



H2 ACTIVITIES AND PROGRAMS IN ITALY

Country report

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SUMMARY OF H2 ACTIVITIES IN ITALY

- **2003 BASIC RESEARCH NATIONAL PROGRAM ON H2 AND FC (100 MILLION E - three ys program)**
- **2004 DEFINITION OF THE NATIONAL H2 ECONOMY STRATEGY AND ROAD MAP (STILL IN PROGRESS)**
- **2003 JOINING IPHE and CSLF (VICECHAIR)**
- **2003 BILATERAL USA-ITALY ON H2 AND FC**
- **2004 LAW 239/2004 TO SUPPORT H2 ELECTRICITY**
- **2004-2005 8 H2 REGIONAL H2 PARKS ESTABLISHED**
- **2004 COOPERATION CHINA- ITALY**
- **2005 IPHE CONFERENCE ON H2 STORAGE**
- **2005 IPHE-EU CONFERENCE ON SAFETY, CODES & STANDARDS**

**MOST OF THESE ACTIVITIES HAVE BEEN
ALREADY PRESENTED AT THE PREVIOUS
IPHE-SC MEETINGS
(Wash Nov 03-Beijing May 04-Paris Jan 05)**

- **TODAY PRESENTATION AN UPTADING OF THE:**
- **LAW 239/2004**
- **VENICE H2 PARK**
- **H2 ENERGY SINO-ITALIAN COOPERATION
PROGRAM**

LAW 239/2004

**ELECTRICITY PRODUCTION THROUGH H2
POWER GEN PRODUCTION THROUGH H2 AND FC:**

**HAVE RIGHT TO RELEASE GREEN CERTIFICATES
FOR THE AMOUNT OF kWh PRODUCED
(today value approximately 0.08 E/kWh)**



HYDROGEN PARK PROJECT

Venice (Marghera)



MAIN REASONS FOR SUCH SITE

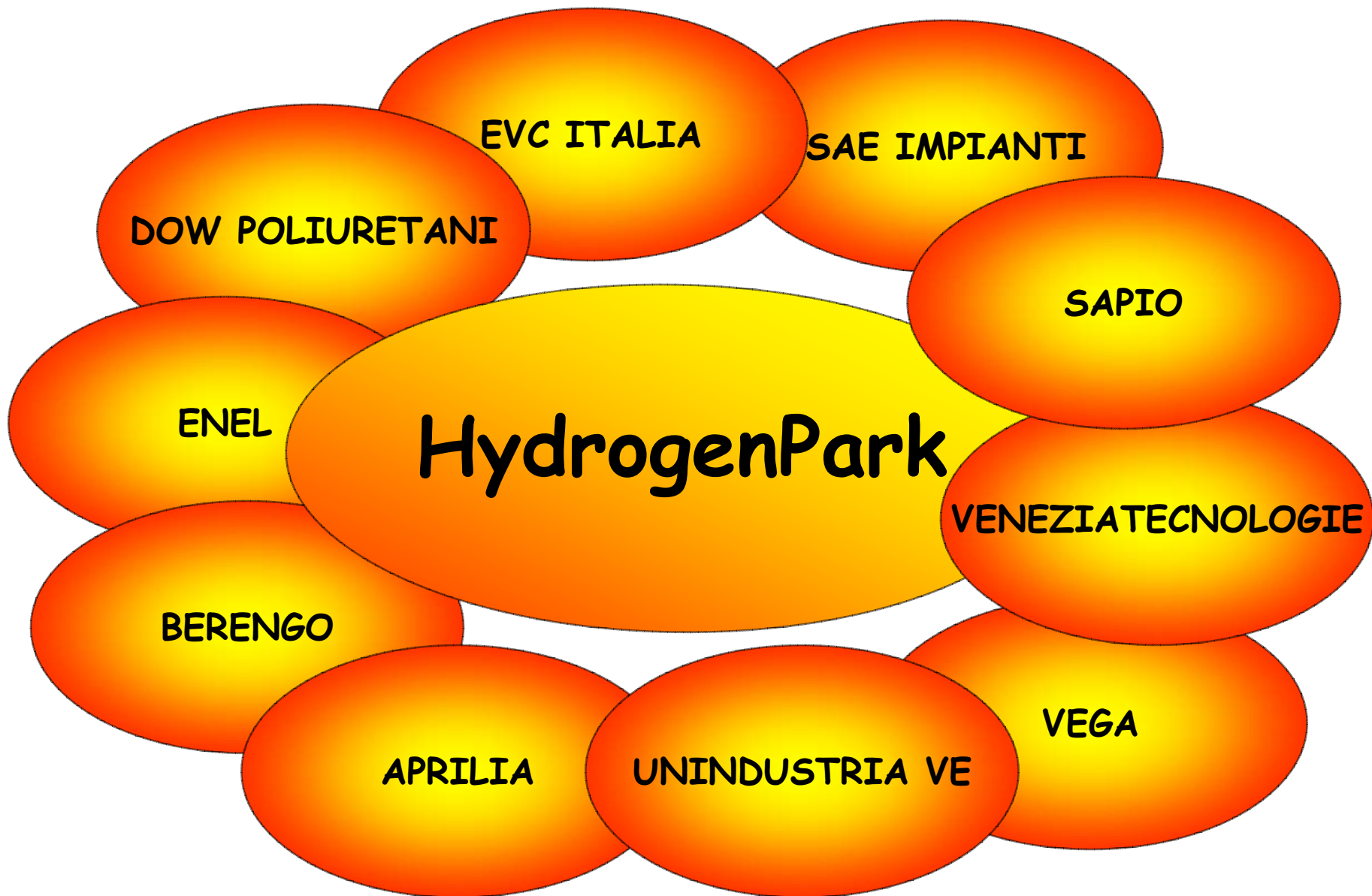
- **Availability of some H₂ (7,000 Nm³/h) from chlorine unit presently used as boiler fuel**
- **Availability of geological sites for CO₂ storage**
- **Several high tech industries in that area**
- **Advanced Research Centers for new materials and new technologies in that area**

Venice H2 park

- **On March 2005 an agreement has been signed for the implementation of a H2 park in Marghera**
- **The Italian Ministry for Environment and Territory provided a contribution of 5 ME**
- **The local district Authorities approved an additional fund of 9 ME**
- **Industries will contribute for about 60% (still to be negotiated)**



Hydrogen Park: Partners



EVC ITALIA

SAE IMPIANTI

DOW POLIURETANI

SAPIO

ENEL

HydrogenPark

VENEZIATECNOLOGIE

BERENGO

VEGA

APRILIA

UNINDUSTRIA VE



The planned projects at Hydrogen Park in Venice

- Electricity production of H₂ from biomass
- PEM Fuel Cells integrated systems development for electricity production, hot water and air conditioning
- “Zero emission” H₂ fuel combustion development and pilot test (H₂ – nat gas mixtures)
- New technologies development for H₂ and electricity production from coal
- H₂ Solid Oxide Fuel Cells Pilot unit (over 100 Kw)
- Development and testing H₂ storage systems
- CO₂ capture and storage pilot
- Pilot test of a FC H₂ “vaporetto”



Hydrogen Park - automotive

- FC - Hydrogen Vaporetto
- Hydrogen – Methane Mixtures
- Daily FC
- H2 Refueling station



H2 ENERGY SINO ITALIAN COOPERATION PROGRAM

- **MCFC feasibility for the installation of an unit at Shanghai Expo Park Energy Center**
- **CO2 reuse project in chem industry**
- **COAL GASIFICATION through IGCC**
- **LOW ENERGY BUILDING design**
- **H2 automotive infrastructure in Shanghai**