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## **GM, BMW To Jointly Develop Liquid Hydrogen Refueling Technology**

Munich, Detroit. General Motors Corp. and the BMW Group will jointly develop refueling devices for liquid hydrogen vehicles, and invite other carmakers and suppliers to join this initiative, the companies announced today.

"We want to accelerate the progress being made on the distribution and on-board storage of liquid hydrogen as the future fuel," said Dr. Lawrence Burns, GM's vice president of Research and Development and Planning. "Both compressed and liquid hydrogen hold promise to be used in hydrogen vehicles. The density of hydrogen in a liquid state is especially attractive with respect to fuel distribution and vehicle range."

The collaborative work will center around setting global standards, establishing specifications for suppliers and finding the best technical and cost effective solution, according to Christoph Huss, BMW's head of Science and Traffic Policy.

"In the long term, we are expecting a nationwide network of 10,000 hydrogen filling stations in Germany," Huss said. "Even today, however, we have to start working on a standard so that customers will not be confronted with various systems. Standardizing the refueling coupler is a must. Liquid hydrogen provides the most convenient way in transporting hydrogen fuel before a hydrogen pipeline infrastructure is in place. By teaming together, we will help bring about the liquid hydrogen infrastructure faster."

GM and BMW's goal is to have affordable and compelling hydrogen vehicles for sale by 2010 and the companies need to concentrate on the storage and handling technology to achieve this goal.

Future liquid-hydrogen coupling units will follow draft specifications by the European Integrated Hydrogen Project (EIHP). The EIHP's drafts are the basis for the United Nations' Economic Commission of Europe (ECE) standard for hydrogen-powered vehicles currently being negotiated.

"BMW and GM want this refueling system — with the coupler as a core component — to become a global standard," Huss said.

"Hydrogen can be established as the fuel of the future faster if companies, such as BMW and GM, cooperate in the development and standardization of hydrogen and fuel cell technologies," said Dr. Udo Winter, chief engineer at GM Fuel Cell Activities.

By signing this development agreement, General Motors, the world's largest automobile manufacturer, and the BMW Group, the world's only manufacturer concentrating solely on premium vehicles, have made a big step forward in realizing and standardizing hydrogen technologies.

General Motors (NYSE: GM), the world's largest vehicle manufacturer, designs, builds and markets cars and trucks worldwide, and has been the global automotive sales leader since 1931. GM employs about 350,000 people around the world. More information on GM can be found at [www.gm.com](http://www.gm.com).

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