



# Ethanol Summit 2011

## Flex Fuel Systems Evolution

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Comercial

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# Company overview



Magneti Marelli is an international company committed to the design and production of hi-tech systems and components for the automotive sector.

## AUTOMOTIVE LIGHTING

## POWERTRAIN

## ELECTRONIC SYSTEMS

(Instrument clusters, Infotainment & Telematics, Lighting & Body Electronics)

## SUSPENSION SYSTEMS

(Suspension Systems, Shock Absorbers, Dynamic Systems)



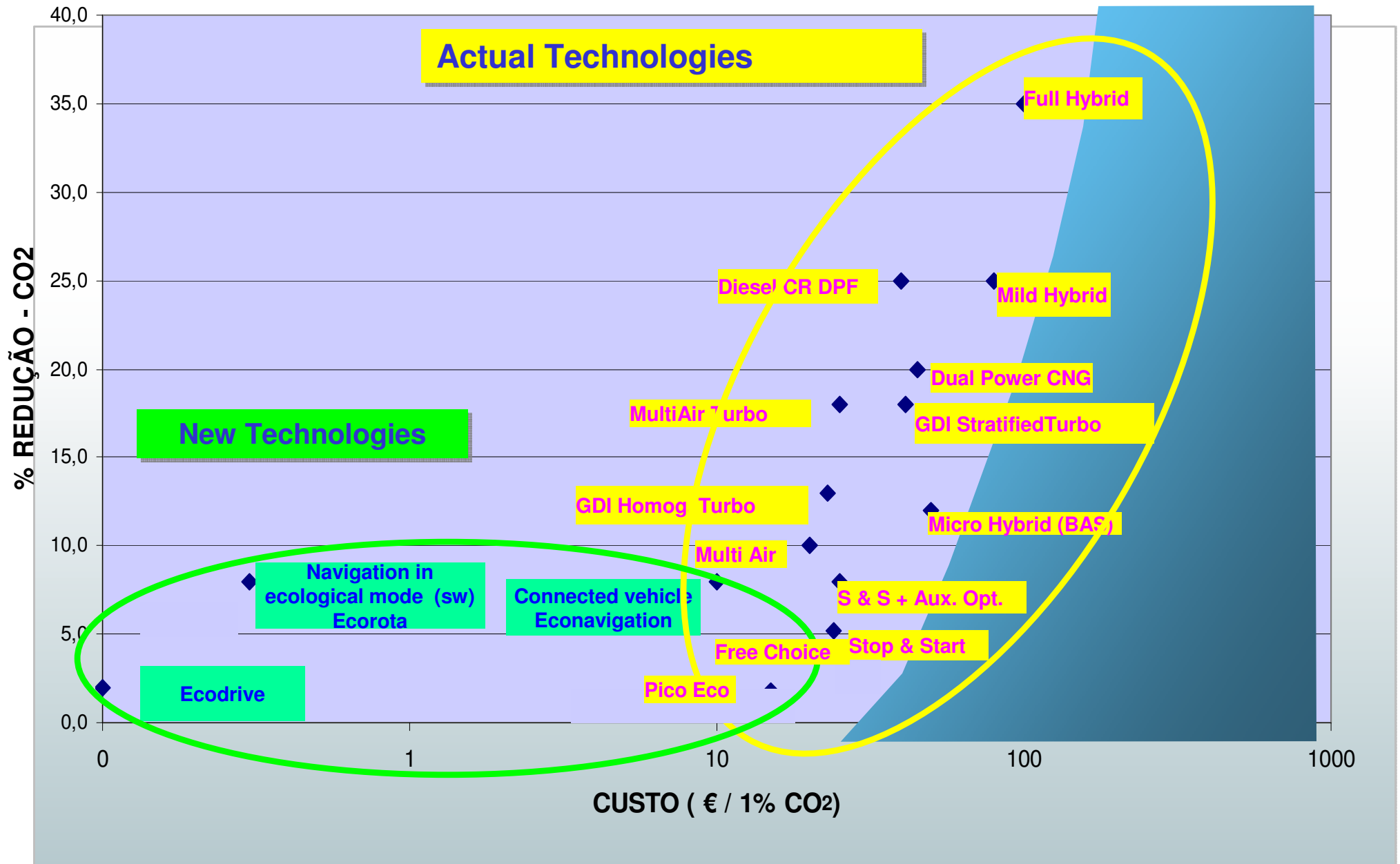
## EXHAUST SYSTEMS

## PLASTIC COMPONENTS AND MODULES

## AFTERMARKET PARTS & SERVICES

## MOTORSPORT

# CO<sub>2</sub> reduction: the challenge



# SFS® - Flex Fuel System Evolution



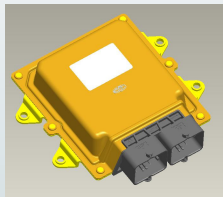
## SFS EVOLUTION



2003



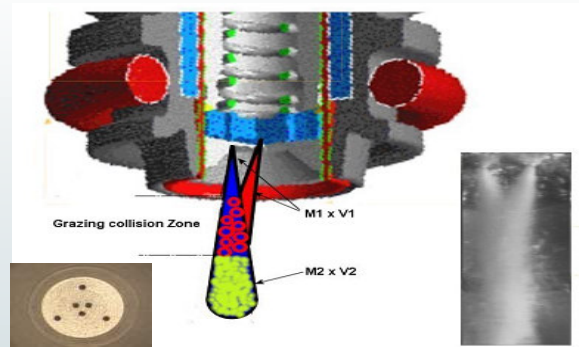
2006



