Electronics and Information Technology, will in future be offering advice on the configuration and certification of portable and micro fuel cells that complies with standards. In this sector, there are already handy devices on the market, providing power independently of the mains. In the meantime, miniature fuel cells are competing with batteries. "To date, no one has invested in the necessary expensive testing technology," explains Ulf Groos, head of the fuel cell systems group at the Fraunhofer ISE. "This means that the certifications did not comply with every point in the specifications of the standards and draft standards. For the manufacturers, who of course assume product liability, high testing quality is very important to ensure the predictability of the legal situation. We are now filling this gap."

Manufacturers agree: The fuel cell car is a must

Even though the focus of 'f-cell' in 2008 was on stationary applications of the fuel cell, automobile manufacturers were also prominently represented. Fuel cell experts from General Motors, Ford, Honda, VW, and Daimler gave lectures, and they all agreed: "There is no way past the fuel cell vehicle." At the same time, many car-makers are also working on battery-driven electric vehicles and vehicles that also have an internal combustion engine. "This means the public often has the impression that the fuel cell is no longer an issue," says Dr. Jörg Wind of Daimler in Kirchheim/Teck-Nabern near Stuttgart. "But that's not right. The technologies build on one another." This is confirmed by his colleague at Honda, Thomas Brachmann from Offenbach / Main: "A fuel cell vehicle also runs with an electric engine and also has a battery to buffer energy. Everything we have learned about these components benefits the fuel cell car we are manufacturing in series, the 'FCX Clarity'."

The task of creating a service station network



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Other producers expect commercialization to start in around 2015. "By that time, the service station infrastructure must have been established," says Matthias Bork of General Motors Powertrain in Pontiac, USA. "We have done a calculation for the USA: An initial service station network with 11,700 stations will cost approximately ten to fifteen billion dollars. For oil companies that invest billions in pipelines, this is a manageable amount. What we need now are binding confirmations that they are going to do it." He also said that although the costs will have been reduced considerably by the middle of the next decade the price of fuel cell cars will still not be competitive. "Another reason for this is the initial low unit volumes, which means we need incentive systems that make the vehicles attractive on the market despite this," says Ford fuel cell expert Dr. Roland Krüger. "There are no limits to creativity here: In Sweden, for example, there are free, reserved parking spaces in town centers for ethanol-driven vehicles. In return, buyers are then willing to pay slightly more for the car itself."

'f-cell' 2009

Event organizer Peter Sauber, managing director of the Peter Sauber Agentur Messe und Kongresse GmbH, is already looking forward to 'f-cell' 2009, which will also take place as usual in September next year: "Since 2007, we have also been offering a forum on the subject of market opportunities and strategies. This subject will become increasingly significant in future; we are accompanying an industry on the way into the market – an exciting process."

Within the framework of the 'f-cell' evening event, the 'f-cell Awards' and awards for the 'f-cell vision best poster' were handed over. More information is available on the event homepage on the internet: www.f-cell.de

Stuttgart, 7. October 1, 2008

The following picture material is available. You can obtain the pictures from the Peter Sauber Agency (contact, see below) or on the Internet at www.f-cell.de.



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Once again, the fuel cell specialist forum 'f-cell' at the end of September this year attracted around 650 visitors from all over the world to Stuttgart. Over two days, a trade fair with 47 exhibitors as well as 65 lectures provided information to the audience of experts regarding the state of the art and application of the fuel cell in all areas. A particular focus of discussion: The National Innovation Program for hydrogen and fuel cell technology (NIP), which was presented by Dr. Klaus Bonhoff (photo), chief executive of the National Organization for Hydrogen and Fuel Cell Technology (NOW).

Photos: Peter Sauber Agency / Andrea Fabry

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