



Hydrogen as storage vector for energy storage

THE COMMITMENT TO HYDROGEN FOR INDUSTRY AND ENERGY FROM ARAGON

Foundation for the Development of New
Hydrogen Technologies in Aragón

Guillermo Figueruelo Malo
Head for New Projects

gfigueruelo@hidrogenoaragon.org



FOUNDATION FOR THE
DEVELOPMENT OF NEW
HYDROGEN TECHNOLOGIES
IN ARAGON

INTRODUCTION

WHY HYDROGEN IN ARAGON?

- First Wind Farm in Spain installed near Zaragoza
- 2003: Great energy change approaching
- Reasons to support new hydrogen technologies:
 1. To take advantage of the renewable energy potential
 2. To take advantage of the region's strategic situation
 3. Existence of a high level of involvement in research groups
 4. A consolidated industry with sectors that could apply and develop new products
- 2003: Workshop organized by Government of Aragon
 - Objective is to learn and to discuss about hydrogen as energy vector
 - Results:
 - **Strategy to develop Hydrogen technologies in Aragon**
 - **Foundation for the Development of New Hydrogen Technologies in Aragón**



CREATION OF FOUNDATION OF HYDROGEN IN ARAGÓN

The **Foundation for the Development of New Hydrogen Technologies in Aragón** is a private, not-for-profit entity, created to promote the use of hydrogen as an energy vector.

Promoted by the **Government of Aragón** it was founded in 2003 with the support of the administration, industry and the main society actors from different sectors of activity.



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HYDROGEN MASTER PLANS IN ARAGON

- **GENERAL AIMS OF THE PLAN**

- To have a tool for the identification of opportunities and technologies
- To identify strategic lines for the region and the corresponding actions plans

- **SPECIFIC AIMS OF THE PLAN**

- To review the state of technology and opportunities.
- To identify specific projects and actions.
- To set across-the-board support actions

TO PREPARE SME'S AND PROFESSIONALS FOR THE FUTURE

Hydrogen
Master

(2007 – 2010)



(2011 – 2015)



(2016 – 2020)



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BOARD OF TRUSTEES



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TECHNOLOGY OFFER

1. Hydrogen Production and Purification Technologies
2. Hydrogen Storage Systems
3. Fuel Cell Solutions/Applications
4. Systems integration
5. Sustainable Mobility Solutions
6. Energy Efficiency
7. Training



1. Consulting
2. Funding Opportunities
3. Project Management



MARKET ORIENTATION!!!



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COLABORATIVES INITIATIVES

1. Private R&D&i Partnerships
2. Public R&D&i Partnerships
3. Public-Private R&D&i Partnerships
4. Collaboration Agreements
5. Training
6. Technology Transfer Agreements



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING



Education and Culture

Leonardo da Vinci



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EXPERIENCE IN COLLABORATIVE PROJECTS



H2PiyR (POCTEFA – INTERREG)

Hydrogen corridor for the Pirineos / Pyrénées France – Andorra – Spain



ELY4OFF (FCH JU) <http://ely4off.eu/>

PEM ElectroLYsers FOR operation with OFFgrid renewable installation



BIG HIT (FCH JU) <https://www.bighit.eu/>

Building Innovative Green Hydrogen systems in an Isolated Territory. A pilot for Europe



ELYNTTEGRATION (FCH JU) www.elyntegration.eu

Grid Integrated Multi MegaWatt High Pressure Alkaline Electrolysers for Energy Applications



SUSTAIN HUTS (LIFE+) <http://sustainhuts.eu/>

Sustainable Mountain Huts In Europe



HYTECHCYCLING (FCH JU) <http://hytechcycling.eu/>

New technologies and strategies for fuel cells and hydrogen technologies in the phase of recycling and dismantling



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- Orkney Islands:
 - 20 inhabited islands.
 - Population: circa. 21 000
 - 56 MW of RES
 - 11 MW wave/tidal + 45 MW wind
 - 46 GWh per year
 - 30%+ annual curtailment
- Demonstrating “real” end-uses for hydrogen:
 - Heating for Council buildings
 - Auxiliary power to ferries (cold-iron)
 - Fleet of EVs with FC range extenders
- To create a replicable “Hydrogen Territory”
- To transform curtailed energy generated in the outer islands into a valuable energy vector - hydrogen
 - using it locally where possible
 - transporting the remainder to Mainland
- Transition to integrated energy systems: meeting electricity, transport and heat needs by integrating RES and HFC technologies

10 HRS

16 FCEVs + Van

2 H2 Buses



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*Thank
you*

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