



HYRREG

**Plataforma para impulsar la
Economía del Hidrógeno en el
Suroeste Europeo - SUDOE**

Financiado por:



UE / EU - FEDER / ERDF



coordinador



ASSOCIATION FOR THE
DEVELOPMENT OF NEW
HYDROGEN TECHNOLOGIES
IN EUROPE

www.hidrogenoaragon.org



www.iat.pt



www.inta.es



www.jccm.es



www.urjc.es



ANSTIMAC
<http://blogs.anstimac.fr/phyrenees/>



www.anstimac.fr



www.hyrreg.eu

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**Generating platform of projects to
boost the Hydrogen Economy in the
European Southwest - SUDOE**



ABOUT THE PROJECT

HYRREG is an initiative financed by the European Commission through the Interreg IVB SUDOE Programme to foster the Hydrogen Economy in Southwestern Europe (SUDOE area). Hyrreg is a 30-month project, which started in April 2009 and will be finished by October 2011.

OBJECTIVES

- To increase the competitiveness and industrial development for hydrogen technologies and fuel cells.
- To create a platform for the generation of technology and development collaboration projects between Enterprises, Universities and Technology Centres.
- To create a road map of the hydrogen economy, in order to foster the introduction and implementation of these technologies in the SUDOE area.

WHO CAN PARTICIPATE?

SMEs, Companies, Research Centres, Universities, and any organization interested in Hydrogen Technologies.



PARTNERS

SPAIN

1.FUNDACIÓN PARA EL DESARROLLO DE LAS NUEVAS TECNOLOGÍAS DEL HIDRÓGENO EN ARAGÓN

ARAGÓN

www.hidrogenoaragon.org

The Foundation for the Development of New Hydrogen Technologies in Aragon is a private, non profit entity. Promoted by the Government of Aragon, it was founded in 2004 with the support of the Administration, industry and the main society actors in a board of 61 members.

The mission of the Foundation is to promote the use of hydrogen as energy vector. Our work is focused on two areas: Engineering and Consultancy and Research and Development, in which own lines of research are development, as well as external and associated projects with other research centres, R&D departments of companies and other entities.

2.INSTITUTO NACIONAL DE TÉCNICA AEROESPACIAL

MADRID

www.inta.es

INTA is a public research establishment specialized in research and aerospace technological development. It is an independent organisation belonging to the Spanish Ministry of Defence through the State Secretariat for Defence.

INTA was founded in 1942. At that time, the primary functions of the institute were focused on providing technical support to aeronautical services and authorities, and technical assistance to the aeronautical Industry. Such tasks are still being carry out, in addition to many others tasks mainly related to our projection into other

Mission: INTA's most relevant goal is to obtain, preserve and increase the level of technology to be applied in the aerospace sector. The Institute contributes to defining objectives, programmes and projects related to aeronautics and space science, providing technical support, assessment and services to official bodies and agencies, and to industrial or technological enterprises as well.

3.INSTITUTO ANDALUZ DE TECNOLOGÍA, IAT

ANDALUCÍA

www.iat.es

The Andalusian Institute of Technology (IAT) is a Centre for Innovation and Technology created as a private non profit Foundation. It is located in Seville and Malaga (Spain) and has been certified as being of public interest. Operating under strictly professional criteria, its goal is to assist companies and institutions to improve their performance in a sustainable manner, while providing value through innovative solutions. In order to do so, it helps them to adapt to technological changes and boosts innovation processes and continuous improvement by providing advanced technical services. Its main areas of expertise include: Innovation and Technology, Information Technologies, In-company innovation management, Environment, Energy, Quality and R&D+I Management, Training and Knowledge Management Systems and Industrial Design.

4. JUNTA DE CASTILLA-LA MANCHA

CASTILLA LA MANCHA

www.jccm.es

The main responsibilities and powers of the regional Ministry of Education and Science of Castilla-La Mancha are:



- Technological development in the regional, national and international public and private sectors in all areas of knowledge.

- Promoting research and technological development of regional industry in all areas.

- Development of science parks and technology centres.

- Creation of new cooperation programmes between public and private research institutions, mainly SME's research programmes.

- Proposal and coordination of local, national and European research programmes.

5. UNIVERSIDAD REY JUAN CARLOS - CINTTEC

MADRID
www.ursc.es

Universidad Rey Juan Carlos (URJC) is a public university based in Madrid with two research groups working in Hydrogen and related technologies: the Chemical and Environmental Engineering Group and the Chemical and Energetic Technologies Group.

