PEACE

NEWSLETTER No. 1

on hydrogen production

October 2023

Content

1. Editorial

Welcome to the first issue of the PEACE quarterly Newsletter. PEACE is a research and innovation project in the field of low temperature alkaline electrolysis, funded by the Clean Hydrogen Partnership under the EU Horizon Europe programme. Within the newsletter, we would like to inform our readers about the PEACE project and the results we will produce throughout the implementation. However, we see the newsletter as a platform for sharing information, not only on PEACE, but also on the topic of hydrogen production and use. On behalf of the PEACE project team, I wish you pleasant reading and invite you to subscribe to our newsletter:
www.h2peace.eu/newsletter

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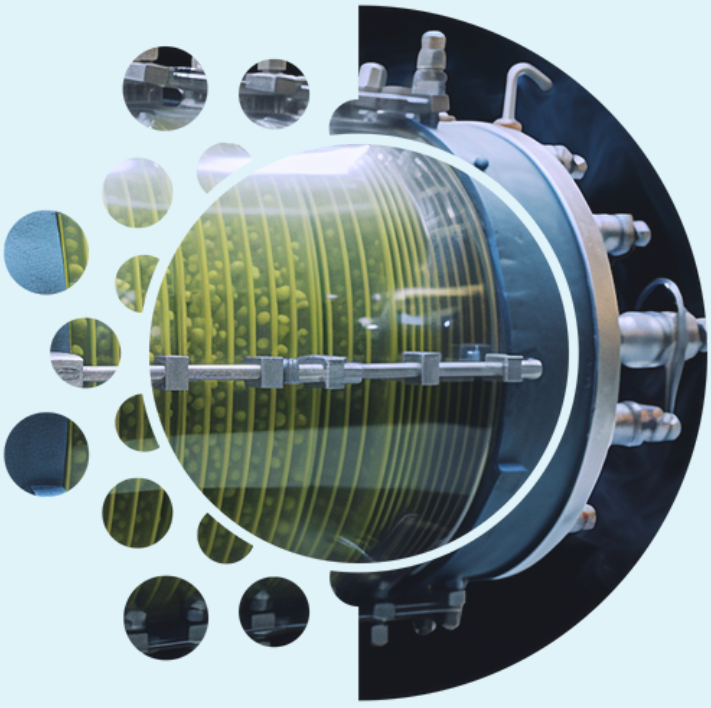
@DLR _ Energie



2. About PEACE

Reducing carbon dioxide (CO_2) emissions is a critical task at the heart of the EU Green Deal and the European Union's endeavours to combat the persistent climate crisis.
It stands as a paramount challenge to realize the objective of a carbon-neutral continent by 2050. The EU has set ambitious targets, aiming to cut greenhouse gas emissions by at least 55% by as early as 2030, demanding an increased reliance on renewable energy sources and enhanced energy efficiency.
In pursuit of these objectives, the generation of **green hydrogen***, produced through electrolysis powered by renewable sources, emerges as a promising and workable solution.
To boost the hydrogen economy and make it more competitive, a substantial **reduction of hydrogen production costs** is necessary. And that is why the PEACE project was born as it will attempt to substantially reduce the hydrogen production costs and to **get closer to the production costs of grey hydrogen****.

WHAT IS PEACE?

PEACE is an acronym of "Pressurized Efficient Alkaline EleCtrolysEr"- a **research and innovation project** funded under the EU Horizon Europe programme by the Clean Hydrogen Partnership. PEACE has officially started in June 2023 and is to be implemented by May 2026. PEACE aims to develop an innovative **technology of high-pressure alkaline electrolysis** (AEL) to produce hydrogen. Our technology should be effective, less expensive and with low environmental impacts.

* Green hydrogen is mostly produced by water electrolysis using electricity generated from renewable energy sources. There is no CO2 emission associated with the hydrogen production nor with its usage (https://hydrogeneurope.eu).

** Grey hydrogen is produced from fossil fuel and steam methane reforming method is usually used (https: //hydrogeneurope.eu).

