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Translation of Article in Frankfurter Allgemeine, April 21, 2004

Fuel Cell Family Reunion

Pioneers still fighting with start-up problems of a new Technology

Hanover, April 20th. Fuel cell-technology could possibly become the key-technology for the reduction of CO₂-Emission. With respect to this, the experts of the podium discussion of The Association of Engineers (VDI), Germany, at the Hanover Fair agree. At the end of the 90s, the use of Fuel Cells was seen as too optimistic, but now the opposite is true: they threaten to underrate this technology. "The strategic importance of this market segment should not be underestimated", warned Wolfgang Winkler, Head of VDI-Expert Committee Fuel Cells. It could well be that the development of manufactured products will be achieved in foreign countries and Germany would then lose its leading position in developing new technologies.

One of the most passionate promoters of the Fuel Cell Technology – which would be able to make us independent from oil prices – is Arno Evers. Born in 1946, the technical entrepreneur became the head of the press department of Messerschmitt-Bölkow-Blohm (MBB). At the age of 45 years he was no longer satisfied with being an employee. Therefore, he created his own business and started to organize special tradeshow for the Deutsche Messe AG. Among these trades shows was also a fair about hydrogen- and fuel cell-technology, which was a young topic in 1995. As is often the case, this fair took three years to develop. The results were modest: 21 exhibitors covering 175 square meters. "We'll never make a cent with this; Let's give up", the Deutsche Messe AG decided. But Evers didn't give up. Since 1998 he has rented space from the Deutsche Messe AG and has organized the Group Exhibit-Hydrogen + Fuel Cells at his own risk. With only two employees at the start, Evers had to fight for every single exhibitor. The breakthrough came in 2000 when the first American exhibitors came to Hanover. The following year, total exhibit space tripled, and in 2002 it grew again by another 70 %. This year, total display space is roughly the same again at 1400 square meters in the wake of the downturn in 2003 due to the SARS scare. Some 100 exhibitors are presenting their success stories in hydrogen and fuel cell technologies at his Group Exhibit. "It doesn't really look like a fair", some exhibitors say. It feels more like a family meeting of the industry. In the morning, exhibitors get breakfast, and at noon they're served a warm lunch. If somebody needs decorations for their booths, and if anyone needs a quiet room to talk to a client, they can turn to Evers and his seven full-time staffers. As one exhibitor described Evers' contribution, "Once a year we, who normally

compete and don't give anything away, get together here and compare notes.", something for which Evers charges \$1000 per square meter.

Evers believes in this technology. "This all goes up and down with the oil price", Evers believes, explaining the still absent breakthrough on the market. If the oil price goes straight up, then the time of the fuel cell will come. The fuel cell reverses the process of electrolysis which we all know from our physics lessons at school. The students learn that you can separate water into hydrogen and oxygen when you add energy; in this case electricity. The fuel cell reconnects hydrogen and oxygen and extracts energy which is emitted. This energy can be used to power cars or heat houses. Today the main problem is dealing with hydrogen as a source of energy. The VDI believes in this technology. The final breakthrough is expected in ten years, at the earliest. Arno A. Evers, however, is more optimistic in this regard. One positive reason is that the major oil enterprises are interested in obtaining access to this technology. Approximately 20,000 people are working on fuel cell breakthroughs worldwide and Evers has 15,000 of these developers in his files.

Linde, Still and Proton Motor Fuel Cell are currently cooperating on the development of a hydrogen-powered fork lift now undergoing tests at Munich Airport. The oxygen needed for this process is extracted from the surrounding air. Additionally, the German research institute, Deutsches Zentrum fuer Luft- und Raumfahrt e.V. (DLR) and Airbus are working on a joint project to use fuel cells to generate electricity onboard airplanes. Viessmann, a German high-tech heating-systems company, is currently running a trial heating project in a Spanish hospital.

Evers is also promoting and developing his Group Exhibit: Hydrogen + Fuel Cells. In November of this year, a hydrogen and fuel cells group exhibit will take place in China for the first time – a joint venture of Arno A. Evers Fair-PR and the Chinese Ministry of Science and Technology. An assumption exists that automakers do not promote hydrogen cars because this could make the combustion engine redundant. However, some hydrogen and fuel cell companies expect that China will be the first market where the mass production of hydrogen and fuel cell technology will occur. Many manufacturers expect that if China wants a hydrogen car, then this trend will spread across the world.