

STASHH

STANDARD-SIZED HEAVY-DUTY HYDROGEN

STASHH

Project ID	101005934
PRR 2025	Pillar 3 - H ₂ End Uses – Transport
Call Topic	FCH-01-4-2020
Project Total Costs	14 310 447.80
Clean H ₂ JU Max. Contribution	7 500 000.00
Project Period	01-01-2021 - 28-02-2025
Coordinator Beneficiary	SINTEF AS, NO
Beneficiaries	FEV SOFTWARE AND TESTING SOLUTIONS GMBH, PLASTIC OMNIUM NEW ENERGIES WELS GMBH, VDL SPECIAL VEHICLES BV, DAMEN RESEARCH DEVELOPMENT and INNOVATION BV, FREUDENBERG FUEL CELL E POWER SYSTEMS GMBH, DAMEN GLOBAL SUPPORT BV, VDL ENERGY SYSTEMS, PLASTIC OMNIUM NEW ENERGIES WELS GMBH, FUTURE PROOF SHIPPING BV, HYSTER-YALE ITALIA SPA, FCP FUEL CELL POWERTRAIN GMBH, VDL ENABLING TRANSPORT SOLUTIONS BV, HYUNDAI MOTOR EUROPE TECHNICAL CENTER GMBH, HYDROGENICS GMBH, FREUDENBERG FST GMBH, AKTIEBOLAGET VOLVO PENTA, SYMBIO, SCHEEPSWERF DAMEN GORINCHEM BV, INTELLIGENT ENERGY LIMITED, VOLVO CONSTRUCTION EQUIPMENT A+B, WATERSTOFNET VZW, BALLARD POWER SYSTEMS EUROPE AS, SOLARIS BUS and COACH SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA, Proton Motor Fuel Cell GmbH, TOYOTA MOTOR EUROPE NV, CETENA SPA CENTRO PER GLI STUDI DI TECNICA NAVALE, NEDSTACK FUEL CELL TECHNOLOGY BV, FEV EUROPE GMBH, ALSTOM TRANSPORT SA, AVL LIST GMBH, VOLVO TECHNOLOGY AB, NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO, COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

PROJECT AND GENERAL OBJECTIVES

StashH's objectives are to agree on a standard for fuel cell modules across the heavy-duty sector (trucks, buses, ships, generators, trains, etc.), to build prototypes in accordance with this standard and to test them in accordance with agreed-upon methods. The project has produced three documents for standards covering sizes, interfaces and communication, all fuel cell module suppliers have provided their prototypes, and all have undergone rigorous testing.

NON-QUANTITATIVE OBJECTIVES

- The project aims to disseminate the standard. It has established contact with the Society of Automotive Engineers and the International Organization for Standardization.
- StashH has submitted the standard to IEC TC105.

PROGRESS, MAIN ACHIEVEMENTS AND RESULTS

- A standard definition has been agreed upon.
- Eight fuel cell modules have been designed, built and tested.
- A truck prototype has been deployed at VDL.
- Publication of several public reports, including a detailed overview of regulations, codes and standards, an OEM best practices manual, a techno-economic analysis, a market assessment, X-in-the-loop software and a test report.



FUTURE STEPS AND PLANS

Finalisation of the last public designs for FCMs.

<https://stashh.eu>

PROJECT TARGETS

Target source	Parameter	Unit	Target	Target achieved?
Project's own objectives	Standard documents	Pcs	3	
	Number of FC module partners	Pcs	8	✓
	Units tested	Pcs	8	