



International Partnership *for the* Hydrogen Economy



Country Report: Italy

11th IPHE ILC

Oslo, Norway

March 9-11, 2009

•Pierpaolo Garibaldi



Main activities

National Platform on H₂ & FC

R&D National Program on H₂ & FC

R&D EU FP Projects

Development Projects for Industry 2015

Regional (public) and industry H₂ Demo Activity

EU FC & Hydrogen JTI

Italian Hydrogen & FC Association

HYRAMP Partnership



National Platform on H₂ & FC

Objectives: Define a R&D&D strategy to support the development towards a sustainable H₂ Economy (or H₂ for Economy)

A revised proposal is under discussion within the new Administration.

Approval expected by June 2009

Anticipated budget: 600 million Euro for three year program



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R&D National Program on H₂ & FC

**The R&D National Program will end by June 30,
2009**

Final report expected by Oct 2009



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NATIONAL R&D PROGRAM ON H₂ – FC

90 ME – 2005-7: 36 RESEARCH CENTERS

| FUEL CELL | Hydrogen |
|--|--|
| PEFC and SOFC fuel cells: applications and new materials | H ₂ micro-combustors |
| Hybrid and inorganic nano-systems for FC | H ₂ production and storage in nano-materials |
| Development of a pressurized MCFC system and demonstrative 500kW plant | Innovative H ₂ production systems from renewables |
| New MCFC systems for distributed generation | Integrated H ₂ production systems and utilization in distributed generation |
| Development of protonic membranes for PEFC applications | H ₂ production from multi-fuels |
| | Innovative H ₂ production from biological processes |
| | H ₂ production from petrochemical refinery waste |



R&D EU FT Projects (6&7 FP)

UNIQUE: Aquila Un: H₂ from biomass gasification

ZERO REGIO: FC cars and stations: Mantova & Frankfurt

ENFICA FC: Politecnico Torino: City Aircraft

HYRAIL: Enea & Pisa Univ: H₂ in railways

HOST: Roma Univ: New concept of city cars & city vehicles

LIFE: Emilia Romagna Reg: City bus Mix H₂/NG



Development Projects for Industry 2015

- ICI Caldaie Microgen 30: (30kWe PEM: Pd cat NG HT reformer
- H2 boat for lake service (12 boat fleet) H2 and PV



Regional and industry Demo activities (1)

- Lightening Ercolano ruins (PV 30 kW; FC 10 kW)
- FC motorcycle protot: Benevento & Arcotronics
- FC blu car (7kW): Emilia Romagna Reg
- H2 from renewables: Lazio Reg
- TEPSI (Technologies and Processes to Prepapre the Transition to H) Lazio Reg & Enea
- H2/NG mix: Lombardia Reg (20 cars, 2 stations)
- H2 Center: Lazio Reg



Regional and industry Demo activities (2)

- PEM cogen unit: ICI Caldaie Sidera: (electricity, heating, cooling: H₂ from NG ref)
- PEM Microgen30 (30 kWe Pd-cat HT reformer:ee 35% total energy efficiency 85-90%)
- LEAF: zero emission building (advanced insulation and H₂ storage)
- IDRA 08: Piemonte reg: Politecnico Torino: FC and high efficiency electric engine)



Regional and industry Demo activities (3)

- Celco YACHT: Piemonte Reg: Environmental Park (FC 8kW for auxiliary power gen: H2 from diesel reforming on board)**
- TURBOCARE: (Siemens): FC powered canteen**
- Jewel District: Arezzo City: H2 distribution through pipe to jewel labs**



EU and FC & Hydrogen JTI

For Italy in the **INDUSTRY GROUPING** of JTI seven industries are present:

-SOFCpower

-Ansaldo Fuel Cells

Fiat Research Center

-Sapio

-Environment Park

-ILT Technologies

-Labor



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EU and FC & Hydrogen JTI

In the Research Grouping Italy is represented by:

- CNR**
- CESI Ricerca**
- ENEA**
- (Some) Universities**



Italian Hydrogen & FC Association

- 11 Italian companies**
- 3 Foreign companies**
- 3 Regions**
- 1 Research Institute**
- 9 Vehicle components producers**
- 3 Univ**
- 93 Individuals**



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HYRAMP

**European Regions and Municipalities Partnership
On Hydrogen and FC**



Members (2/2009)

Founding Members:

- **Abruzzo**
- Andalusia
- Aragon
- Baden-Württemberg
- British Midlands
- Castilla La Mancha
- Catalonia
- Galicia
- Hamburg
- Hessen
- Lazio
- Ljubljana
- Lombardy
- Madrid
- Midi Pyrenées
- Nord East of England
- North Rhine-Westphalia
- Oldenburg-Wilhelmshaven
- Piemonte
- Rhone Alpes
- Scandinavian Regions (N, SE, DK)
- **Trento**

New Members:

- Outer Hybrides
- Tuscany
- Bolzano
- Wroclaw