**New ECU Family**

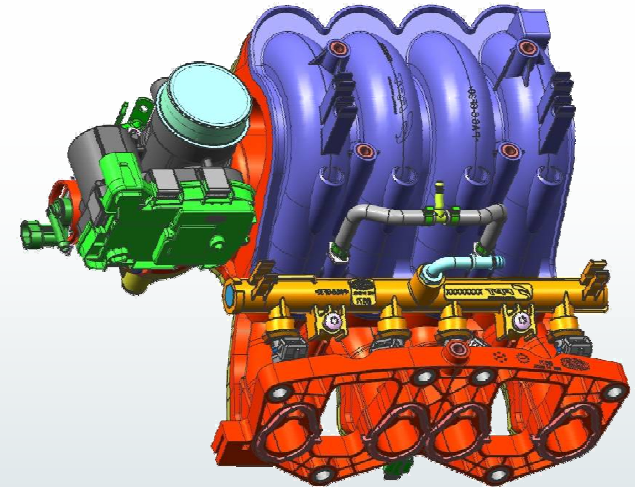
**HARDWARE & SOFTWARE EVOLUTION FOR PL 6 & EURO 5 EMISSION LEVELS**

## PICO ECO INJECTOR



**NEW TECHNOLOGY PRODUCED IN BRAZIL AND DEVELOPED FOR BIOFUELS:**  
**LESS FUEL CONSUMPTION: 2%**  
**LESS STEADY-STATE HC: 15%**

## ECS (Ethanol Cold System)



**FULL AUTOMATIC START W/E100**  
**LOWER FUEL CONSUMPTION: 2%**  
**LOWER HC COLD PHASE: 40%**  
**BETTER DRIVEABILITY: +1 SAE**

# SFS® - Flex Fuel System – New Application



## Power generators (in development):

- High Performance
- Low noise
- Low emissions
- Bi-fuel possibility



# SFS® - Flex Fuel System – New Application



## Aircraft Otto engine Flex (in development)

- Better engine performance
- Availability of fuel for farmers
- Low emission, compared with AvGas
- No tetraethyl lead
- Strong operating cost reduction



Thank you

**Eduardo A. de Campos**

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