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Fuel Cells and Hydrogen Joint Undertaking (FCH JU)  
2nd Stakeholders General Assembly

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# The Veneto Hydrogen Cluster in Porto Marghera

# What and where is Porto Marghera?

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- Porto Marghera is one of the major European industrial sites
- It is about 3 km from Venice
- The lagoon environment marks the context out
- The touristic, freight and industrial port and the international logistic network are strategic factors



REGIONE DEL VENETO

6-Nov-09

Bruxelles, 26-27 october 2009

## Trends of the area and goals of regional policy

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The area has shown progressive decrease of the employment since the Eighties till now

The industrial activities caused increasing environmental problems

The Veneto Region aims at the environmental protection and reclamation and at enhancing occupation and production

The Veneto Region is carrying out strategic actions for:

- polluted areas remediation
- requalification of infrastructural network
- industrial re-organization



## Why Hydrogen in this context?

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- The strategic framework of industrial reorganization requires the adoption of green technologies and new methods of production
- Hydrogen is a priority issue in strategies for sustainable development in Europe and worldwide
- Porto Marghera has the requisites for the establishment of a hydrogen cluster:
  - **specific technical knowledge and resources**
  - **hydrogen is available as a byproduct of chemical processing**



# The strategic Agreement for Hydrogen between the Veneto Region and the Italian Ministry of the Environment

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- Signed March 25 2005
- 5 million euros from the Ministry of Environment
- 5 million euros from the Veneto Region
- for carrying out Research and tests on hydrogen technologies, in Porto Marghera



# The Strategic Agreement: Thematic areas

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- Hydrogen production
- Storage and distribution
- Large scale (Power Plants) and low scale (Fuel Cells) electricity production
- Vehicles propulsion
- Reuse of CO<sub>2</sub>



# The Strategic Agreement: priority criteria

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- Reduction of air pollution from vehicles
- Carrying out research activities especially on hydrogen storage
- Creation of a European reference point for testing and maintenance of fuel cells and hydrogen engines



# Demonstration activity on a prototype of hydrogen-powered boat for public transport /1

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- Researches on the use of hydrogen fuel cell systems for propulsion in the marine sector are very poor
- Venice, as a water city, is a natural place for such research
- The trial concerns the installation of a fuel cell system on an electricity operated boat for the public transport in Venice (vaporetto)

# Demonstration activity on a prototype of hydrogen-powered boat for public transport /2

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- Development of a demonstrative system for producing energy from hydrogen. This is reached using laboratory equipment with electrical power up to 5 kW
- Positive environmental effects:
  - zero emission
  - low noise
- The prototype “Accadue” has been presented on April 06 2009 and is being tested right now



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# VENETO INNOVAZIONE



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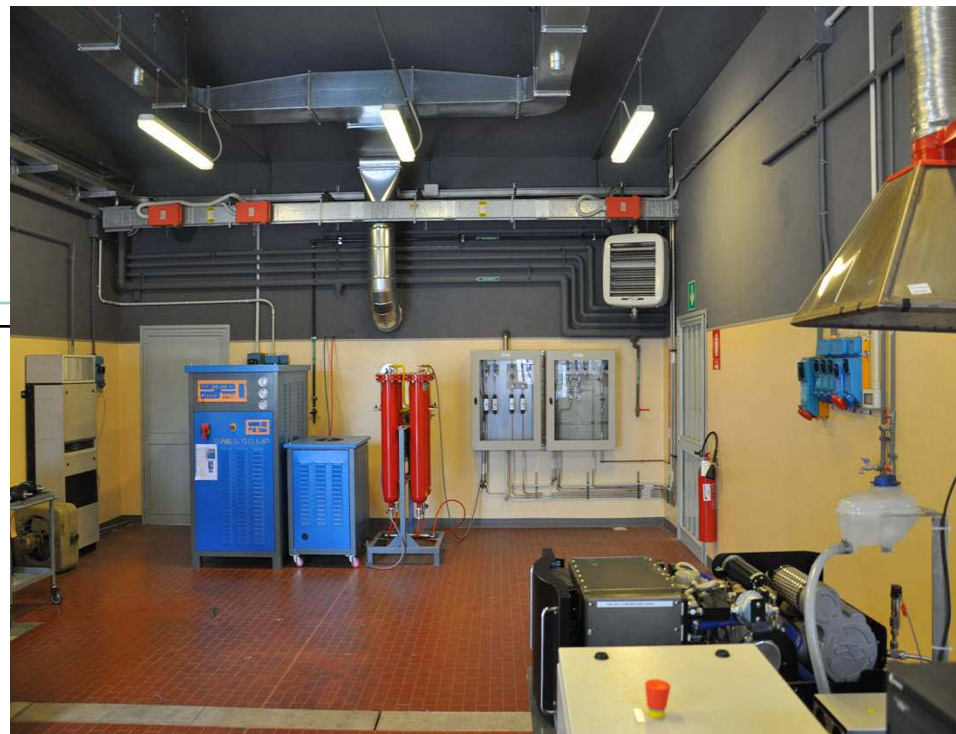
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# The Hydrogen Lab/1

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- The new Hyzone<sup>®</sup> research laboratory designed by Veneto Innovazione opened on April 16 2009
- The goals are:
  - expertise and testing on equipment for SMEs' R&D projects
  - testing activity
  - technology transfer practices



- The planned actions are:
  - Research and tests on hydrogen production and storage
  - Tests on fuel cell prototypes
  - Evaluation tests on energy efficiency
  - Support activities for industrial research
  - Development of new applications for energy and transport sectors
  - Hydrogen sensors



# The new horizons

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- Evolution from research results to pre-commercial products
- Strengthening of the Veneto Hydrogen Cluster
- Development of its production potential
- Creation of a new energetic chain based on renewable sources and energy efficiency



# Priorities for Veneto Region

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- Research and demonstration on production, distribution and storage technologies
- Hydrogen production from fossil fuels, renewable sources and / or liquid waste
- Pilot and early market applications
- Cross-cutting activities
- Convergence and interaction with FCH JU





# Relevant activities and scenarios for hydrogen cluster in Porto Marghera

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- PPP model combining research to key applications is a must
- New hydrogen power plant (opened August 2009). The plant has a power of 12 MW and produces about 60 million Kw to meet the needs of 20 thousand families, and avoiding the emission of more than 17 thousand tons of carbon dioxide.
- Hydrostore project for innovative hydrogen storage systems
- Hydrogen highway collaboration project (similar to HINOR project)
- Tests on hydrogen / hydrogen-mixtures fuelled buses and trucks

*Thank you for your attention*

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