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WHICH ARE PEACE OBJECTIVES?

PEACE aims to contribute to a **sustainable and low-emission European society** by reducing the production cost of hydrogen through the development and demonstration of a **50kW** low-temperature alkaline water electrolysis system capable of operating more than 50 bar. More specifically, PEACE objectives to achieve are the following:

High-efficiency stack development

Pressure vessel stack concept

Balance of Plant and auxiliary optimization and qualifications

Technology demonstration

Integration concept with downstream chemical plants

Reduction of capital costs per system

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WHAT STEPS WILL ENCOMPASS OUR TECHNOLOGY DEVELOPMENT?

1.

Qualification of various AEL cell and stack components including non-noble materials

2.

Assemblage of the **PEACE AEL stack** (demonstrator) with the best performed materials

3.

Demonstrator enrichment with **dual pressurisation concept**

4.

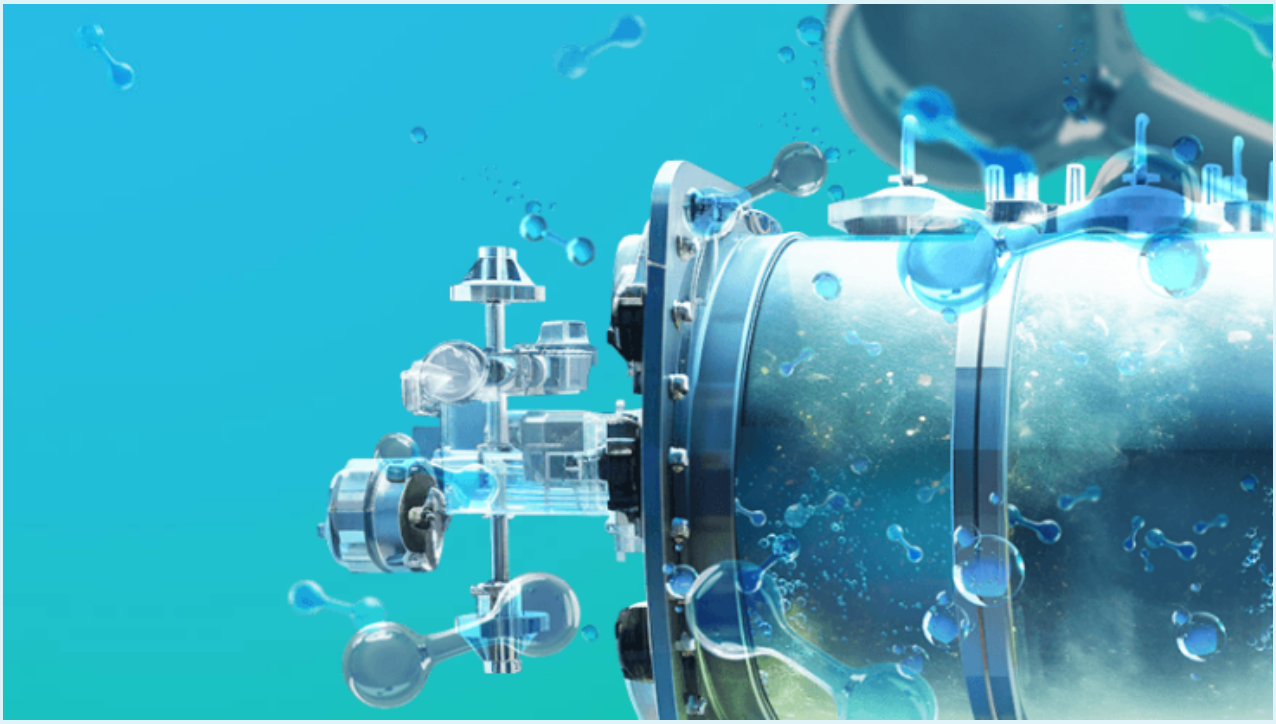
Demonstrator in operation – evaluation of functioning, behaviour and characteristics simulations

5.

