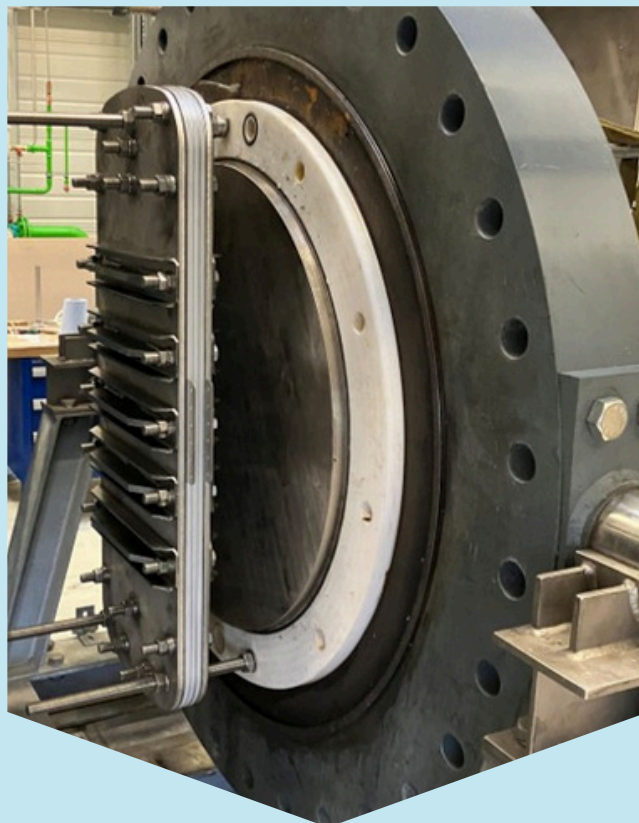


# PRESS RELEASE No. 3

**on short stack assembly**

June 2026



*Pressurised alkaline electrolysis short stack of the PEACE project  
mounted to the BTU test site  
Source: Materials Mates Italia (CC-BY-NC-ND 4.0)*

# The PEACE Project Advances Towards its Demonstrator: Short Stack Construction

The **PEACE project**, funded by the Clean Hydrogen Partnership under the Horizon Europe programme, has reached an important step on the route to a full-scale demonstration of highly efficient pressurised alkaline electrolysis (AEL): construction and assembly of a **three-cell AEL short stack**.

Developed and assembled by **Materials Mates Italia (MMI)**, the short stack represents the scale-up of solutions validated in earlier PEACE project activities. Its design ensures full compatibility with the **Brandenburg University of Technology Cottbus-Senftenberg (BTU) test infrastructure**, including installation inside a pressurized vessel and operation under dual-stage pressurization conditions.

The PEACE short stack comprises several key elements where we tested our innovative solutions:

- **Plastic parts:** separator body and gasket press precisely machined with a low cost, agile process that allows us fast modifications
- **Metallic parts and endplates:** bipolar plates and end plates aiming at a minimum weight with outstanding pressure resistance
- **Sealings:** standard O-ring technology with high level performances
- **Diaphragm, elastic element and electrodes:** electrodes are kept in place by customized knitted nickel mesh with calibrated force.

Particular emphasis was placed on **low-cost, scalable manufacturing approaches**, avoiding critical mechanical processes and relying on materials with high availability: key requirements for future industrial deployment.

Stack assembly reflects **close collaboration between industry and academia** within the PEACE project. Industrial expertise from **MMI** builds on prior electrochemical performance test evaluation works carried out at **German Aerospace Center (DLR)** and **Eindhoven University of Technology (TU/e)**, demonstrate how the combination of industrial expertise and scientific excellence accelerates innovation in green hydrogen technology.

*“This short stack assembly showcases the big power of European collaboration in advancing next-generation electrolysis,” said **Dr. Fatemeh Razmjooei, Project Coordinator at German Aerospace Center (DLR)**. “Each team’s contribution—from material qualification to system integration—brings us closer to cost-efficient and scalable hydrogen production.”*

The next PEACE project objective is the development of a **cost-competitive, pressurized alkaline electrolyser for large-scale green hydrogen production (>50kW)** previewed to be operational at BTU premises in 2026.

