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Improved electrolysis for distributed hydrogen production

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High Performance PEM Electrolyser for Cost-effective Grid Balancing Applications

HPEM2GAS-Deliverable report

D4.2 Report on final MEA performance and stability properties

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Publishable summary

HPEM2Gas targets to develop advanced membrane-electrode assemblies for PEM water electrolysis with ultra-low PGM loading ($\leq$0.5 mg_{PGM}/cm^2 MEA), a high performance (1.8 V/cell @ 3 A/cm^2) and low degradation (<5 µV/h/cell).

The final MEA precursors and composition is based on previously reported single cell test results and results reported in the present report. The latter includes dynamic test, long-term single-cell, 3-cell stack test results, as well as post-operation MEA characterisation. The project performance targets, with respect to catalyst loading and performance, were obtained for MEAs based on the Solvay membrane Aquivion® E98-09S, stabilised Solvay ionomer (D98-06ASX), and optimised catalysts developed by CNR-ITAE (cathode 40% Pt on C and anode: $Ir_{0.7}Ru_{0.3}O_x$).

Selected test results are available in the public D4.5 HPEM2Gas report.