

Press Information

Successful conclusion to hydrogen project H₂argemuc

(Munich, December 12, 2006) The internationally renowned hydrogen project H₂argemuc at Munich Airport is about to celebrate its successful conclusion. Following a two-year planning, approval and construction phase, the project members tested various technologies for the production and use of hydrogen for a further eight years. At the end of this year the fourth phase of the Bavarian innovation project is coming to an end. H₂argemuc – which was founded on 1 January 1997 with the world's first public hydrogen filling station – regards the project as a success. With the support of the Bavarian State Ministry for Economics, Infrastructure, Transport and Technology the twelve partners have demonstrated the suitability of hydrogen for everyday use. The findings from the project will now be transferred to other hydrogen projects within the framework of new partnerships.

“We have shown that hydrogen technology is mature for deployment and that hydrogen is both feasible and possible as a fuel,” sums up Rainer Hörll, chairman of the partner group. “H₂argemuc was a forerunner for many subsequent projects; for this reason we are very satisfied with the course it has taken and with the results from the ten-year demonstration project.” The interest in the project on the part of experts and the general public alike was tremendous: 15,000 people visited H₂argemuc and were able to convince themselves of the benefits of the innovative technology. Passenger vehicles and apron buses have covered a total distance of over 500,000 kilometres without any incidents – this equates to travelling around the earth twelve times. 8,000 refuelling procedures took place at the filling station, with 115,000 kg of hydrogen being tanked. Since August 2005 the hydrogen buses have even been used in scheduled passenger services.

In a total of four project phases the range of services covered the daily operating business with the fuelling of passenger vehicles and buses with gaseous and liquid hydrogen, through various production forms such as a steam reformer and electrolysis, to a robot filling station. “We have tested all the methods for hydrogen

production and all the application possibilities,” is how chairman Hörl proudly summarises the project. Buses with fuel cell technology and an internal combustion engine were also tested, as was an environmentally-friendly forklift truck with a fuel cell.

“Our objectives were ambitious right from the very outset,” says Rainer Hörl. The task was that of developing and implementing a holistic safety technology concept, analysing economic framework conditions, and winning over a wide audience for the topic. The partner group at H₂argemuc wanted one thing above all else: To demonstrate the reliability of hydrogen and its suitability for everyday use.

With the support of the Bavarian state government the technology leaders opened the world’s first public hydrogen filling station within the framework of the project on 5 May 1999 at Munich Airport. The Bavarian state government has long placed great expectations in hydrogen and fuel cells: In recent years the state has made available over 50 million euros for these technologies. Thus Bavaria has invested more in hydrogen research and development than all the other German federal states put together. Through the active and timely support the state has established a leading position worldwide. The hydrogen project H₂argemuc has been funded to the tune of 18 million euros in the past 10 years. The project partners have contributed the same sum, with the effect that the investment volume totalled 36 million euros.

The demonstration project was an important step from the prototype stage towards market maturity. Further operation of the components installed within the framework of H₂argemuc would not provide any new findings, however. “It is therefore the logical consequence that the technologies – whose advancement would not have been possible without H₂argemuc – now be transferred to other projects,” is how Hörl explains the decision taken by the partner group.

In the past H₂argemuc has served as a forerunner for the hydrogen world: The technologies deployed by the Bavarian hydrogen experts have been further developed and implemented in international projects. Thus findings from H₂argemuc formed the basis for the Clean Energy Partnership (CEP) in Berlin, for example, and for the European bus project HyFLEET:CUTE. “H₂argemuc has provided valuable findings for day-to-day testing,” stresses Rainer Hörl. “The partners will, naturally enough, be continuing this in their activities.”

In the future the partners intend to focus on the further development of hydrogen technology. The plans range from testing for the automotive industry, through a small series of city buses, to the development of a hydrogen infrastructure. Projects such as CEP, Zero Regio, HyFLEET:CUTE, HySafe, HyStore, Roads2Hycom, Hydrogen Center Lohhof, and a new filling station in Munich are to be expanded to a greater degree. The objectives of the companies remain ambitious: Engine components are to be improved, sub-assemblies standardised, fuel cells increasingly deployed in commercial vehicles, ships and stationary electricity supplies. The fuel cell hybrid bus is also to be further developed. And the first hydrogen luxury vehicle to complete the full series development process was recently presented to the public; it will be made available to a select circle of users from 2007 onwards.

H₂argemuc was founded on the initiative of renowned technology leaders, who established the world's first hydrogen project with a public hydrogen filling station on 1 January 1997 at Munich Airport. From then on the partners cooperated in a dynamic process, testing and successfully further developing all the technologies for the production and use of hydrogen in permanent operations, finally demonstrating its suitability for everyday use. Thanks to the cross-technology practical experience over many years H₂argemuc forms an important module within European hydrogen technology. Promoted and funded by the Bavarian State Ministry for Economics, Infrastructure, Transport and Technology H₂argemuc has fulfilled a pioneering role in the implementation of innovative technologies and made a major contribution to lowering the burden on the environment and preserving resources in the field of non-renewable energies.

In the fourth project phase H₂argemuc constituted the partners Aral, Bayerngas GmbH, BMW Group, E.ON Bayern AG, Flughafen München GmbH, Grimm Aerosol Technik GmbH & Co. KG, The Linde Group, MAN Nutzfahrzeuge AG, PROTON MOTOR Fuel Cell GmbH and Siemens AG. These partners were supported and assisted by the operative project management company ET Energie Technologie, and received advice on safety aspects from TÜV Süddeutschland.