

Year-end Newsletter

**DIAGNOSTIC TOOLS FOR ELECTROLYSERS:
COST-EFFICIENT, INNOVATIVE, OPEN,
UNIVERSAL AND SAFE**

December 2025



Hello and welcome, electrolyser enthusiasts!

On behalf of the entire DELYCIOUS project consortium, I am delighted to introduce you to the very first edition of our newsletter – a space where we share the sparks, science, and stories shaping our journey toward cleaner and smarter electrolyser technology systems.

DELYCIOUS (Diagnostic tools for ELectroLYsers: Cost-efficient, Innovative, Open, Universal and Safe) is a Horizon Europe and Clean Hydrogen Partnership funded R&D project aimed at developing advanced diagnostic and monitoring tools for water electrolyzers that are cost-efficient, innovative, open, universal and safe.

As Europe races ahead on its clean energy transition, with hydrogen production high on the Net Zero Industry Act's agenda, DELYCIOUS is tackling the challenge from the inside out: boosting electrolyser lifespans and trimming operational costs, especially under variable renewable energy sources.

How we are doing that? By pioneering diagnostic tools that combine Raman and Electrochemical Impedance Spectroscopies, all wrapped in a powerful layer of advanced physical and data-driven modelling. These tools are being validated across three major electrolysis technologies: alkaline (AEL), proton exchange membrane (PEMEL), and solid oxide electrolysis (SOEL) – including a large-scale demo on alkaline electrolyzers over 100 kW.

As of the time this newsletter is published, we've been rolling up our sleeves for 12 months. We've made strong progress in several technical areas and management aspects, and are excited to share insights from our work so far – as well as what's ahead for the rest of 2025.

So thank you for opening this newsletter, for being curious, and for joining us on this 3-year journey to make renewable hydrogen a little more...DELYCIOUS.



Aline Luxa,
*DELYCIOUS Project Coordinator
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 DELYCIOUS Project

 delycious-project.eu

Project Milestones

Here is a snapshot of what we have achieved and what's head for DELYCIOUS!

Visit our project website to check out
all 13 submitted deliverables*: delycious-project.eu



*Please kindly note that **for sensitive deliverables, only publishable summaries** are available to view.



Latest news – 2nd Plenary Meeting and Field Visit to Air Liquide’s Innovation Campus Frankfurt

The DELYCIOUS project wrapped up the year with a productive plenary meeting in Frankfurt (11–12 December 2025), hosted by Air Liquide Forschung & Entwicklung. Over two days, partners reviewed progress across technical development, laboratory and large-scale validation, software and hardware integration, communication activities, and project management—alongside a field visit to Air Liquide’s Innovation Campus Frankfurt to see key facilities supporting upcoming project implementation, including the lab-scale PEM electrolyser test rig that

will be used in the project. Highlights included continued commissioning of advanced diagnostics across electrolyser technologies, early integration and calibration activities for new monitoring capabilities, progress on hybrid degradation-protection algorithms and the software integration framework, and preparations for the project’s first public dissemination webinar in January 2026.

[Click here to read more.](#)

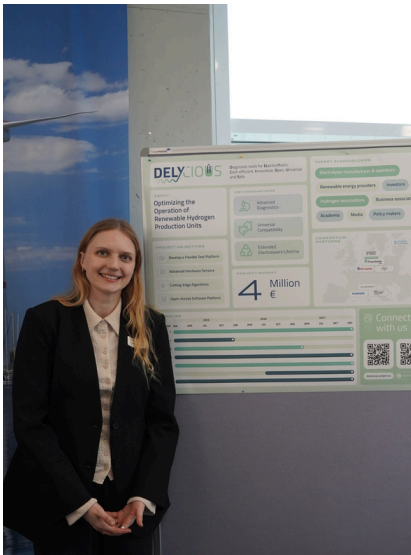
The 1st External Advisory Board

The project held its first External Advisory Board (EAB) meeting on 12 November 2025, making an important milestone in fostering collaboration between stakeholders across hydrogen value chain. The EAB brings together experts from Technical University Lappeenranta LUT (FI –Converter-based EIS), Coventry University (UK – modelling optimal operating points), Vattenfall GmbH (DE – electricity and heat producer and retailer), Heraeus Precious Metals GmbH & Co. KG (DE - Catalyst), Ionomr Innovation Inc. (CA - AEMEL and PEMEL membranes and CCM).

The advisors, through dynamic two-way conversations, provided insightful feedback on innovation update, data sharing, and industrial relevance, reinforcing the project’s holistic approach to advancing electrolyser performance. The meeting is set to occur every 6 months where EAB will continue to guide DELYCIOUS project towards its mission of accelerating innovation, fostering open access to research, and eventually paving the way for the commercialisation of the next-gen hydrogen technologies.

“It was a pleasant experience meeting the DELYCIOUS project at its 11th month of implementation, very interesting and inspiring to see the progress. I think DELYCIOUS is dealing with a very relevant topic for a company like Vattenfall. Using advanced monitoring and diagnostic tools to extend the operational life of electrolysers can significantly reduce operational expenditure electrolyser operators. We look forward to seeing the project harvest real-time data and utilize these for robust development in the coming year.”

-Thomas Lavsén, Senior Project Engineer – Hydrogen, Vattenfall Vindkraft A/S



ILES Workshops in Bremerhaven, Germany

At the 4th Workshop on Integration of Local Energy Systems (ILES) – Profitable Operation of Electrolyzer in Bremerhaven, Fraunhofer IWES proudly presented the DELYCIOUS poster, showcasing our diagnostic tools for AEL, PEMEL, and SOEL technologies.

The project's objective is highly relevant to the profitable and sustainable operation of electrolyzers, as it supports long-term system reliability, reduced operational costs, and safer large-scale hydrogen production.

[Check out the project poster here.](#)

Field Visit to the SEED Laboratory, University of Twente

Last July, consortium members visited the Sustainable Electrochemical Engineering and Digitalisation (SEED) Laboratory at the University of Twente (Eschende, Netherlands). Partners explored the facilities where SOEL tests for DELYCIOUS will be conducted and observed both in-house and commercial SOEL cells, gaining valuable context for upcoming experiments.

The visit, which took place as part of the 1st General Assembly, strengthened collaboration across technical teams and reaffirmed the project's readiness for its next research phase.

[Read more about the visit and the 1st General Assembly Meeting here.](#)



What's next?

JOINT WEBINAR: Advancing Online Diagnostics and Building Durable Electrolysis Systems for Europe's Hydrogen Future

You are invited to join us in the upcoming online webinar "Advancing Online Diagnostics and Building Durable Electrolysis Systems for Europe's Hydrogen Future", where science meets strategy to shape the next generation of electrolyser systems.

You will hear from leading experts across research and industry, including from *Politecnico di Torino, Fraunhofer IWES, HORIBA Fuelcon GmbH, Air Liquide, Aalborg University, volyptica diagnostics, and Helmholtz-Institut Erlangen-Nürnberg für Erneuerbare Energien.*

[Click here to visit the event page for more details.](#)

SAVE THE DATE

29 January 2026
CET 15:00 - 16:45

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to register





Co-funded by
the European Union

and for now...

*Merry
Christmas
& Happy
New Year*



From our consortium
DELYCIOUS to yours!

