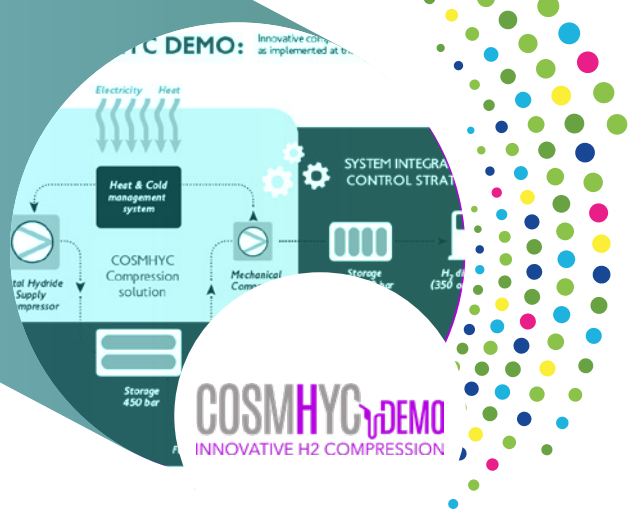
COSMHYC DEMO

COMBINED SOLUTION OF METAL HYDRIDE AND MECHANICAL COMPRESSORS: DEMONSTRATION IN THE HYSOPARC GREEN H_2 MOBILITY PROJECT



Project ID:	101007173
PRD 2023:	Panel 2 – H2 storage and distribution
Call topic:	FCH-01-8-2020: Scale-up and demonstration of innovative hydrogen compressor technology for full-scale hydrogen refuelling station
Project total costs:	EUR 3 773 858.75
Clean H_2 JU max. contribution:	EUR 2 999 637.13
Project period:	1.1.2020–31.12.2024
Coordinator:	Europäisches Institut für Energieforschung EDF–KIT EWIV, Germany
Beneficiaries:	Communauté de Communes Touraine Vallée de l'Indre, Eifhytec, Mahytec SARL, Nel Hydrogen AS, Steinbeis Innovation gGmbH

https://cosmhyc.eu/cosmhyc-project

PROJECT AND OBJECTIVES

To meet the demands of a growing hydrogen economy, new technologies in the hydrogen refuelling infrastructure – including that of hydrogen compression – are necessary. In COSMHYC DEMO, the innovative COSMHYC compression solution, which combines a metal hydride compressor and a mechanical compressor, has been shown to be ready for commercial deployment. At the test site in France, a public hydrogen refuelling station (HRS) will be installed for a variety of vehicles (e.g. vehicle fleets and refuse trucks). The hybrid compressor will be used to supply hydrogen at both 350 bar and 700 bar.

NON-QUANTITATIVE OBJECTIVES

- The project aims to increase public acceptance of hydrogen mobility. Integrating the new compressor in a community in which there have been previous hydrogen mobility activities and demonstration projects is likely to increase overall acceptance.
- It also aims to include a smart gas hub for switching between storage, the HRS and the filling centre. A new gas panel has been designed and will allow for smart switching between the filling centre for trailers, on-site hydrogen supply storage and HRS.

PROGRESS AND MAIN ACHIEVEMENTS

- The HRS has been fully constructed and is ready to ship.
- The metal hydride composition has been decided upon for all compression stages.
- Site integration and filling centre gas panel design, including safety studies, have been completed.

FUTURE STEPS AND PLANS

- The HRS is due to be installed in summer 2023.
- The metal hydride compressor is due to be integrated in early 2024.
- Long-term tests of the demonstrator will be conducted with the on-site vehicle fleet.
- Final discussions regarding safety studies will take place, before authorisation is granted.
- An opening event for the launch of the HRS and compressor will be organised to bring together local stakeholders, the general public and EU officials at the demonstration site.

QUANTITATIVE TARGETS AND STATUS

Target source	Parameter	Unit	Target
Project's own objectives	Daily capacity	kg/day	200
	Storage capacity	kg	125
	Refuelling protocol	N/A	SAE J2601 (light-duty vehicles) / SAE J2601-2 (heavy-duty vehicles)
	Dispensing pressure	bar	350/700/200
	Nominal pressure of the on-site storage tank	bar	950

Clean Hydrogen Partnership
Co-funded by the European Union