MEASURED

ADVANCED MEAS ENSURING HIGH EFFICIENCY HDV

Project ID	101101420
PRR 2025	Pillar 3 - H_2 End Uses - Transport
Call Topic	HORIZON-JTI-CLEANH$_2$-2022-03-02
Project Total Costs	2 989 060.00
Clean H_2 JU Max. Contribution	2 989 060.00
Project Period	01-06-2023 - 31-05-2026
Coordinator Beneficiary	ADVANCED ENERGY TECHNOLOGIES AE EREUNAS and ANAPTYXIS YLIKON and PROIONTONANANEOSIMON PIGON ENERGEIAS and SYNAFON SYMVOULEFTIKON Y PIRESION, EL
Beneficiaries	AVL-AST NAPREDNE SIMULACIJSKE TEHNOLOGIJE DOO, HONEYWELL INTERNATIONAL SRO, UNIVERSITAT POLITECNICA DE VALENCIA, UNIVERZA V LJUBLJANI, AVL LIST GMBH, UNIVERSITY OF STUTTGART, TECHNISCHE UNIVERSITAET GRAZ

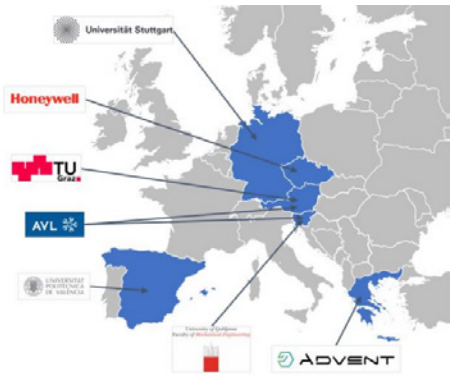
https://measured-horizon.eu/

PROJECT AND GENERAL OBJECTIVES

MEAsureD aims to advance High-Temperature membrane electrode assemblies (MEAs) for heavy-duty vehicles. The focus is on the development of a cost-effective MEA, operating above 160 °C, featuring minimal phosphoric acid uptake and a stable porous ionomer microstructure, combined with novel platinum-based catalysts. The MEA will be integrated in a short stack and its performance will be evaluated according to the project's key performance indicators. In parallel, fuel cell stack integration will be validated under heavy-duty vehicles conditions to ensure operational reliability. The project will also define optimal configurations for balance-of-plant components tailored to high-temperature proton exchange membranes (HT-PEM) systems. Beyond automotive applications, the potential of fuel cell technology will be explored for use in the aviation, maritime, and rail sectors. To support these efforts, advanced digital tools will be developed for system design and performance monitoring, including simulations of flow field behaviour and degradation mechanisms. In addition, MEAsureD will develop design and monitoring modelling simulation tools, carry out testing-, harmonisation- and standardisation-related activities. Finally, MeasureD will execute an environmental assessment of the fuel cell manufacturing process, targeting cost reduction and improved recycling of waste materials.

NON-QUANTITATIVE OBJECTIVES

- Ensure innovation and collaboration among project partners to advance the MEA's technical development.
- Cultivate expertise in digital modelling techniques, enabling the team to develop sophisticated simulations that enhance understanding and inform design decisions.
- Conduct vehicle-level simulations, fostering a deep understanding of system-wide implications and interdependencies.



- Check and promote sustainability and economic viability, integrating environmental and economic assessments to guide decision-making and promote responsible innovation.
- Enhance the project's visibility and impact through strategic communication and dissemination efforts, engaging stakeholders and fostering dialogue to maximise the project's reach and influence.
- Implement project management practices, promoting efficiency, transparency and accountability to ensure smooth project execution and the timely achievement of milestones.

PROGRESS, MAIN ACHIEVEMENTS AND RESULTS

Deliverable (hereinafter D) 1.8: Requirements and key performance indicators for the polymer membranes for high-temperature fuel cells for aerospace applications from Honeywell.

D 4.1: Requirements of heavy-duty fuel cell electric vehicles' system architecture, performance lifetime and components' sizing and characterisation from AVL.

D 6.1. Project logo and visual identity 6 from Advent.

D 6.2. Website and social media presence from Advent.

D 6.3. Measured newsletter from Advent.

D 6.4. Measured promotional material from Advent.

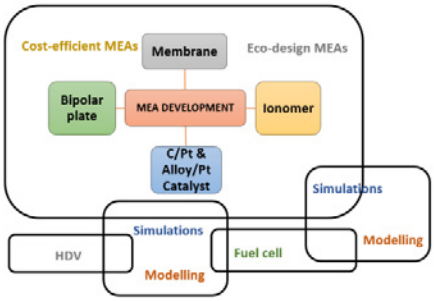
D 6.5. Plan for communication, dissemination and exploitation from Advent.

D 7.1. Project management handbook from Advent.

D 7.2. Quality management plan from Advent.

D 7.3. Risk management plan from Advent.

D 7.4. Data management plan from Advent.



FUTURE STEPS AND PLANS

- Technical development of the MEA (both membrane and electrode) and the single cell assembly through experiments and testing methodologies to optimise performance.
- Digital models to simulate the characteristics of project innovations.
- Progress of vehicle-level simulations enabling assessment of the overall performance and integration of novel technologies within the context of larger systems.
- Environmental and economic assessments, to gauge the impact, recyclability, and manufacturing costs associated with project advancements.
- Communication, dissemination, and exploitation strategies to ensure effective outreach and maximise the impact of project advancements.
- Project management activities, ensuring effective and efficient project progress.

PROJECT TARGETS

Target source	Parameter	Unit	Target	Target achieved?
Project's own objectives	Fuel Cell stack cost	€/kW	< 75	

Clean Hydrogen Partnership
Co-funded by the European Union