

# BERLIN ELECTROLYSER CONFERENCE

06-07 December 2023 | Berlin, Germany

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# BERLIN ELECTROLYSER CONFERENCE 2023

06-07 December 2023 | Berlin, Germany



As we move forward towards the decarbonization of key industrial and transport sectors, large-scale electrolyzers are set to play a critical role.

While the existing electrolyser technologies are ready for a massive scale-up, there remain a number of technical and commercial challenges that must be overcome by different stakeholders in order to achieve the ambitious objectives for reducing costs of green hydrogen production and accelerating the installations of electrolyser capacities worldwide.

This 5th edition of our highly focused electrolyser conference series will again bring together electrolyser manufacturers, component specialists, industrial users, engineering experts and researchers to discuss the development, manufacturing, deployment and integration of the next generation of industrial electrolyzers.

We look forward to seeing you!

**Bernd Hamacher**  
Founder of BEC

**Bruno G. Pollet**  
Chairman of BEC

**Monica Wick**  
CEO of Red Cabin

## PARTNERS



## THE KEY OBJECTIVES OF THIS CONFERENCE

### LEARN ...

... how to scale up **electrolyser units**, their different **technologies** and **manufacturing processes**

### DISCUSS ...

... how to **increase efficiency and cut costs** by improving electrolyser design, materials and components, and balance of plant (BoP).

### EXPLORE ...

... how to **integrate large electrolyzers** into renewable systems, plants, processes and value chains to scale up their industrial application.

### ENLARGE ...

... your network with **industry experts** from all parts of the electrolyser value chain and learn from each other.

**For further information, sponsorship or delegate registration please contact:**

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## CONFIRMED SPEAKERS

CHAIRMAN OF BEC

**BRUNO G. POLLET**

President, Green Hydrogen Division IAHE/  
current member of the Council of Engineers  
for the Energy Transition under the auspices  
of the UN Secretary-General



IAHE  
Green Hydrogen  
Division

FOUNDER OF BEC

**BERND HAMACHER**

Blue Delta international conferences

Blue Delta

**SUKANTA BHATTACHARYYA**



Co-founder & CTO  
1s1 Energy, USA

**CAROL XIAO**

Director Business  
Development



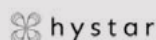
Institute for  
Sustainable  
Process Technology

**HANS VAN'T NOORDENDE**

Principal Expert  
Institute for Sustainable Process Technology,  
The Netherlands

**ALEJANDRO BARNETT**

Co-Founder & CTO  
Hystar, Norway



**DENIS THOMAS**

Business Development & Marketing  
Director EMEA/APAC – Electrolyzers,  
Accelera by Cummins, Belgium



**PETER MICHAEL HOLZAPFEL**



Senior Consultant Hydrogen Market  
Siemens, Germany

**JORGE AGUERREVERE CLEMENTS**

Director of the Electrochemical  
Cells & Reactors group  
Siemens gPROMS, UK

**OLIVER TELLER**

Product Manager  
PEM Water Electrolysis  
W. L. Gore & Associates, Germany



**ALBERTO BUCCI**

CTO  
Jolt Green Hydrogen Solutions, Italy



**STEFAN KLINK**

Chief Engineer Alkaline  
Power to X – Technology  
Development  
Topsoe, Germany



**THOMAS GABLER**

Sales Manager  
H-TEC Systems, Germany



**JAVIER SÁNCHEZ**

Innovation Director  
CPT, University of Barcelona



**JULIA REITH**

Global Business Director  
Green Hydrogen  
Schneider Electric, Austria



**ROXANN FITRIA WEST**

Business Development Manager  
Process Automation  
Schneider Electric, France

**JORDI CREUS CASANOVAS**

Scientist Electrolysis and  
AEM Lead



**JOCHEN LOFFLER**

Senior Project Manager  
Sustainable Technologies  
for Industrial Processes (STIP)  
TNO, The Netherlands

