The Tuscany Initiative for Hydrogen Mobility and Beyond

a presentation by

PONTECH
Pontedera & Tecnologia

REGIONE TOSCANA

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Tuscany Pole of Innovation for Mechanics and Vehicles

The Regione Toscana is participating through Pont-Tech in Hyer, the Association for **“Hydrogen, fuel cells and Electro-mobility in European Regions”**.

Pont-Tech is partner in the management of the "Pole of Innovation for Mechanics and Vehicles" established by Regione Toscana and who signed an Agreement with Pole Vehicule du Futur.

PONT-TECH is a no-profit public-private consortium for Industrial Research and Technology Transfer and a Research Organization according to the "Community Framework for state aid for Research and Development and Innovation" (2006/C 323/01).

PONT-TEC signed A MEMORANDUM OF INTENTS with The Government of Toscana, the County of Pisa, the Town of Pontedera, the Universities of Pisa, to Promote an “Hydrogen district” where performing Research and Manufacturing activities on the use of Hydrogen in mobility systems.

Within the framework of the Memorandum of Intents with the Regional Government of Toscana some R&D projects were performed.

- **H2 – Filiera Idrogeno. A Basic Research project realized by the University of Pisa and partners. Among the result stands the realization of a light Fuel Cells vehicle.**

Two more projects, focused on INDUSTRIAL RESEARCH AND DEVELOPMENT were realised:

- **NanocatGeo: Nanostructured Catalyzer to Generate Hydrogen from Wind Energy.**
- **SAVIA. Vehicle Power Systems from Hydrogen and Ammonia**

The main projects in Hydrogen Mobility
Developed with support of the Regione Toscana

SAVIA

"Vehicle Power Systems from Hydrogen and Ammonia"

Partnership:

Pont-Tech – Project Leader

Partners:

EDI – Progetti&Sviluppo

ACTA Energy

BIGAS

University of Pisa – Eng. Dept

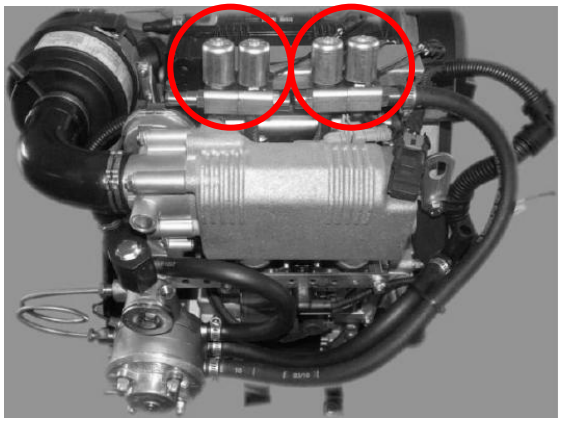
S.ANNA School for Advanced Studies

The objective of this project was the study and construction of a serial traction hybrid vehicle for waste recovery, equipped with a system of batteries recharged by an IC engine fuelled with ammonia and hydrogen (this last obtained on board).

The system acts as range extender of the hybrid vehicle increasing its range capacity and lets the vehicle run in electric mode in some areas where noise and pollution are not allowed.

SAVIA. The main topics and results

- A fully working hybrid electric vehicle with a 15 kW IC engine fuelled with liquid ammonia as range extender of the lithium batteries pack on board.
- A special cracker on board (purposely realized within the project) to have hydrogen as ammonia combustion promoter
- Two lines of injection : one for ammonia and one for hydrogen
- A sensors system in order to detect presence of ammonia in the local of the engine and in the exhaust system.
- Local ZERO EMISSIONS VEHICLE. NOx are eliminated by a SRC system



The experimental engine with ammonia and hydrogen injectors in evidence.

SAVIA. A larger view

- Ammonia production plants coupled with renewable sources
- Application in mobility as range extender or completely ammonia powered vehicles
- Stationary applications for Combined Heat and Power destinations.
- Energy generators for large ships docked to lower local pollution
- Energy production for charging stations of electric vehicles
- Recovered ammonia as waste from industrial processes

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