Design of PEACE AEL **integration with a chemical plant**

6.

Assessment of the environmental and other **impacts of the PEACE technology**



WHO IS BEHIND PEACE?

The project is being carried out by **seven entities** under the coordination of the German Aerospace Center (DLR). The scientific core of the consortium consists of three well-known organizations in electrochemical reserach:

German Aerospace Center (DLR)
Brandenburgische Technische Universität Cottbus Senftenberg (BTU)
Technische Universiteit Eindhoven (TU/e)

Furthermore, researchers from Danmarks Tekniske Universitet (DTU) offer know-how in technology **sustainability and circularity aspects**. The concept of **integrating PEACE hydrogen production with a chemical plant** will be proposed by The Hydrogen Chemistry Company (HyCC) - one of the largest hydrogen companies in the world. Materials Mates Italia (MMI) provides knowledge in **production of scientific instruments** and systems for energy research. Finally, GRANT Garant (GG) supports PEACE research activities with project **promotion and its results dissemination** and exploitation.

See more: **www.h2peace.eu**
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3. Hydrogen News

Relaunch of the European Hydrogen Observatory

In September 2023, the European Hydrogen Observatory was relaunched to serve as the leading source of hydrogen data in Europe. A platform, managed by Clean Hydrogen Partnership, provides data on the entire value chain of the hydrogen sector, including information on hydrogen production infrastructure, distribution, storage, and end-uses.

https: //observatory.clean-hydrogen.europa.eu/

Global Hydrogen Review 2023 published

Recently, Global Hydrogen Review 2023 has been published by the International Energy Agency. A worldwide publication on hydrogen production and demand is destined to energy sector stakeholders to provide them information on the status and future prospects of hydrogen.

https: //www.iea.org/reports/global-hydrogen-review-2023

4. Hydrogen Events

EU Hydrogen Week, 20-24 Nov, 2023, Brussels (BE)

A great event full of hydrogen - #EUH2Week - has just finished. A true melting pot for hydrogen producers, investors, users and policy makers was organised by Hydrogen Europe, the European Commission and the Clean Hydrogen Partnership. A week full of conferences (over 25 sessions and 200 speakers), exhibition and networking opportunities will be back on 18-22 November 2024!

https: //euhydrogenweek.eu/

Hydrogen Dialogue, 6-7 Dec, 2023, Nuremberg (DE)

#HydrogenDialogue, a summit dedicated to speak about hydrogen economy, and an expo to present new technologies closed its gates with more than 1,500 participants and 48 exhibitors. It will be back on 4-5 December 2024.

https: //www.hydrogendialogue.com/en/

5. Hydrogen project funding opportunities

Renewable hydrogen used as feedstock in innovative production routes (Processes4Planet Partnership) (RIA)

The Horizon Europe call, HORIZON-CL4-2024-TWIN-TRANSITION-01-34, is focused on developing new processes integrating renewable hydrogen into new production routes as a feedstock.

Deadline date: 07 Feb. 2024

CO2-neutral steel production with hydrogen, secondary carbon carriers and electricity OR innovative steel applications for low CO2 emissions (Clean Steel Partnership) (RIA)

The Horizon Europe call, HORIZON-CL4-2024-TWIN-TRANSITION-01-46, is open for project proposals either enhancing CO2 - neutral steel production with hydrogen, secondary carbon carriers and electricity; or contributing to innovative steel applications for low CO2 emissions.

Deadline date: 07 Feb. 2024

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"Pressurized Efficient Alkaline EleCtrolysEr" (PEACE) is a research and innovation project funded under the EU **Horizon Europe programme** by the **Clean Hydrogen Partnership.**

PEACE CONSORTIUM

DLR Deutsches Zentrum für Luft- und Raumfahrt German Aerospace Center

MaterialsM Instruments

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

b-tu Brandenburg University of Technology Cottbus - Senftenberg

HyCC

GRANT GARANT

DTU

Clean Hydrogen Partnership

Co-funded by the European Union

The project is supported by the Clean Hydrogen Partnership and its members.