

Toyota Prius natural gas hybrid prototype

Another step forward for the environment

A demonstration organised by IFP and Gaz de France ...

In the wide range of alternative energy solutions, IFP and Gaz de France are placing great hopes in the combination of innovative engines with natural gas fuel - a natural gas that is identical to that used for industrial and domestic purposes (heating, cooking, ...) and which offers the same safety guarantees. The vehicle's autonomy is ensured by storing the gas under pressure in specially designed fuel tanks.

... to prove the potential of the natural gas hybrid solution in the combat to reduce automobile pollution

- Reduction of the greenhouse gases that play a role in global warming

The Prius natural gas hybrid emits **less than 80 g of CO₂ per kilometer travelled** (*), which represents an **improvement of 23%** compared to the **Prius petrol hybrid** (104 g CO₂ / km).

- Emissions of **regulated pollutants in conformity** with the current Euro 4 standards, while maintaining the original exhaust system of the gasoline-driven car.

A simple and well thought out technological solution

- Prototype **working only with natural gas**. The original gasoline engine has been modified to accept this fuel. The automatic thermal natural gas engine / electric engine management strategies were not modified in any way.
- Replacement of the gasoline tank by **lightweight and resistant natural gas tanks** (composite material), protected from the heat and from splashes, providing an **autonomy of 200 km in mixed usage conditions** and more in urban driving conditions.
- Clever positioning of the natural gas storage under the vehicle chassis to maintain **interior space and the volume of the boot**.

(*): performance measured on a chassis dynamometer, using a standardised European mixed cycle.



IFP – Gaz de France: their commitments to road transport

IFP

As a center for industrial research and development focusing on the fields of energy, transport and the environment, IFP is a major player in new engine and fuel technologies. In an energy context marked by the need to diversify energy sources and protect the environment, IFP provides innovative solutions for sustainable transport development in coming decades. On the strength of its unique expertise in the field of fuels and powertrains, IFP conceives alternative fuels (biofuels, synfuels, etc.) and develops clean, economic vehicles (NGV or biofuels, hybrid powertrain, etc.).

IFP's transport business, and, more specifically, its Powertrain Engineering Business Unit, draws on the skills of multidisciplinary teams, comprising over 200 highly specialized engineers and technicians, and is supported by a very broad range of testing facilities and equipment. The research program is hinged around the following strategic themes: fundamental research (particularly in the field of combustion), low-emission engine technologies (CO₂, pollutants, noise), engine control, advanced fuels and lubricants as well as alternative fuels with low greenhouse gas emissions, and demonstrators.

Gaz de France

Because it is a genuine alternative to oil-based products, using as it does a conventional heat engine, natural gas fuel contributes to sustainable development and participates in the diversification of energy sources, thus falling under the European Union's policy of fuel diversification.

For a number of years, Gaz de France has been using its experience and its extensive industrial experience to make natural gas a genuinely promising alternative fuel. The research that the Group has undertaken in the use of natural gas as a fuel has meant that it is coming to be increasingly used, and that the market is in constant growth, first and foremost with local authorities (buses and cleaning and waste collection vehicles), company vehicle fleets and, more recently, with private cars. The advantages that natural gas displays mean that it is imposing itself as a credible solution for the necessary changes in road mobility in coming years. Natural gas fuel is a means of reconciling the desires of car users with the challenges facing the transport and energy sectors in the years to come, in terms of the environment, of public health, of energy supplies, prices, performance and comfort of use. Gaz de France offers a whole new energy for automobiles.

To find out more:

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