

catcher



Creation of innovative
„HUMIDITY TO ELECTRICITY“
renewable energy conversion
technology towards sustainable
energy challenge

catcherproject.eu

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PROJECTS' VISION

CATCHER project is aimed at the development of innovative technology to exploit atmospheric humidity for direct conversion to electricity. It is creating an efficient use of the new sustainable source for renewable energy and thus strengthens the EU leadership on renewables.

The successful realization of the project is assured by knowledge sharing within material science, physics, nanoelectronics, green chemistry, nanoengineering, sustainability, and research marketing, via international and intersectoral collaboration of highly qualified researchers and businesses from Portugal, Belgium, Austria, Spain, and Ukraine.

The project is targeted at the advancement, optimization, and scalability of a previously developed technology that converts atmospheric humidity into electrical current which will be ready for scaling up and further integration with existed EU electrical system for general energy use.

CATCHER OBJECTIVES



ADVANCE the “deep-tech” research on direct conversion of the adsorption energy of the atmospheric humidity into electrical energy to provide the foundations of the future technology.



UPGRADE the original conversion devices far beyond the relevant current state of the art by development and optimization of a novel water adsorption design.



IMPROVE the conversion efficiency of the system up to 47% via enhancement of charge carriers drain through the creation of an in-built electric field.



ENHANCE the charge carrier's generation by improvement of the converter adsorption capacity with the addition of adsorption membrane and material modification.



ELABORATE the second generation of the “humidity to electricity” converter prototype, 10 times more efficient in terms of power output, scaled to 1 m² × 3 mm single panel producing c. 15-20W/m².



VALIDATE the technological feasibility of the elaborated device during its working cycles.



EVALUATE the sustainable environmental, social, and economic feasibility of the developed technology, its suitability for further transfer, and scaling up to innovations contributing to 2050 EU targets.

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PROJECT FACTS

Duration

04/2022 to 03/2026

Programme

EIC Pathfinder

Reference

101046307

Coordinator

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CULTURAL CRL

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