

HIGREEW

The crucial role of energy transition: redox-flow batteries and their future in energy storage

> **2 & 3 March 2022** Online / in-person at Pilsen, Czech Republic

More information on this hybrid event? Visit <u>www.higreew-project.eu</u>

What to Expect

The HIGREEW workshop will offer insights on redox-flow batteries (RFB), energy storage and their crucial role in the energy transition, with focus on organic electrolytes. This first project workshop it is hosted by partner *University of West Bohemia* in Pilsen, the Czech Republic.

Technical aspects of RFB and comparison with alternatives (natural gas hydrogen, Li-Ion) will be presented and discussed by experts in the field.

Some of the questions that will be addressed:

- What are the performances of organic redox flow batteries? (lifetime, efficiency, energy density, maintenance, cost)
- What is their level of 'maturity'?
- What is the potential for up-scaling?
- Can RFB help reduce electricity price?



The workshop venue: Pilsner Urquell Hall

On day 1 and day 2 of the HIGREEW Workshop I, attendees are invited into the Pilsner Urquell Hall to participate in the event. This unique and beautiful venue is located right in the Pilsner Urquell Conference Centre and can accomodate up to 150 persons! The workshop will be also broadcasted on-line in this room.

Address: U Prazdroje 64/7, 301 00 Plzeň 3, Czech Republic



RENEWABLE



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Full programme

2 March - First day

08:20	Registration	
08:45	Welcome session by PETR KAVALÍŘ - Director of New Technologies - Research Centre, University of West Bohemia	
09:00	The Supplier´s new role in energy transition by VLADIMÍR KARAS - Product Manager, Innovations&SBD, innogy Energie, s.r.o., member of MVM Group	
09:30	Batteries: Supporting Fast Charging and Vehicle to Home by KARL-HEINZ PETTINGER - Scientific Director at the Technologiezentrum Energie, Hochschule Landshut - University of Applied Sciences	
10:00	Policy background and prospects for energy storage by ALEKSANDRA KRONBERGA - Policy Officer, DG Energy, Storage policy officer at R&I, Digitalisation, Competiveness Unit	
10:15	R&I Support for stationary energy storage with the Batteries Partnership Batt4EU by JOHAN BLONDELLE - Policy Officer, DG Research & Innovation C2 – Future Urban & Mobility Systems	
10:30 Coffee & electrolyte break		
11:00	Redox-Flow-Batteries – from research to application by PETER FISCHER - Group Leader of the Redox Flow Battery Group at the Applied Electrochemistry Department at Fraunhofer Institute for Chemical Technology (ICT)	
11:20	Opportunities and challenges for energy storage using flow batteries by ANTHONY PRICE - Secretary-General, Flow Batteries Europe	
11:40	Invinity Energy Systems, company introduction and case studies by ADAM WHITEHEAD - Head of Research, Invinity Energy Systems	
12:00	Case studies of CellCube batteries by PAVEL MARDILOVICH - Senior Researcher at CellCube/Enerox	
12:30 Lunch break		
13:30	Overview of organic redox flow batteries by PETR MAZÚR - Principal Researcher of Laboratory of Energy Storage, NTC UWB and UCT Prague	
13:50	HIGREEW: achievements and hurdles in the deployment of AORFB by EDUARDO SÁNCHEZ DÍEZ - Associate Researcher in CIC energiGUNE and coordinator of HIGREEW	
14:10	BALIHT project – upgrading components for novel oRFB working under heavy multicycling and warm environments by VINCENTE VERT BELENGUER - Researcher from the Construction and Renewable Energies Group at AIMPLAS – Plastics Technology Centre	
14:30	Recent Progress in Organic Aqueous Flow Batteries by MICHAEL J. AZIZ - Gene and Tracy Sykes Professor of Materials and Energy Technologies at the Harvard John A. Paulson School of Engineering and Applied Sciences	
14:50	Great opportunities for utility scale storage down under by THOMAS NANN - Founder of Allegro Energy	
15:10	Computational screening of organic molecules for flow battery applications by PEKKA PELJO - Associate Professor of Materials Engineering,	
15:30	Closing remarks	
15:40 Coffee & electrolyte break - ending workshop online		
	Social activities	
10.00		
16:30	Excursion: <u>Plisher Urquell brewery tour</u>	
19:30	End of tour, break Meeting by the main entrance to the Cathedral of St. Bartholomew on the Main square	
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20:	Dinner in the city centre for attendees	

3 March - Second day

08:20	Registration	
08:45	Welcome to the second day of the Workshop by JURAJ KOSEK - University of West Bohemia	
08:55	'AORFB, from chemistry selection to electrolyte development' by EDUARDO SÁNCHEZ DÍEZ - CIC energiGUNE	
09:15	'Membrane developments for RFB: Towards modified membranes' by IVAN SALMERON - Universidad Autónoma de Madrid	
09:35	'Activated vs non-activated: quantitative assessment of reactivity for optimizing RFB electrodes' by MATHIEU ETIENNE - <i>CNR</i> S	
09:55	'Optimization of cell efficiency for aqueous organic electrolyte' by VÁCLAV ČMOLÍK - NTC UWB	
10:15	'How to design & validate efficient Aqueous Organic Redox Flow Battery cells' by JIŘÍ CHARVÁT - Pinflow energy storage	
10:35 Coffee & electrolyte break		
11:05	'RFB scale up experience from cell to stack' by JOHN COLLINS - C-Tech Innovation Ltd	
11:25	'Building a new battery system (like a jigsaw!)' by MICHAEL SCHÄFFER - FRAUNHOFER Institute for Chemical Technology (ICT)	
11:45	'Techno-economic analysis' by EID MARAQAH - Gamesa Electric Sociedad Anonima	
12:05	'La Plana Hybrid Facility' by ANTONIO RIESCO - Siemens Gamesa Renewable Energy	
12:25	Closing remarks	
12:40 Lunch break and ending workshop		

HIGREEW partners

- CIC energiGUNE Centro de Investigación Cooperativa de Energías Alternativas Fundación, CIC energiGUNE Fundazioa
- GAMESA Gamesa Electric Sociedad Anonima
- UAM Universidad Autónoma de Madrid
 ONRS Centre National de la Recherche
- CNRS Centre National de la Recherche Scientifique
- C-TECH C-Tech Innovation Limited
- UWB University of West Bohemia New Technologies Research Centre
- PFES Pinflow energy storage, s.r.o.
- UNR Uniresearch B.V.

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- SIEMENS GAMESA Siemens Gamesa Renewable Energy Innovation & Technology S.L
- FRAUNHOFER Fraunhofer Institute for Chemical Technology

RENEWABLE ENERGY





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