**For further information, sponsorship or delegate registration please contact:**

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## CONFIRMED SPEAKERS

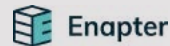
### YASHAR MUSAYEV

Head of Predevelopment,  
New Energy Business  
*Siemens Energy Global, Germany*



### VAITEA COWAN

Chief Communications Officer  
*Enapter, Germany*



### CARSTEN KRAUSE

Managing Director  
*Elogen GmbH, Germany*



### TOM SMOLINKA

Head of Department  
Chemical Energy Storage  
*Fraunhofer ISE, Germany*



### WILKO HEITKÖTTER

Business Development  
Manager Hydrogen  
*EWE, Germany*



### PIETER LEVECQUE

Head of Research  
*Battolyser Systems, The Netherlands*



**For further information, sponsorship or delegate registration please contact:**

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## SPONSORS

**SIEMENS** Siemens AG is a leading partner in the hydrogen space with the focus on automation, measurement and digital twin tools for electrolysis suppliers. We offer products, systems and services that enable electrolysis manufacturers to efficiently plan, produce and integrate of the art systems within a P2X environment.



W. L. Gore & Associates is a global material science company dedicated to transforming industries and improving lives.

The organization is committed to accelerating the world's transition to clean energy by leveraging the potential of hydrogen. As the market leader in Proton Exchange Membranes (PEM) and through successful collaborations with key fuel cell OEMs including Hyundai and Toyota, W. L. Gore & Associates possesses the technical and production capabilities to drive PEM Water Electrolysis (WE) into the commercial mainstream.



Jolt is a Spanish deeptech startup commercializing a disruptive, one-stage industrial method to produce activated electrodes and anti-corrosion coatings for use in AWE, AEM and PEM electrolysis.

Benefits include:

- very high scalability (400,000m<sup>2</sup> per annum per modular line, fully automatic, roll to roll, with batches up to 2.1m diameter produced in under 10 minutes end to end)
- low manufacturing CAPEX
- low production cost (we can offer a significant discount on existing market prices at all volumes)
- high durability (long-term stress tests completed with over 12 manufacturers)
- we can offer standard PGM catalytic compounds or PGM-free (AWE and AEM only) with excellent efficiency results.

Jolt's factory will be opening for its first signed customers from March 2023.

## SPONSORS



Schneider's purpose is to empower all to make the most of our energy and resources, bridging progress and sustainability for all. We call this Life Is On.

Our mission is to be your digital partner for Sustainability and Efficiency. We drive digital transformation by integrating world-leading process and energy technologies, endpoint to cloud connecting products, controls, software, and services, across the entire lifecycle, enabling integrated company management, for homes, buildings, data centers, infrastructure, and industries.

We are the most local of global companies. We are advocates of open standards and partnership ecosystems that are passionate about our shared Meaningful Purpose, Inclusive and Empowered values.

Leveraging the best of Power, Process and Digital, Schneider Electric's energy management and automation solutions, combined with AVEVA's integrated data platform and leading-edge industrial software, are enabling energy companies to harness the power of information, artificial intelligence, and human insight to drive efficient and sustainable performance. We are committed to supporting the energy transition, using digital tools to drive efficiency, promote circularity and shape a sustainable future.



Ames Goldsmith Ceimig manufacture platinum group metal (PGM) based electrocatalysts which are used in PEM Fuel Cells and Electrolysers.

Ames Goldsmith Ceimig is part of Ames Goldsmith Corporation, a leading manufacturer of chemicals based on precious metals with sites in North America, UK and Asia. The HyPer WE range of products for PEM electrolysers include Iridium Black, Iridium Oxide, Iridium Ruthenium Oxide, Supported Iridium, Platinum Black & Platinum on Carbon support. The HyPer FC range of products for PEM Fuel Cells is a comprehensive range of Platinum on Carbon support designed for high durability.



## EVENT HISTORY

The Berlin Electrolyser Conference (BEC) and Next Generation Electrolysers were established in 2020 by Bernd Hamacher, the Founder of Blue Delta International Conferences.

Since 2022, these conferences have become a collaborative effort between Blue Delta and RedCabin, further strengthening their commitment to advancing electrolyser technologies and fostering innovation in the field.

### 1st Next Generation Electrolysers

Online Technical Conference – December 8-9, 2020

### 2nd Next Generation Electrolysers

Online Technical Conference – December 7-8, 2021

### 3rd Berlin Electrolyser Conference

Technical Conference, Berlin, Germany – December 7-8, 2022

### 4th Next Generation Electrolysers

Technical Conference, Fort Worth, TX, USA – June 21-22, 2023



## WHAT YOU WILL EXPERIENCE ON SITE

### WHO IS WHO

Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversational and networking experience.

