VEHGAN

Mild-hybrid urban vehicle

Based on the Smart fortwo with a downsized turbocharged CNG engine

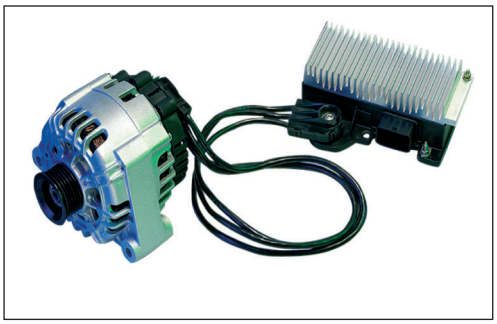
An efficient concept: mild-hybridization

- improves driving agreement during start/stop phases by reducing noise and vibrations;
- provides tight control of the torque flow through the powertrain for vehicle start-up;
- enables choice of high-efficiency engine running modes to reduce energy consumption;
- enables braking energy recovery.

An environment-friendly vehicle

IFP has proven with previous demonstrators that CNG vehicles can cut CO_2 emissions by 25% or more compared to equivalent gasoline vehicles.
With Vehgan, IFP reaches CO_2 emissions 32% lower than those of standard gasoline vehicles (less than 80 g/km against 118 g/km), with customer-attractive performance, improved fuel economy, and compliance with Euro 5 emissions standards.

IFP Vehgan demonstrator vehicle.



StARS electric machine extension from Valeo.

IFP is a world-class public-sector research and training center, aimed at developing the technologies and materials of the future in fields of energy, transport and the environment.

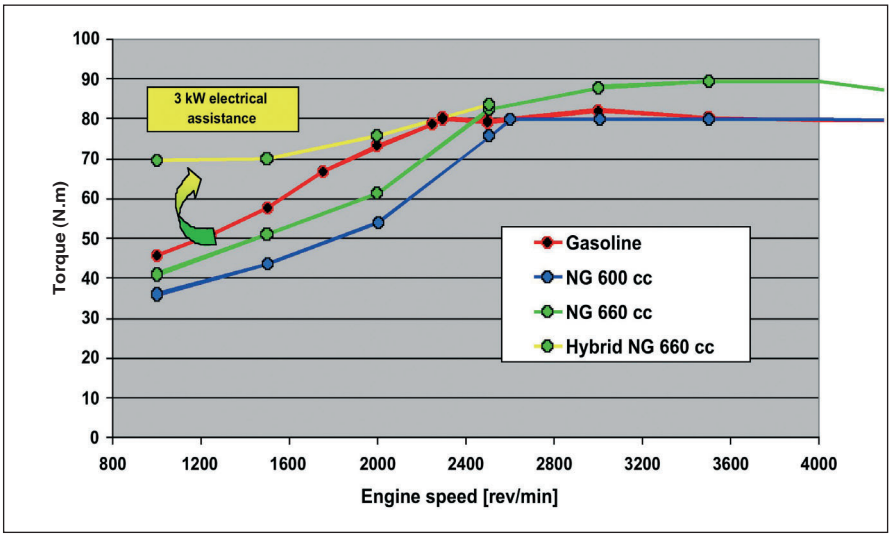
Innovation Energy Environment

A fun-to-drive urban vehicle

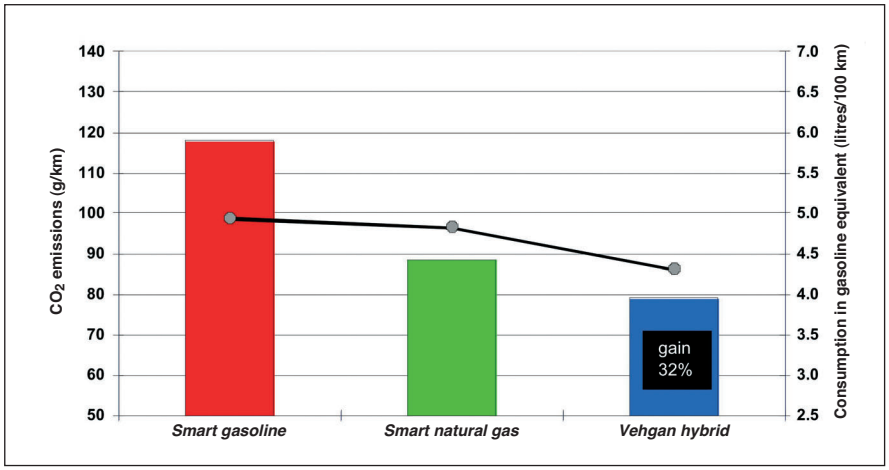
- quiet start/stop;
- excellent low-end torque thanks to electrical assistance;
- integration of the three ultra-light composite tanks under the chassis: no increase of vehicle weight, passenger space and ground clearance unchanged;
- average driving range of the order of 300 km.

A concentration of IFP technologies

- strong downsizing concept;
- dedicated CNG engine;
- mild hybrid version with recuperative braking;
- dedicated IFP engine management developed with the latest tools (Hardware in the Loop model based calibration):
  - mastery of the automatic manual transmission (AMT);
  - implementation through a network of decentralized electronic control units (ECUs), with a powertrain control system integrating engine, motor, and transmission control.



Torque comparison at full load.



CO_2 emissions and consumption in NEDC (New european driving cycle).

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The information contained in this document is not contractual

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