On the other hand, CINTTEC as Technology Transfer Office of the URJC, is in charge of promoting and managing the technology development between the University and industry, including Projects and IPR management. On behalf of the Comunidad de Madrid, CINTTEC has been providing technical support for energetic issues since 2002, managing the "Círculos de Innovación" Programme, which provide support to both public institutions and companies by developing Technology Watch Reports and Freedom to Operate Reports in the energetic area. Moreover, CINTTEC plays a role as coordinator of the project funded by the Ministry of Science and Innovation (MICINN) on developing a platform of collaborative projects with companies and research institutes in the field of hydrogen and fuel cells (H2 Evolution

Likewise, CINTTEC is a constituent member of the Ibero-American network CYTED of hydrogen, and member of the executive board of the Spanish association on Hydrogen (AeH2). It is also a national coordinator of the working group on production of hydrogen from renewable sources of the Spanish platform on Hydrogen and Fuel cells (PTE HPC) since its inception.

6. ECOLE DES MINES D'ALBI CARMAUX

MIDI-PYRÉNÉES
www.enstimac.fr

Founded in 1993, the École des Mines of Albi-Carmaux (EMAC*) is an undergraduate training institute for engineers and a post graduate research centre under the guidance of the French Ministry of Economy, Industry and Employment. The school is part of the wider Group of 7 Ecoles des Mines, which shares a long experience in the training of leading-edge engineers in direct response to industrial demands.

EMAC is member of the "PRES Université of Toulouse" which gathers all higher Education Institutions of Midi-Pyrénées. EMAC is specialised in the training of "generalist" engineers, while its research programme is developed in specific areas to process engineering, equipment and tools for material forming, and industrial engineering.

Up to the present the school has bestowed 1600 engineering degrees, 160 PhDs and contributed to the creation of 15 companies.

EMAC, in particular, is member of the Hydrogen association PHYRENEES.

7. ASSOCIATION PHYRENEES

MIDI-PYRÉNÉES
<http://blogs.enstimac.fr/phyrenees/>

The association PHYRENEES was founded in October 2007 and has several charter members: French companies, small



and medium sized firms, local authorities, research centres, the General Council of the Tarn Departement, the Midi-Pyrenees Region, independent associations and the French National Authority for the environment and energy saving.

The purpose of this association is to promote the creation of a «hydrogen community» in the Midi-Pyrenees region, by structuring from available resources to the final use. Its aim is to develop hydrogen technologies for sustainable development.

Among the actions that PHyRENEES wants to develop in the Midi-Pyrenees region are the following:

- communication and public information
- training activities.
- contributions to defining the new regulatory framework.
- demonstration of various and large scale operations.
- research and development projects.
- measures to accompany the industrial and tertiary sectors.

Actions are engaged by the association at regional, national, trans-national and European level.

PORTUGAL

8. INSTITUTO DE SOLDADURA E QUALIDADE (ISQ)

LISBOA
www.isq.pt

ISQ is a private and independent organization, founded in 1965, offering technical inspection, training and consultancy services, supported by research and development activities and by accredited laboratories.

results from our commitment to offer high quality services. Our activities are rooted in a constant growth of knowledge and technology with a view to offering our clients and partners the best global solutions, and those which are most suited to their needs.

Our growth strategy involves an ever larger sustainable presence in the world, with offices, delegations and associated companies in Angola, Algeria, Brazil, China, Cuba, Spain, French Guiana, Iran, Mexico, Norway and Turkey.

Its mission is to contribute to the constant improvement of Portuguese industry and services, resulting in an expanded international presence, by collaborating with the state, regional councils and businesses with regard to the sharing and development of technology, new products and processes, structured management practices and quality control, hygiene and safety, energy conservation and environmental protection, and systematic maximization of human resources.

9. INSTITUTO SUPERIOR TECNICO, UNIVERSIDADE TECNICA DE LISBOA

LISBOA
www.ist.utl.pt

The Instituto Superior Técnico (IST) is the largest and most reputed school of Engineering, Science and Technology and Architecture in Portugal. Since its foundation in 1911, IST's mission is to provide top quality higher education, as well as to develop Research, Development and Innovation (RD&I) activities according to the highest international standards.



What has been done so far?

