



Facts & Figures

Full title: High Pressure Hydrogen All Electrochemical Decentralized Refueling Station

Acronym: PHAEDRUS

Start Date: 1/11/2012

Duration: 36 Months

Total budget: 6.3 M €

EC funding: 3.5 M €

PHAEDRUS - dissemination

- Flyer
- Newsletter 1 : May 2014

PHAEDRUS - consortium

The PHAEDRUS consortium consists of 10 partners from 6 EU countries:

Coordinator

- Hyet B.V.

Partners

- ITM Power
- H2 Logic
- Hexagon Composites
- Daimler
- SHELL
- Bundesanstalt für Materialforschung und -prüfung
- Armines
- Hochschule Esslingen
- Uniresearch

As the PHAEDRUS project is approaching its conclusion we would like to share with you key observations and anticipated outcomes made within the consortium collective within this issue of the project's Newsletter. The **first issue** introduced the structure of the project, its goals and objectives, as well as the main results. In this second issue you can read about the results gained to date placed in perspective. We wish you informative reading!

Major Technological Advancement

Progress within PHAEDRUS has been achieved both at component level and system configuration level, and these improvements beyond the status quo are summarised below. [Read more...](#)

- Electrolyser Technology
- Electrochemical Compressor
- Catalyst
- Dispenser and Filling station equipment
- Outlook

Multiple Configuration Evaluated

The PHAEDRUS consortium evaluated the initial system architecture and capacity sizing and multiple configurations have been considered, including assumptions that high pressure storage of 100 MPa buffer tanks are economically feasible. [Read more...](#)

Presentation at 'World of Energy Solutions'

Besides past dissemination activities, we will relay our final results and share the lessons learned during the final integration field test during the conference at the 'World of Energy Solutions'. At this event, there will be hardware demonstrated on-site and the possibility of a workshop organised for interested stake-holders in the field. [Read more...](#)

PHAEDRUS - funding

This project has received funding from the European Union's Seventh Framework Programme for research – Fuel Cells and Hydrogen Joint Undertaking under grant agreement no 303418.



Investment costs

There is considerable cost down potential of the novel technologies in the configurations discussed here, but the total investment costs still appear to overrun the benchmark scenario of a state-of-art refuelling station based on trucked-in hydrogen scaled to 200 kg/day capacity (total 0.5 MEuro).

From the sensitivity analysis, it can be summarized that the optimum cost, architecture and the sizes of the storages depend on the price of electricity (OPEX) and the cost of the components.

Note that these numbers are scaled for comparison under the assumption of a likely refuelling pattern, and that value of the scalability and flexibility of the system using novel components is to be evaluated. Initially, it is not likely that the demand of a Hydrogen Refueling Station (HRS) will see a flat profile and the capability to start at reduced capacity will be enabling to make limited investment possible and minimise operation costs.



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Please contact Anna Molinari for any questions concerning this newsletter:
T +31 15 275 4000
E a.molinari@uniresearch.com