### AUDIENCE Q&A

Interact with conference speakers and moderators to ensure all of your questions are answered during these sessions.

### SPEED NETWORKING

Break the ice and get to know your industry peers in these fast-paced one-to-one meetings. Greet each participant in this series of brief exchanges and share your professional background.

### PANEL DISCUSSION

Benefit from deeper insights by attending panel discussions. Share your ideas and thoughts with peers and receive feedback from dedicated industry experts in this interactive session.

### INTERACTIVE WORKING GROUPS

Get an in-depth approach to these hands-on themes. Discuss, brainstorm, elaborate and work together in this interactive session. Tutorials and workshops are also an excellent chance to interact at this perceived as the, go-to' place for knowledge, best practice and credible solutions.

### NETWORKING RECEPTION

RedCabin invites our delegates to enjoy an informal evening get-together with speakers and peers. Discuss the outcome of the first conference day and expand your network in a relaxed environment.



## BEC DAY 1 | December 6, 2023

### 08:30 REGISTRATION

#### WHO IS WHO

**08:40** *Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversational and networking experience.*

**09:15** **Welcome address by Bernd Hamacher** – Founder of BEC

**09:30** **Welcome address and keynote presentation:**  
**Electrolysis – Where are we now?**

**Bruno G. Pollet** – President of Green Hydrogen Division IAHE and Chairman of BEC

**10:00** **Surface- & Material technology as one of the key technologies for green hydrogen**

- Holistic competence in whole energy chain
- Enable technology push and profitable growth (e.g. added value for products based on new electrolysis, e.g. PEM Technologies)
- Customized development of new energy systems and processes thanks to leading key technologies
- Energy change from international to global presence and importance
- Close cooperation between governance, customer, application, research institutes, R&D and production is the key for success

**Yashar Musayev** – Head of Predevelopment, New Energy Business, Siemens Energy Global, Germany

CO-AUTHOR: **Peter Geskes** – VP Product Management, Hydrogen Electrolyser

#### SPEED NETWORKING

**10:30** *Break the ice and get to know your industry peers in these fast-paced, one-to-one meetings. Greet each attendee in a series of brief exchanges and share your professional background. Make sure you bring a whole stack of business cards with you!*

#### 11:00 NETWORKING COFFEE BREAK

**11:30** **Accelera's PEM electrolyzers for bankable projects**

- PEM technology and product update
- Highly dynamic renewable hydrogen production
- Latest innovations in electrolyzer manufacturing
- Cost reduction levies of electrolyzer systems
- What to expect from Accelera in the next 5 years

**Denis Thomas** – Business Development & Marketing Director EMEA/APAC – Electrolyzers, Accelera by Cummins, Belgium



## BEC DAY 1 | December 6, 2023

### 12:00 Upscaling next generation PEM electrolyzers for large scale green H2 production

- Patented PEM electrolyser technology resulting in ultra-efficient and safe operation
- Stack designed for mass-production resulting in further cost reductions
- Hystar's stacks can be connected in series resulting in multi-MW modules that can be integrated into large hydrogen production plants

**Alejandro Barnett** – Chief Technology Officer, *Hystar, Norway*

### 12:30 Advanced membrane design and critical factors in scaling PEM water electrolysis systems

- Tackling membrane technology trade-offs to reduce OPEX and contribute to LCOH
- Scaling up through a secure, reliable and established supply chain
- Collaborating to solve component integration challenges throughout the value chain

**Oliver Teller** – Product Manager PEM Water Electrolysis, *W. L. Gore & Associates, Germany*

### 13:00 NETWORKING LUNCH BREAK

### 14:00 What do we need in PEM water electrolysis to achieve our 2030 targets: A review of key challenges

- Overview of progress in PEM electrolysis and identification of important development successes
- Excellent performance values are already achieved in the laboratory: What does this mean for the development of the next product generation?
- Cell level: highest priority for the reduction of PGM loading and thinner as well as longer-lasting membranes
- PFAS ban on EU level as a serious challenge for PEM electrolysis

**Tom Smolinka** – Head of Department Chemical Energy Storage, *Fraunhofer ISE, Germany*

### 14:30 PANEL DISCUSSION: Charting the course – Navigating the roadblocks to scaling green hydrogen

HOSTED BY: **Roxann Fitria West** – Business Development Manager Process Automation, *Schneider Electric*