The HYRREG Platform

The purpose of the HYRREG platform is, therefore, to consolidate hydrogen-related activities in the SUDOE ARE, in order to promote cooperation between research institutes and the industry. The approach is somehow similar to that of the Hydrogen and Fuel Cell Technology Platform and to the development of a strategic research agenda, a deployment strategy and an implementation plan; besides, it includes a proactive strategy of engagement. Agreements have been established with several institutions providing different mechanisms of support within SUDOE. Agreements of cooperation have been signed with AeH2 (the Spanish Hydrogen Association with a membership of 36 enterprises, 17 research centres and 84 individual members) and the Spanish International Innovation Unit (UII) of Energy. Other institutions which are being approached include APPICE (the Spanish Association for Fuel Cells with 25 companies and 56 individual members), AP2H2 (the Portuguese Hydrogen Association with 17 companies), UII of CO2, PTE-HPC (the Spanish Platform of Hydrogen and Fuel cells comprised of 49 companies, 87 research, public and private entities), Aragonese Net of 7th Framework Programme, and the regional governments of Aragon, Castilla la Mancha and Comunidad de Madrid. An agreement has been also signed with PAC-H2. All these collaborators appear on the HYRREG website as "Collaborator Entities". Cooperation with regional governments offers a means of rapid implementation of hydrogen technologies, firstly as a bottom-up approach to disseminate and develop activities at local, regional and, then, national level but always with a vision for national strategies for hydrogen technologies.

HYRREG has been successful in launching a total of twenty five projects of which eleven are national, five European, three interregional (FR-ES) and two with Latin America. The institutions involved will appear in a HYRREG catalogue including the details of the stakeholders. The collaboration with these entities is bi-directional as we follow common objectives, namely; sustainable development by means of renewable energies and/or hydrogen technologies. An online database of technologies and product opportunities in the field of hydrogen is being created by SUDOE and across Europe to help companies in the region to access to international markets. The database allows (one) to search for new technology offers or requests and to find international partners.

HYRREG has collaborated with the Spanish Hydrogen and Fuel Cells Platform, the Spanish Ministry of Science and Innovation instrument for promoting hydrogen technologies, in the National Plan for R&D 2008-2011 to define strategic lines related to hydrogen technologies. The Portuguese Hydrogen Association is currently preparing a proposal to define the role of hydrogen in the national energy plan.

A catalogue which lists profiles of companies or institutions which work on hydrogen and fuel cells, their research lines and fields of interest has been done as an help to establish links among the entities for the purpose of cooperation. The 2009 catalogue, which is available on the project website, includes technology transfer profiles highlighting technologies offered and those sought in the region. There will be other catalogues in 2010 and 2011. Other measures adopted to enhance cooperation among companies, universities and research institutes include a brokerage event at GENERA, the energy fair held in Madrid in May 2009 with more than 150 participants, of which around 30-35% were directly related to hydrogen technologies. Presentations of the project have been made at HYCELTEC, an international conference held in Vila Real in Portugal, at special seminars held by AeH2 where 100 people were present from the energy and research sectors and at the H2-Power Expo in Zaragoza.

SUDOE Roadmap

The SUDOE roadmap will focus on stakeholders preferences and the specific conditions of the country, such as the availability of resources as well as the characteristics of the current and future energy systems in the region, applying a mainly qualitative analysis. The methodology consists of an iterative enquiry process of selected stakeholders groups involved in the energy sector. A questionnaire has already been launched whose answers are in the process of being analysed. Following a SWOT analysis and a review of indicators selected by HYRREG, workshops will be held in order to produce a draft of the roadmap. Subsequently, after further analysis and the evaluation of hydrogen chains and deployment strategies, a second version of a SUDOE roadmap will be produced



Events

HYRREG participated in the Energy and Environment International Trade Fair, GENERA 2010 held in Madrid the 19 to 21 May. During the Energy and Environment International Trade Fair Genera 2010, the Spanish partners of the HYRREG consortium organized its first national workshop in order to define de roadmap for the introduction of hydrogen and fuel cells in SUDOE. The National Institute for Aerospace Tehcnology (INTA), as partner of the HYRREG consortium, leaded the Technical Conference to which around 120 stakeholders attended. The main results were the evaluation of indicators chosen for the main user centers and definition of the first version of the road map. Besides, the HYRREG consortium participated in the Conferences on Hydrogen and Fuel Cells with the GENERA '10 Technical Conferences, called 'Roadmap for the H2 economy in the SUDOE region (south of France, Portugal, Spain)'. Finally, the Brokerage Event GENERA 2010 took place, where about 150 attendees held bilateral meetings with entities on behalf of stakeholders, dissemination to new stakeholders and contacts at European range.

