About this Workshop

Integrating flexible hydrogen systems into transportation, chemical processing, and the energy sector contributes to driving the clean energy transition while enabling resilient power systems. At the University of Bayreuth, hydrogen research bridges between academia and industry, making significant contributions to the further development of energy technologies. Following the successful workshop last year, which brought together leading researchers, industry experts, and technology providers from Germany and Australia to exchange ideas and initiate new collaborations, we are pleased to host the second edition of the HyBaCoM workshop in collaboration with Swinburne University of Technology. This year's workshop will further deepen the dialogue between academia and industry and expand the focus toward practical implementation and system-level integration. Organised within the framework of our project HyBaCoM - Design and Optimisation of Hybrid Hydrogen Battery Energy Systems for Community Microgrids, the workshop will once again convene a diverse group of experts and partners from Germany and Australia. Participants will exchange insights on the latest advancements in hydrogen production, renewable integration, hybrid energy storage systems, and grid simulation approaches, highlighting both research innovation and industrial applications. Part of the program is a site tour to the UBT Future Energy Lab Wundsiedel and the Wunsiedel Energy Park. As one of the largest operational electrolysis plants in Germany integrated into a coupled energy system, it offers a unique opportunity to explore large-scale hydrogen deployment in practice.

Details of the Event

- **Date:** 10th – 12th June 2026
- **Target Audience:** Experts and interested public from industry, science and politics
- **Venue:** University of Bayreuth, FZA building, Room U.01, Universitätstr. 30, 95447 Bayreuth
- **Event language:** English
- **Participation fee:** None
- **Registration:** **Please register here**

With funding from the:
Federal Ministry of Research, Technology and Space

Workshop on "Enabling Resilient Power Systems – Flexible Hydrogen Production, Storage and Utilisation"

Date: 10th – 12th June 2026

Venue: University of Bayreuth, FZA building. Room U.01, Universitätstr. 30, 95447 Bayreuth

Program:

Wednesday, Jun 10, 2026

13:00	Registration & Welcome *Prof. Dr.-Ing. Dieter Brüggemann, Director of the Center of Energy Technology (ZET) at the University of Bayreuth*
13:30	Integration of Decentralized Energy Systems: Smart Energy Hubs and the Role of Hydrogen Technologies *Dr.-Ing. Matthias Welzl, Senior Research Associate, University of Bayreuth*
14:00	Carbon Conversion Technologies for a Hydrogen-Based Future Energy System *Dr.-Ing. Sebastian Fendt, Head of Research Group Carbon Conversion Technologies, Chair of Energy Systems, Technical University of Munich*
14:30	Comparative Analysis of the Multiphasic Dehydrogenation of the Liquid Organic Hydrogen Carrier Molecules Perhydro Benzyltoleune and 1,4 Butanediol *Dr.-Ing. Michael Geißelbrecht, Deputy Department Head Chemical Hydrogen Storage, Forschungszentrum Jülich GmbH, IET-2*
15:00	Coffee Break
15:45	Modeling the Electrification of the Chemical Industry Towards CO_2 Neutrality – A Bottom-Up Study of Bavaria's Chemical Cluster as Part of the H_2 Living Laboratoy Burghausen Project *Maximilian Kerschbaum, M.Sc., Research Associate, Chair of Energy Systems, Technical University of Munich*
16:15–17:00:	Lab tour (optional)
19:00	Networking Dinner in Bayreuth *Engin's Ponte, Opernstr.24-26, 95444 Bayreuth*

Thursday, Jun 11 2026

09:00	Keynote: Resilient Power Systems in the Era of Renewable Energy Transition *Prof. Dr. Mehdi Seyedmahmoudian, Director of Siemens Swinburne Energy Transition Hub, Swinburne University of Technology, Australia*
09:30	Grid Network Modelling and Renewable Energy Injection Using PSS®SINCAL *Dr. Pascal Wiest, Product Manager for Simulation of Grid Dynamics, Siemens AG*
10:00	Simulations of Multi-Energy Systems *Prof. Dr. Vedran Perić, Chair of Intelligent Energy Management, University of Bayreuth*
10:30	Coffee break
11:00	Optimal Partitioning of Distribution Networks into Self-Sufficient Microgrids with Hydrogen Energy Storage Integration *Manashaa Madhavan, PhD candidate, Swinburne University of Technology, Australia*
11:30	PEM Fuel Cell Modeling on Cross-Platform Simulation for Power System Application *Mohammed Irfan S R T, M.Sc., Research Associate, University of Bayreuth*
12:00	Live-Demo on User-Defined Modelling in PSS®SINCAL *Manashaa Madhavan & Mohammed Irfan S R T*
12:30	Lunch at Mensa
14:00	Travel to Wunsiedel Energy Park *Bus transfer (travel time approx. 1 hr) will be organised by University of Bayreuth*
15:00	Site tour: PEM Electrolysis Plant
16:30	Visit of UBT Future Energy Lab Wunsiedel GmbH
17:30	Transfer to Bayreuth for Dinner
19:30	Networking Dinner in Bayreuth *Manns Bräu, Friedrichstr. 23, 95444 Bayreuth*

Friday, Jun 12 2026

09:00	Introduction to the Bavaria-Queensland Research Alliance *Karen Pähler, Coordinator Bavaria-Queensland, University of Bayreuth*
09:15	Sector Coupled Distributed Hydrogen Generation – Opportunities for Decarbonization in Rural Regions an Industrial Perspective *Nils Schmeinck, Project Engineer, Siemens AG*
09:45	Performance modeling and thermal management of PEM electrolyzers based on steady-state analysis of large-scale operation *Tim Herrmannsdörfer, M.Sc., Research Associate, University of Bayreuth*
10:15	Coffee break

10:45	Requirements for quality control, performance assessment and the design of PEM electrolysis stacks from the perspective of renewable energy – key findings from the flagship projects H2Mare and H2Giga *Dr. rer. nat. Wolfram Münchgesang, Senior Scientist, Fraunhofer IWES*
11:15	The effects of power intermittency on the performance of solar-powered PEM electrolysers *Petros Polykarpoulos, M.Sc. , Research Associate, University of Bayreuth*
11:45	Enhancing Cold-Start and Energy Efficiency in Hybrid Fuel Cell-battery Powertrain *Aezid-Ul-Hassan Najmi, PhD Candidate, RMIT University, Australia*
12:15	Summary and Conclusion *Dr.-Ing. Matthias Welzl, Senior Research Associate, University of Bayreuth*
12:30 – 14:00	Lunch at Mensa