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### **About the PEACE project**

The **PEACE concept** of hydrogen production is based on the development of a pressurized, high-efficiency stack. The **two-stage pressurization approach** is implemented: stack-level pressure combined with hydraulic pressure within the vessel in which the stack is mounted. This concept will be demonstrated on an **AEL system exceeding 50 kW**, capable of operating at pressures **above 50 bar**.

Hydrogen produced through PEACE will already be **compressed**, allowing direct feed into **gas networks or industrial chemical processes**. This innovation aims to **reduce both capital (CAPEX) and operational (OPEX) expenditures** of electrolysis systems used in the chemical sector.

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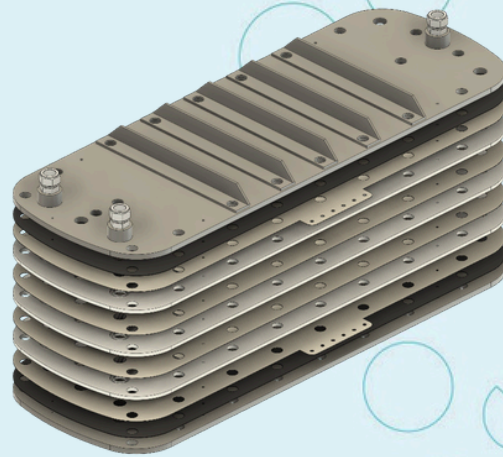
### **Executive Summary**

*The PEACE project has taken an important step towards demonstrating next-generation green hydrogen production technologies with the successful **construction and assembly of a three-cell pressurised alkaline electrolysis (AEL) short stack by Materials Mates Italia (MMI)**. Integrating **innovative, low-cost and scalable solutions** developed throughout the project, the short stack represents a key stage in the development of a >50 kW pressurised alkaline electrolyser for green hydrogen production. This achievement highlights the strength of **collaboration between PEACE’s industrial and academic partners** and brings the project closer to delivering cost-effective and efficient hydrogen production technologies for future large-scale deployment.*

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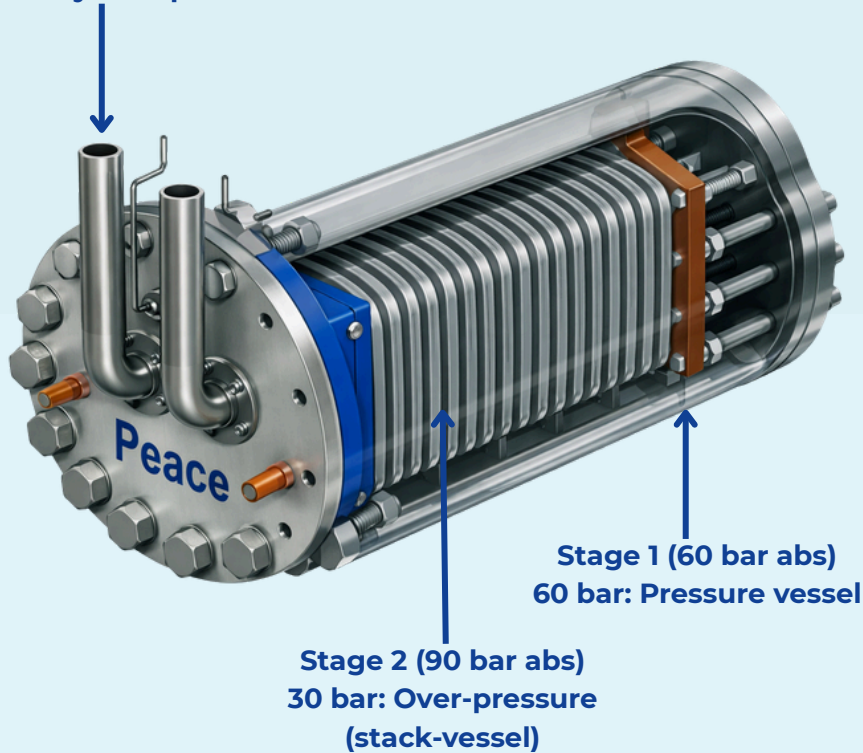
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PEACE short stack (exploded view) – Source: Materials Mates Italia (CC-BY-NC-ND 4.0)

**90 bar: System pressure**



PEACE AEL system - Source: PEACE Project (CC-BY-NC-ND 4.0)



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**programme** by the **Clean Hydrogen Partnership**.

## PEACE MEMBERS



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



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