Besides, HYRREG participated in the Annual Congress of the Spanish Fuel Cell Association (CONAPPICE 2010), which was held in Seville the 16-18 June. On one hand, a presentation about the HYRREG platform was carried out by Juan Manuel García-Camús, from CINTTEC- Rey Juan Carlos University. On the other hand, HYRREG had a stand along the three days of the congress, where the participants were informed about the activities which are being carried out and progress in the definition of the hydrogen roadmap was made.



FAIRS AND CONGRESSES

AUGUST 2010

Fuel Cells

Place: Bryant University, Smithfield, UK

Date: 1-6 August

More info: www.grc.org/programs.aspx?year=2010&program=fuelcells

Symposium H. Materials and Devices for Fuel Cells. IUMRS-ICEM2010

(International Union of Materials Research Societies - International Conference on Electronic Materials 2010)

Place: Seoul, Korea

Date: 22-27 August

More info: www.iumrs-icem2010.org/

SEPTEMBER 2010

ENTECH 2010. Environmental & Energy Tech 2010

Place: Busan, Korea

Date: 1-4 September

More info: <http://www.entechkorea.net/eng/index.php>

Progress MEA 2010

Place: Grande Motte, France

Date: 19-22 September

More info: www.progressmea.org

F-cell 2010

Place: Stuttgart, Germany

Date: 27 - 28 September

More info: www.f-cell.de

OCTUBRE 2010

Grove Fuel Cell Symposium. Fuel Cells Science & Technology 2010

Place: Zaragoza, Spain

Date: 6-7 October

More info: www.fuelcelladvances.com/

EFEF2010 European Future Energy Forum

Place: London, UK

Date: 19-21 October

More info: www.europeanfutureenergyforum.com/the-conference



News

Huesca - Zaragoza first hydrogen highway of the SUDOE

The last 21 of June the hydrogen filling station was opened. It is located in the building the Foundation for the Development of New Hydrogen Technologies in Aragon has in the Walqa Tecnological Park of Huesca (Spain). The opening of this new hydrogen service station for fuel cells vehicles, which completes a wide infrastructure of hydrogen production by means of renewable energies, is a clear bet for the sustainable mobility and entails the starting of the first hydrogen highway in Spain. Thus, it is already possible to do the journey between Zaragoza and Huesca in a hydrogen fuel cell vehicle, which can be refuelled both in the hydrogen fuel station opened in the Valdespartera neighbourhood of Zaragoza on the occasion of the International Exposition of 2008, and in the Upper Aragon capital.

Mr. Biel, Mr. Aliaga and Mr. Reilly have been the first ones in doing this journey which was carried out with the HydroGen4 model lent by GM for the occasion. The vehicle consumed less than 1 Kg. of hydrogen in the journey between Zaragoza and the Walqa Technological Park, with the emission, only, of water vapour. Once in Walqa, a demonstrative refuelling was carried out in the new facility.

The most southern Hydrogen filling station of the SUDOE has been opened

The last 16 of June, the first hydrogen filling station of Andalusia was opened. The service of the future network is located in the Solúcar platform in Salúcar la Mayor (Seville). It belongs to Hynerggreen, affiliated to Abengoa. It is located in the most southern point of the network of European hydrogen filling stations, and there are nowadays other stations in Spain in Madrid, Barcelona and Zaragoza.

The prototype of the León electric vehicle has been also presented, which is drove by this type of fuel and it is developed by the Santana Motor vehicle company. Both projects had an investment of almost 10 million Euro, with support of the Ministry of Science and Innovation and the Andalusian regional government.

Hynerggreen, together with other seven companies, (Solúcar R&D, Santana Motor, INTA, Aicia, Greenpower and the Agencia Andaluza de la Energía), has developed since 2006 this project, called Hércules.

The Mazda hydrogen rotary engine is awarded

The manufacturer of vehicles, Mazda, has received the IAHE Sir William Grove Award. An award given by the International Association for Hydrogen Energy (IAHE) in a ceremony celebrated in Essen, Germany.

Toyota achieves a hydrogen hybrid vehicle with autonomy of 830 kilometres

The new vehicle, FCHV-adv (Fuel Cell Hybrid Vehicle-Advanced) of the manufacturer Toyota has achieved the approval, in Japan, of a hybrid vehicle fed by fuel cell with achieves an autonomy of 830 kilometres, in opposition to the 330 of the previous generation.



Are you interested in HYRREG? Come and join us!

SPAIN

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