



HUNGARIAN HYDROGEN AND FUEL CELL NATIONAL TECHNOLOGY PLATFORM

Short resume of the implementation plan

October, 2010

Hungarian Hydrogen and Fuel Cell National Technology Platform

The Hungarian Hydrogen and Fuel Cell National Technology Platform (HFC Platform) was founded in 2008 with 30+ members, including companies, universities and research institutions, with a common aim to help establishing the hydrogen economy in Hungary. The Platform promotes co-operation between academy, industry and government pursuing hydrogen becoming the dominant energy carrier for the public sector, households and industry by 2050.

The HFC Platform focuses on:

- Coordination of R&D activities
- Promoting and lobbying for the utilization of hydrogen technologies
- Helping and facilitating participation of its members in projects within the EU's 7th Framework Programme
- Promoting the Hungarian Strategic Research Agenda and the implementation plan
- Helping and facilitating the implementation of demonstration projects and early market applications

The National Strategic Research Plan and Action Plan

Based on the initiatives of the National Office for Research and Technology (NKTH) in 2009-2010 the HFC Platform prepared a national strategic research agenda (SRA). Research and development capacities available in Hungary, as well as past achievements were reviewed, prioritized and structured following the practice of the European SRA that had been adopted five years prior to our national plan. One of the aims of the national SRA is to assure that the existing European agenda, as well as research and development already completed in Hungary can complement each other. In the case of horizontal issues, for instance those related to socio-economy, the goal is to apply and utilize practices and results already achieved by earlier, European research. The Hungarian SRA is accompanied by an Action Plan that, within the context of the European and national SRAs, aims at an optimum utilization of Hungary's limited resources. An overview of the research topics can be found in the diagram below.

Research Areas

Our capacity building efforts aim at establishing a permanent headquarter for the HFC Platform that can represent its members in international associations, help cooperation in joint research, and offer marketing, lobbying and other services in order to promote the technology development and access to early stage and venture capital. The socio-economic research agenda aims to establish Hungary's specific results similar

to the Hyways research, it helps implementing Hungary's policy documents in line with European best practice. An additional goal is to remove barriers that can hamper establishing safety regulation and legal compliance. The subject of education and knowledge transfer is targeting the general public, the educational system, the vocational training system and curriculum of universities. Applied research and development cover the most important areas of hydrogen technologies with distinct priority to PEM fuel cells related research.

The R+D focuses exclusively on environmentally clean hydrogen production. The PEM fuel cell related applied research and development concentrates on seven specific research areas where Hungarian scientific and engineering excellence has comparative advantage. Five major demonstration projects are designed to wrap up the results of the technological research projects and serve as test grounds and demonstration tools for socio-economic research, education and knowledge transfer.

Four topics were selected as priority projects:

- investigation of socio-economic issues,
- municipal FC bus project with supply infrastructure,
- application of micro-cogeneration and/or cogeneration in a "hydrogen village" project and
- introduction of various subjects related to the hydrogen economy into the curriculum of high-schools and universities.

Business development	Socio-economic issues	Education, knowledge transfer	Applied research and development	Focused development: PEM fuel cells	Demo projects
Cooperation Center	Extra-industrial relations	New educational programs	Infrastructure development	Electro-catalysts	Hydrogen infrastructure
International relations	Legal and compliance issues	Reinvestigation of the national curriculum and training framework	Measurement and control methods	New membrane structures	Transport
Venture capital and incubation	Policy research	Improvements in popular and basic knowledge	Hydrogen production	MEA development	Back-up power supply
Marketing and PR activities	Facilitate public procurement	Technology transfer service	Hydrogen storage	Modification of GDL	Micro cogeneration
	Environmentally friendly energy	Domestic and foreign conferences	Reversible PEM fuel cells	Bipolar plates	Cogeneration
			Smart grids	Balance of plant	
			Military applications	System integration and modeling	

Research areas

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- Bay Zoltán Foundation for Applied Research, Institute for Logistics and Production Systems (Bay-Logi)
- Bogányi and Son Ltd.
- Budapest University of Technology and Economics (BME)
- Budapest University of Technology and Economics Department of Electrical Engineering
- BÜKK-MAK LEADER Nonprofit Ltd.
- Combitech-Nanotech Ltd.
- ComErgen Engineering Company
- Common Scale Association of Hungarian Virtual Microgrids (MIKROVIRKA)
- Engineering Competence Center (MEEI Ltd.)
- Eötvös Loránd University, Institute of Chemistry, Laboratory for Electrochemistry and Electroanalytical Chemistry
- Force Motrice Ltd
- GOND-OLD Consulting
- Hárskúti Center for Renewable Energy
- Hungarian Energy Association – Hydrogen Section
- Hungarian Energy Association (MET)
- Institute of Nanochemistry and Catalysis, Chemical Research Center of Hungarian Academy of Sciences
- Institute of Materials and Environmental Chemistry, Chemical Research Center, Hungarian Academy of Sciences
- KONTAKT-Elektro Ltd.
- Nanotechnology Institute, Bay Zoltán Applied Research Foundation
- National Defence University Bolyai János Military Technical Faculty
- PYLON Ltd
- Research Institute for Technical Physics and Materials Science (MFA) of the Hungarian Academy of Sciences
- STS GROUP ENGINEERING OFFICE ZRT.
- Teletom Telecommunication Ltd.
- Trans Lex Work Ltd
- University of Szeged, Department of Biotechnology
- University of Szeged, Department of Solid State and Radiochemistry
- VERNO Energia Ltd.
- VSG4 Ltd (Visegrad Investments)



National Office for Research and Technology

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