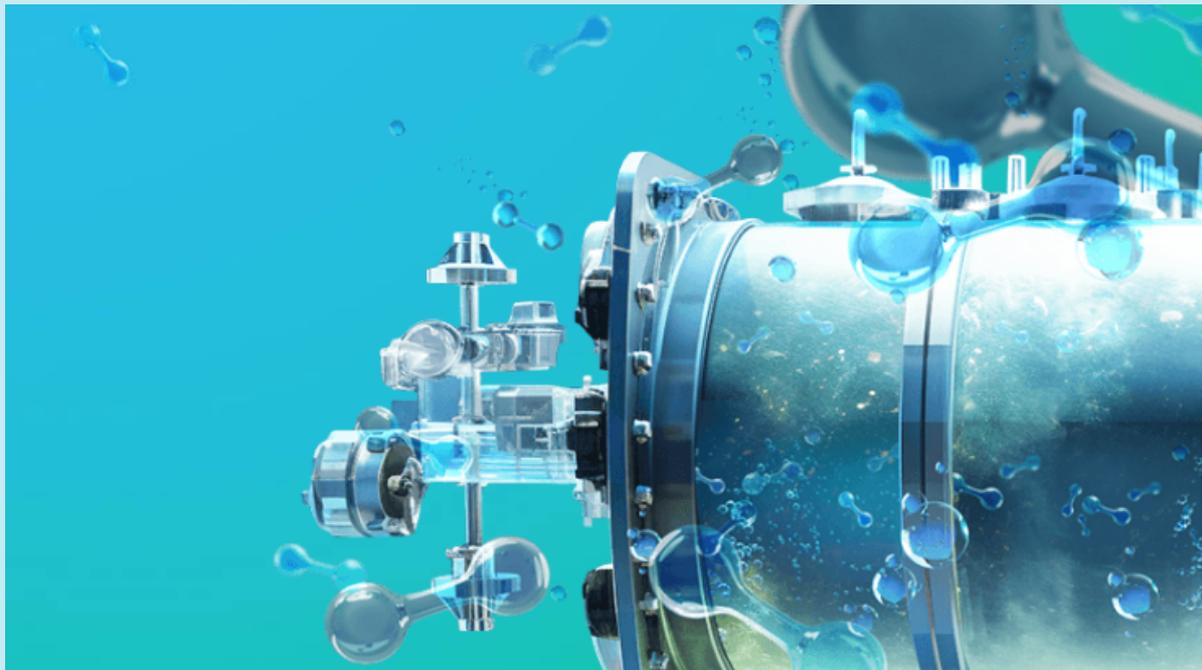




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**on project launch**

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# A new high-pressure alkaline electrolysis project 'PEACE' is underway

The reduction of emissions of carbon dioxide (CO<sub>2</sub>), represents a significant challenge within the EU [Green Deal](#) and for EU's efforts against the ongoing climate crisis. This challenge is of utmost importance in order to achieve the goal of a climate-neutral continent by 2050. As early as 2030, the EU plans to reduce greenhouse gases emissions by at least 55%, necessitating the use of higher shares of renewable energy and greater energy efficiency. To meet these goals, the production of **green hydrogen through electrolysis** (powered by renewable sources) offers a viable solution.

The importance of green hydrogen in energy transition has been recently affirmed by the revised EU Renewable Energy Directive ([EU/2023/2413](#)), which entered into force on November 20, 2023. The revision sets a binding target of at least **42.5% of renewable energy** sources' share of total energy consumption. Specifically, new targets have been set for industry and transport in the procurement of **renewable fuels of non-biological origin** (RFNBOs) which are based on hydrogen mainly produced by electrolysis powered by renewable electricity.

In this respect, the directive states that **42% of the hydrogen used in industry** should come from these RFNBOs by 2030, and even 60% by 2035. In **transport**, new overall **targets for renewables** were set - a 14,5% reduction in greenhouse gas intensity or at least 29% of renewables within the final energy consumption by 2030. Moreover, at least 5.5% of the fuel mix must be composed of advanced biofuels and RFNBOs, and, more specifically, a minimum sub-target of **1% of RFNBOs in the share of renewable energies supplies** was set for the transport sector by 2030. These are strong incentives for hydrogen producers to satisfy the growing demand for green hydrogen.

Within this stimulating framework, the research and innovation project '**Pressurized Efficient Alkaline Electrolyser**' ([PEACE](#); project No. 101101343), funded under the EU Horizon Europe programme by the [Clean Hydrogen Partnership](#), kicked-off in June 2023 and is fully underway. A collaboration of seven European research organisations and universities, with large and small companies onboard, under the coordination of the [German Aerospace Center \(DLR\)](#), aims to develop a **high-pressure alkaline electrolysis** (AEL) technology to substantially **reduce hydrogen production costs**, enhancing the competitiveness of the hydrogen economy.

A new concept of **hydrogen production with two-stage pressurization** will be developed and demonstrated on an AEL system of more than 50 kW capable of operating at pressures exceeding 50 bar. The integration of advanced components, innovative design, and optimized operation strategies will be explored through modelling and experimental testing, ultimately aiming to demonstrate a system with impressive efficiency characteristics.

The PEACE-produced hydrogen will be already **compressed**, representing a significant advantage for its subsequent use in downstream processes operating with compressed hydrogen – reducing a significant share of CAPEX and OPEX of an electrolysis system for the chemical sector.

PEACE places a strong emphasis on **sustainability and circularity aspects** – a Life Cycle Assessment of the PEACE technology will be conducted to quantify its environmental impacts. Its adverse environmental impacts are presumed to be low.

The common goal of the participants in the PEACE project (German Aerospace Center; Materials Mates Italia SRL; Eindhoven University of Technology; Brandenburgische Technische Universität Cottbus-Senftenberg; the Hydrogen Chemistry Company; Grant Garant sro; and Technical University of Denmark) is to achieve a **technological breakthrough** that positions Europe as a leader in highly pressurized AEL technology within the next three years.

### PEACE MEMBERS





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“Pressurized Efficient Alkaline EleCtrolysEr” (PEACE)  
is a research and innovation project funded under the EU **Horizon Europe**  
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## PEACE MEMBERS



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