PANELISTS: **Alaa Faid** – *Equinor*

**Tiago Dias** – *PRF Gas Solutions*

**Philipp Lücknerath** – *H2Pro*

**Bruno G. Pollet** – *Green Hydrogen Division IAHE*





## BEC DAY 1 | December 6, 2023

### 15:00 NETWORKING COFFEE BREAK

### INTERACTIVE SESSION: WORKING GROUPS

15:30 *The audience will be divided in two groups. Each group will attend each interactive working group within two rotating sessions.*

#### WORKING GROUP – 1

##### 15:30 AEM electrolyzers. What can we expect?

- Insight in the current state of the art
- What are the PROs and CONs compared to the other technologies?
- What are the key technological challenges?
- What future applications will be most suitable for AEM?
- How can we accelerate the AEM development?

HOSTED BY: **Jordi Creus Casanovas** – Scientist Electrolysis and AEM Lead, *TNO, The Netherlands*

**Jochen Loffler** – Senior Project Manager, Sustainable Technologies for Industrial Processes (STIP), *TNO, The Netherlands*

#### WORKING GROUP – 2

##### 15:30 Safety aspects of Green Hydrogen Production on Industrial Scale

- Approach for process safety
- Credible scenarios for explosions

- Barriers and inherent safety design

HOSTED BY: **Hans van't Noordende** – Principal Expert, *Institute for Sustainable Process Technology, The Netherlands*

### 16:30 CONTINUING WITH WORKING GROUP 1 & 2

### 17:30 RESULTS

*Each moderator of the interactive working group is presenting the outcome of their working group.*

### 18:00 CLOSING REMARKS BY CONFERENCE CHAIRMAN

**Bruno G. Pollet** – President of Green Hydrogen Division at IAHE and Chairman of BEC

### 18:15 EVENING NETWORKING RECEPTION

*Enjoy an informal evening get-together.*

### END OF CONFERENCE DAY 1



## BEC DAY 2 | December 7, 2023

### 08:30 REGISTRATION & WELCOME COFFEE

**08:45 Welcome Note by Bernd Hamacher** – Founder of BEC and  
**Bruno G. Pollet** – President of Green Hydrogen Division  
IAHE and Chairman of BEC

### 09:00 Enapter's commercial and technological leadership in AEM technology

- How does AEM work? What is our competitive advantage? How does it differ from other electrolysis technologies and why is it predicted to outperform other technologies?
- Go-to-market strategy: What are our use cases?
- Unit Economics: Why does modularity make us stand out? How do we implement this in our product portfolio? What are the technical specifications of our products?

**Vaitea Cowan** – Chief Communications Officer,  
Enapter, Germany

### 09:30 Customer journey through hydrogen PtX projects

Economic hydrogen production requires efficient planning and construction of new plants in the industry, as well as their professional operation. As a leading established player in the hydrogen economy, Siemens AG offers key technology to make the goal of effective hydrogen production a reality.

**Peter Michael Holzapfel** – Senior Consultant Hydrogen Market,  
Siemens, Germany

**Jorge Aguerrevere Clements** – Director of the Electrochemical Cells & Reactors group, Siemens gPROMS, UK

### 10:00 Scaling electrolyzers efficiently and sustainably through universal automation

- Innovation in next generation industrial automation solutions to address challenges in scaling up electrolyzers and decreasing associated green premium, operation costs with remote and autonomous operations
- Introduction to fundamental concepts of universal automation such as IP protection, hardware/software decoupling, seamless IT/OT integration
- Key values of universal automation and how it enables greater flexibility, scalability and interoperability for electrolyzers
- Concept of future automation architecture enabling advanced data analytics for performance optimization, predictive maintenance and continuous improvement

**Roxann Fitria West** – Business Development Manager  
Process Automation, Schneider Electric

### 10:30 NETWORKING COFFEE BREAK

### 11:00 Process Engineering Challenges in Alkaline Water Electrolyzers

- Chemical, physical & electrical hazards of alkaline electrolyzers and insights into a typical process hazard analysis
- Fundamentals of electrolysis & their implications for engineering & operation
- Open challenges

