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With Attendance Almost Steady, H2+Fuel Cells Exhibit Lifts Hopes for Industry

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HANNOVER – Global economic crisis or not, the 15th Hydrogen + Fuel Cells Group Exhibit here April 20-24 was once again the annual highlight for Europe's hydrogen and fuel cell industry.

For some it even raised cautious hopes it might show a way out of the collective misery. With 148 exhibitors from 22 countries, participation was down only slightly from last year's 156 exhibitors from 23 countries - a far cry from, say, international car sales which typically plunged in double-digit percentages over the last year or so.

Also, the interest shown by leading German politicians was another possible indicator of uplifting trends. German transport minister Wolfgang Tiefensee "spent nearly one hour touring the group exhibit," said exhibit organizer Tobias Renz. It was short of the goal of 200 exhibitors Renz announced last year, (H&FCL May 08) but that was before anybody could have known about the global economy's free fall.

Tiefensee evidently liked what he saw: "At the following press conference he spoke for almost half an hour - almost like an official government policy statement," added Renz.

The reappearance of Smart Fuel Cell AG (SFC), maker of direct methanol fuel cell systems, after a six-year absence - SFC last took part in the group exhibit in 2003 - helped to lift Renz's and everybody's else's spirits. With its exhibit reps all dressed in light-green outfits, the manufacturer, based in Brunthal-Nord near Munich, was the group exhibit's star attraction, showing a dozen fuel cell vehicles in a special ride-and-drive area set aside for SFC products, to the delight of many visitors who took advantage of the opportunity.

SFC's Market-Ready Products

SFC was just about the only manufacturer showing market -ready fuel cell products. Developer of the EFOY family of direct methanol fuel cells, SFC concentrated in the intervening six years entirely on consumer product fairs, especially in the camping and mobile home sector where the company has sold more than 13,000 fuel cell systems so far.

Now SFC's CEO Pter Podesser wants to move into the industrial sector before anybody else upstages him. Together with partners he showed a number of other possible applications which, he says, have already intrigued California Gov. Arnold Schwarzenegger during his visit to CeBIT, the world's largest information and telecommunications exhibit also held here in March 2009. Among them: the autonomously operating FireWatch system for automated early forest and bush fire detection, a product developed with Berlin-based IQ wireless GmbH and based on a design by the German aerospace agency DLR, of interest to the governor because of the frequent devastating forest fires in California.

SFC's display booth was special because it showed real market-ready systems while many other manufacturers showed mere mockups or prototypes. Minister Tiefensee sat down on a SFC fuel cell-powered electric scooter, as did Matthias Platzeck, prime minister of the "Land" (state) of

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Brandenburg (See p.5, Enertrag).

Baxi Innotech's 3rd Generation PEM System

For years, a traditional key feature of the group exhibit has been residential energy supply, and this year there were two positive and one negative developments. Baxi Innotech GmbH, Hamburg, showed as part of the Initiative Brennstoffzelle (IBZ, Fuel Cell Initiative) its by now third generation of its low-temperature PEM-based fuel cell heating system, dubbed GAMMA 1.0. Compared to its predecessor BETA 1.5, this version is more efficient, produces fewer CO₂ emissions coupled to a longer lifetime of 20,000 hours and reduced costs. The control software has been optimized, measuring technology as well as piping length were reduced, and water management was improved.

The new system which is beginning to look like a nearly market-ready unit, is rated at 1 kWe compared to 1.5kW for its predecessor, result of greater optimization of the electricity-to-heat output ratio. This, said Baxi Innotech managing director Guido Gummert, "allows us to operate more frequently at the "Nennlastpunkt" (roughly, rated operation point). GAMMA 1.0 can meet the total heat and warm water needs and almost three quarters of the electricity needs of a typical German single-family home. An initial small production run aimed at market preparation is scheduled to start field tests in October.



Klaus Bonhoff, managing director of the German National Hydrogen Organization, addresses the discussion forum at the Hydrogen +Fuel Cells Group Exhibit (Photo by Sven Geitmann).

