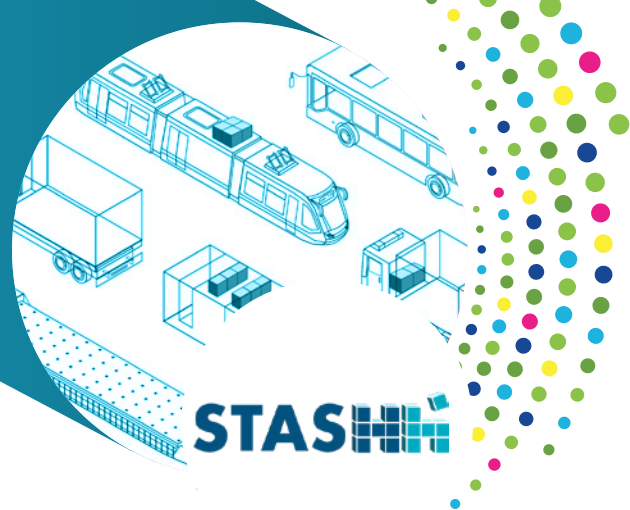


STASHH

STANDARD-SIZED HEAVY-DUTY HYDROGEN



Project ID:	101005934
PRD 2023:	Panel 3 – H2 end uses – transport
Call topic:	FCH-01-4-2020: Standard sized FC module for heavy duty applications
Project total costs:	EUR 14 315 057.05
Clean H₂ JU max. contribution:	EUR 7 500 000.00
Project period:	1.1.2021–30.6.2024
Coordinator:	Sintef AS, Norway
Beneficiaries:	Volvo Penta AB, Alstom Transport SA, AVL List GmbH, Ballard Power Systems Europe AS, CETENA SpA, Commissariat à l'énergie atomique et aux énergies alternatives, Damen Global Support BV, Damen Research Development & Innovation BV, FEV Europe GmbH, FEV Software and Testing Solutions GmbH, Freudenberg Fuel Cell e-Power Systems GmbH, Future Proof Shipping BV, Hyster-Yale Italia SpA, Hyundai Motor Europe Technical Center GmbH, Intelligent Energy Limited, Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek, Plastic Omnium New Energies Wels GmbH, Proton Motor Fuel Cell GmbH, Scheepswerf Damen Gorinchem BV, Solaris Bus & Coach sp. z o.o., Toyota Motor Europe NV, VDL Enabling Transport Solutions BV, VDL Energy Systems, VDL Special Vehicles BV, Volvo Construction Equipment AB, Volvo Technology AB, WaterstofNet VZW

<https://stashh.eu/>

PROJECT AND OBJECTIVES

StasHH's objectives are to agree 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 – and several partners are already developing prototypes.

NON-QUANTITATIVE OBJECTIVES

- The project aims to disseminate the standard. This dissemination only recently started, as the standard was only recently agreed upon.
- StasHH plans to update the standard based on experience in 2023.

PROGRESS AND MAIN ACHIEVEMENTS

- Seven out of eight fuel cell modules have been designed.
- Protocols for factory acceptance and site acceptance testing have been prepared.
- The truck prototype has been deployed at VDL.

FUTURE STEPS AND PLANS

- Fuel cell module testing in three campaigns: two in 2023 and one in early 2024.
- Field demonstration in a heavy-duty vehicle.
- Production of an OEM best practice manual.
- Use of X-in-loop software.
- Finalisation of standard and designs.

QUANTITATIVE TARGETS AND STATUS

Target source	Parameter	Unit	Target	Achieved to date by the project	Target achieved?
Project's own objectives	Number of sizes	–	≤ 3	3	
	Number of fuel cell module partners	–	7	7	✓
	Fuel cell module power rating	kW	30–100	30–125	