INTERNATIONAL PARTNERSHIP FOR
HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update November 2016: Austria

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1. New Policy Initiatives on Hydrogen and Fuel Cell

By the end of 2016 there will be five hydrogen refuelling stations in Austria with uniform standards to meet expected market demand and fulfil the DIRECTIVE 2014/94/EU. So all important urban areas and the TEN-T corridors are provided. Austria has published the national strategic framework.

The National Strategic Framework for DIRECTIVE 2014/94/EU will be notified (11.18.2016) and send to the European Commission.

2. Hydrogen and Fuel Cell R&D Update

None to report for this period.

3. Demonstration and Deployments Update

FCH REFuel

A modular scalable and cost effective hydrogen supply infrastructure for industrial, automotive and mobile applications will be developed. Different customer applications will be considered. Therefore standardized modules like high pressure 350 bar electrolyser module, 700 bar single stage compressor module, a storage and dispenser module for both pressure levels will be developed and implemented. Furthermore, an existing battery-powered transport vehicle for municipal and urban applications (ELI) will be upgraded with a fuel cell range extender system (H2ELI) to enlarge range and minimize refuelling time. System integration into the existing vehicle will be done after testing and optimization at an innovative existing fuel cell system integration test bed. Finally the interaction of the modular infrastructure and fuel cell vehicles will be analysed for two different applications.

http://www2.ffg.at/verkehr/projektpdf.php?id=1303&lang=en

FC REEV: Fuel Cell Range Extended Electric Vehicle

Magna Steyr's drivable demonstrator – the FC REEV – shows how very long ranges can be achieved at zero emissions. The drive concept using a fuel-cell range-extender can be built into any vehicle. A compact-size car, for example, can cover 90 km in purely electric mode and 500 km in combined hybrid operation without recharging or refuelling – and without using fossil fuels. Magna Steyr built this drivable

technology demonstrator as battery-driven electric vehicle with fuel-cell range-extender and all-wheel drive.

The FC REEV combines the advantages of two different alternative drives: fast fueling and the high-energy density of hydrogen as well as the available infrastructure for electric charging. The demo vehicle thus offers zero emissions and higher ranges at one and the same time. Furthermore, an electric all-wheel system enables the FC REEV to drive purely on electric power as priority with a fully charged battery. If the charge level is reduced, the fuel-cell switches itself on to recharge the battery and thus to increase the absolute range.

http://www.magna.com/capabilities/vehicle-engineering-contract-manufacturing/innovation-technology/energy-storage-systems/fc-reev

MeStREx

Low range of current battery vehicles and therefore limited usability for many potential customers is a highly discussed topic and an important reason for the low market share of electrical vehicles. A consortium of two technology front running companies (AVL List GmbH and Plansee SE), two well-established academic institutes (TU Graz ICVT and IWT) together with a highly innovative small company (PhysTech Coating GmbH) and a global player in the automotive sector (Nissan Motors Limited) was built in order to find a novel way to solve range limitations. Based on Solid Oxide Fuel Cells (SOFC) with a metallic support, research will start on the development of a system which can use hydrocarbon fuels (e.g. ethanol) directly for efficient electrical power generation. This system will be used to continuously recharge the vehicle battery pack for range extension (Range Extender) with an efficiency that is far beyond the typical efficiency of other range extender concepts.

http://www2.ffg.at/verkehr/projektpdf.php?id=1301&lang=en

Autonomous Eagle

With fluctuating energy sources such as photovoltaics, there is only partial synchronization between production and consumption. The Fronius Energy Cell, which combined 165bar high pressure electrolysis and fuel cell into a device for the purpose of seasonal energy storage, has been developed, certified, produced as a prototype and installed. All hardware that is necessary to implement these autonomous domestic energy supply with renewable energy, has been fully constructed. Also unique in the world is the installation of the hydrogen-pressure accumulator as a buried underground tank. At present, the energy management for an automated plant operation will be developed and implemented to collect and analyse data from real operation.

https://www.fronius.com/cps/rde/xbcr/SID-44BE887F-056C7A59/fronius_international/SE_TA_Fronius_The_energy_self_sufficient_family_home_of_the_future_DE_320593_snapshot.pdf

WIVA ("Wasserstoffinitiative Vorzeigeregion") P&G – Flagship Region

Austria Power & Gas – is an Austrian investigative project to develop a proposal for an Austrian flagship region, where all aspects of a sustainable and decarbonized energy system based on hydrogen will be demonstrated, from the production of renewable electricity, its conversion to hydrogen via electrolysis, its storage, and distribution, to its application in traffic, industry, and households. By combining existing and new research projects, in reality and virtually, an internationally representative energy flagship region will be initiated by the consortium consisting of scientific partners as well as industrial partners representing Austrian's leading companies in the hydrogen and power-to-gas segment.

4. Events and Solicitations

- **11th A3PS-Conference - "Eco-Mobility 2016"**: 17-18 October, 2016
- **TRA 2018:** Transport Research Arena, Vienna, 16-19 April, 2018

5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding

None to report for this period.