Baxi Innotech which previously developed its own low-temperature PEM fuel cells has given up on that and instead has signed a cooperation deal with Ballard Power Systems. It provides for the exclusive supply of Ballard's FCgen-1030 stack to Baxi as part of the German residential Callux subsidy program (H&FCL April 09), with Baxi guaranteeing purchase of an unspecified minimum number of stacks.

Together with its American partner Plug Power, German heating air conditioning and ventilation equipment manufacturer Vaillant showed a new fuel cell heater prototype, a mere month after it had completed lab tests of this new high-temperature PEM system. On the plus side, Vaillant and Plug managed to reduce the unit's volume by one third, with a stack output of about 4.6 kW. But, admitted product development manager Alexander Dauensteiner, "the high-temperature PEM power density still doesn't match that of the low-temperature PEM." More development work is needed, and Vaillant has hired four more specialists for that.

On the downside, fellow competitor and IBZ member Viessmann, of Allendorf (80 miles northeast Frankfurt), has halted development work and pulled out of the Callux program, but, said new technologies manager Juergen Pawlik, it is staying with IBZ. It still regards the potential of micro-cogeneration technology as promising, but doesn't expect any real market viability until after 2015. Viessmann meanwhile plans to concentrate on developing Sterling engine technology for which it expects market

readiness in 2012.

IdaTech Lights Up German State Display

Many fuel cell companies displayed their products in a joint display organized by the German "Land" (state) of Northrhine-Westfalia - and at the same did their best to promote next year's World Hydrogen Energy Conference May 16-21 in Essen (See "Events" calendar). Like last year, IdaTech, Bend, OR, provided 2 kW-plus electric power to the 600 sq. m. (6,400 sq. ft.) exhibit area with its ElectraGen-XTi fuel cell system. Michael Tausch, European key account manager for German subsidiary IdaTech Fuel Cells GmbH, said the company had just sold 35 units to a major U.S. mobile telecom company in Florida and that it had sold a huge order of 30,000 systems to India, using Ballard Power System's manufacturing capacity (H&FCL Nov. 08, Jan. 09).

Masterflex Brennstoffzellen-technik GmbH, the Herten-based builder of the three-wheeled fuel cell cargobike (H&FCL March 05, March 08), showed a handy replacement for diesel generators developed for Fischer Panda, maker of commercial/marine/military generators in Oakland Park, FL. The 400 W system consists of two 200 W PEM fuel cells. For the linkage to the water supply, Masterflex has developed a new suction module which pulls the gas needed to run the fuel cell from the storage tank, eliminating gas losses from possible leaks and improving operational safety. With fuel cell development progressing smoothly, the situation of parent Masterflex AG, a maker of high-tech hose systems, is precarious with losses of Euro 15.7 million (\$20.8 million) last year. So far it's unclear whether the fuel cell subsidiary will be expanded or whether it will be shut down.

Generally speaking, a sense of cautious optimism prevailed in Hannover. The world's rampant economic crisis continued to be one of the main themes, but when asked more detailed questions about their respective companies, there were a lot of positive responses. The time of single units cobbled together by hand seems to be over, and many suppliers reported growing sales. Almost all of them have hired more personnel in recent weeks and months to meet demand both for development and production.

The mood seemed to reflect a measure of confidence that innovative developments such as fuel cell technology are predestined to show the way out of the crisis. Market-ready products are still scarce, but the existing hardware has largely passed the experimental stage and is already finding applications in certain niche markets. Some folks have noted parallels to solar technologies which took a comparably long discovery period and which in recent years have experienced a genuine economic boom.

By Sven Geitmann in Hannover. Geitmann is editor and publisher of "HZwei," the German quarterly magazine for hydrogen and fuel cell technology. It is published by HydroGeit Verlag, Germany's only publisher specializing in this area. He can be reached at www.hzwei.info and www.hydrogeit.de.

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