**Stefan Klink** – Chief Engineer Alkaline, Power to X –  
Technology Development, Topsoe, Germany



## BEC DAY 2 | December 7, 2023

### 11:30 **Battolyser®: a hybrid fully flexible pressurized alkaline electrolyser combined with battery storage capability**

- We leverage the Fe-Ni battery chemistry to develop a system which offers a fully flexible (0-100%) alkaline electrolyser with battery storage in one device
- We successfully scaled the technology from laboratory scale to a pilot operating at a customer site
- All is in place to deliver the first prototype in the first half of 2024 and first commercial units near the end of 2024

**Pieter Levecque** – Head of Research, *Battolyser Systems, The Netherlands*

### 12:00 **Next Level Solid Oxide Electrolysis**

- Large-scale hydrogen production is essential to reach the Climate Goals of 2050
- Solid oxide electrolysis cells (SOEC) technology has great potential, but is rarely used in hydrogen production
- The potential and feasibility of the SOEC technology on an industrial scale

**Carol Xiao** – Director Business Development, *Institute for Sustainable Process Technology, The Netherlands*

### 12:30 **NETWORKING LUNCH BREAK**

### 13:30 **Hydrogen at EWE**

- Development of an integrated hydrogen economy in the EWE supply region
- 320 MW electrolyzer project in Emden (Germany)
- Hydrogen Storage at EWE

**Wilko Heitkötter** – Business Development Manager Hydrogen, *EWE, Germany*

### 14:00 **PEM electrolysis technology for green offshore hydrogen**

- How does the concept for decentralized offshore electrolyser look like?
- What should be considered in the selection of the location?
- What has to be considered for decentralized offshore electrolysis?
- How does it look like in practice?

**Carsten Krause** – Managing Director, *Elogen GmbH, Germany*

### 14:30 **Novel Boron-based Proton-Conducting Ionomers, Membranes and Catalyst Supports for PEM Water Electrolysis and Hydrogen Fuel Cells**

- Unique proton conducting groups



## BEC DAY 2 | December 7, 2023

- Circumventing catalyst poisoning
- Seamless adaptation to various polymer matrices
- Concept applications

**Sukanta Bhattacharyya** – Co-founder & CTO, *1s1 Energy, USA*

### 15:00 NETWORKING COFFEE BREAK

#### 15:30 JOLT Innovative Electrodes: Spearheading Cutting-Edge Manufacturing and Design for Catalytic Coatings

- Major commercial and technical problems in electrode manufacturing
- JOLT solution
- Summary of performances and stability of new gen. electrodes

**Alberto Bucci** – Chief Technology Officer, *Jolt Green Hydrogen Solutions, Italy*

#### 16:00 Scaling up Green Hydrogen with the best LCOH

- LCOH is mainly determined by CAPEX and OPEX
- Costs of PEM-STACKs contributes up-to 1/3 on Electrolyzer costs (CAPEX)
- Costs savings will be achieved through large scale STACK manufacturing

- The electrical energy consumption (OPEX) contributes 2/3 to the LCOH
- Minor improvements on the STACK efficiency will lead to significant reduction of LCOH

**Thomas Gabler** – Sales Manager, *H-TEC Systems, Germany*

#### 16:30 Reducing the cost of PEM electrolyzers by Cold Spray additive manufacturing

- Introduction: Cold Spray Additive Manufacturing
- Cost of PEM electrolyzers. Bipolar Plates
- New bipolar plate's manufacturing strategy by additive manufacturing

**Javier Sánchez** – Innovation Director, *CPT, University of Barcelona*

### 17:00 CLOSING REMARKS BY

**Bernd Hamacher** – Founder of BEC

**Bruno G. Pollet** – President of Green Hydrogen Division IAHE and Chairman of BEC

### 17:15 END OF CONFERENCE





## INVESTMENT PER DELEGATE

DATE	2 DAY CONFERENCE INVESTMENT
ORIGINAL INVESTMENT	Euro 2.695,-

## CONFERENCE VENUE

### ARTLOFT.BERLIN

Gerichtstr. 23, Hof 3 - Aufgang 2, 13347 Berlin, Germany

## PARTNERHOTEL

### HOTEL INNSIDE BY MELIÁ BERLIN

Chausseestraße 33, 10115 Berlin, Germany

## FOR FURTHER INFORMATION, SPONSORSHIP OR DELEGATE REGISTRATION PLEASE CONTACT:

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