



European Association
for the Development of
Renewable Energy,
Environment and
Power Quality

ICREPQ'26

INTERNATIONAL CONFERENCE ON RENEWABLE ENERGIES AND POWER QUALITY

Santander, 10-12 June, 2026

PROGRAM OF ACTIVITIES



**24th INTERNATIONAL CONFERENCE
ON RENEWABLE ENERGY AND
POWER QUALITY
(ICREPQ'26)**

PROGRAM



24th International Conference on Renewable Energy and Power Quality
(ICREPQ'26)
Santander, Spain
10, 11, 12 of June 2026

INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY AND POWER QUALITY (ICREPQ'26)

WELCOME TO ICREPQ'26

On behalf of the Steering Committee and the Local Organizing Committee we want to give you a very warm welcome to ICREPQ'26 and to Santander.

ICREPQ'26 covers the whole range of problems and solutions especially concerning with renewable energies and power quality and all the papers have direct relationship with these two fields of research and practical work.

We would like to thank all the authors, session chairmen, participants without papers and the International Scientific Committee members who have made important contributions by reviewing the proposals.

In addition to the technical sessions, a number of social events have been arranged. On Wednesday evening, June 10th, from 18:00 H to 21:00 H, we'll enjoy the **Cultural Visit-1 to Santander and the Civic Reception** in the **Hall del Paraninfo de la Universidad de Cantabria** with one Spanish wine and a music group. On Thursday, June 11th, from 19:30 H to 22:30 H, the **Conference Dinner** at the Eurostars Hotel Real also with music. On Friday, June 12th, after the Farewell Lunch, from 15:00 H to 19:00 H we will enjoy the **Cultural Visit-2 to Comillas and Santillana del Mar**. In that Cultural Visit we will have two guides that will speak in English and in Spanish.

We hope that you will find the conference intellectually stimulating and that you will make many fruitful personal contacts during the conference.

Best regards,

Prof. Manuel Pérez-Donsión
Chairman of the Steering Committee

Prof. Mario Mañana Canteli
Chairman of the Local Committee



ORGANISED BY:

The “24th International Conference on Renewable Energies and Power Quality (ICREPQ'26)”, is organized by:

- European Association for the Development of Renewable Energy, Environment and Power Quality (EA4EPQ)
- University of Cantabria
- Spanish Association for the Development of Electrical Engineering (AEDIE)



CONFERENCE LANGUAGE

The Conference language is English. All papers and presentations should be made in English.

OBJECTIVES AND TOPICS

The intention of the organisers is to give an opportunity to academics, scientists, engineers, manufacturers and users from all over the world to come together in a pleasant location to discuss recent development in the areas of Renewable Energy and Power Quality.

The “24th International Conference on Renewable Energy and Power Quality (ICREPQ'26)”, is structured in:

- **Plenary Sessions:** Four presentations of about 45 minutes (35 minutes for the presentation and 10 minutes for questions).
- **Round Table:** Presentations and discussions by three or four specialists of about 45 minutes.
- **Oral Sessions:** Presentations in-person or on-line of about 15 minutes for each paper (12 minutes for the presentation and 3 minutes for questions). Simultaneously in two rooms.
- **Posters Sessions:** 45-minutes for each session.

SOCIAL EVENTS

- **Civic Reception:** June 10th
- **Conference Dinner:** June 12th
- **Cultural Visits:** June 10th and June 12th



VENUE

The “24th International Conference on Renewable Energies and Power Quality (ICREPQ'26)” will be held at the Universidad of Cantabria. Escuela Técnica Superior de Ingenieros Industriales y de Telecomunicación. Avda de los Castros, s/n. 39005 Santander. Spain.

TOPICS 1. RENEWABLE ENERGY:

- Wind Energy, Small Hydro Energy, Solar Energy, Photovoltaic Energy, Ocean Energy, Geothermal, Biomass, Cogeneration,...
- Classical and special electrical generators: Theory, design, analysis, losses, efficiency, heating and cooling, vibration and noise, modelling and simulation, control strategies, protection systems, maintenance, mechanical behaviour, new methods of testing, parallel operation, transmission system, stability,...
- Power plants. Distributed generation. Fuel cells. Co-generation. Hybrid Systems. Microgrids. Smart grids. Original solutions,...
- Energy conversion, conservation and energy efficiency.
- Energy saving policy. Energy storage. Batteries....
- Energy and the environment. Ecological balance. Ecosystem,...
- Application of the renewable energy. Best practice projects.
- Legislation in the area of renewable energies.
- Biomass combustion techniques. The energy use of agricultural and forest residues. Production and the energy exploitation of bio-gas. Environment. Social importance...
- Interconnection and transport problems.
- Planning and control of the power system take into account the renewable energy. Stability. Protection...
- Economic analysis of the power system take into account the renewable energy.
- Electricity Market Structures. Regulation/des-regulation of the power market. Influence of the renewable energy.
- Models and simulation of the power systems. Models and estimation of loads. Software tools.
- Application of the communications, internet, artificial intelligence for the renewable energy.
- Security assessment and risk analysis in renewable energy.
- Electric vehicles.
- Electrical Machines & Drives, Power electronics and Control strategies for renewable energy applications.
- Monitoring and Diagnostics of electrical machines & drives, Tools for Diagnostics, Test for Predictive Maintenance in Renewable...
- Sensors and actuators for renewable energy applications.
- Renewable Energies Teaching.

TOPICS 2. POWER QUALITY:

- Electromagnetic compatibility (EMC).
- Power Quality in Transport and Distribution. FACTS
- Economic Studies of the Power Quality.
- Low-frequency conducted disturbances: Voltage deviations, voltage fluctuations-flicker, voltage dips and short interruptions, harmonics and inter-harmonics, transient over-voltages, voltage unbalance (imbalance), temporary power-frequency variations.
- Sources, effects and mitigation methods of the disturbances.
- Measurements of the power quality in networks, industrial installations and



- Laboratories. Equipment, procedures and measurement methods. Standards.
- Modelling and simulation of the power quality. Software tools.
 - Transmission of the disturbances.
 - Filtering techniques.
 - Power factor compensation. Capacitor switching techniques.
 - Optimization techniques.
 - Communication, internet and artificial intelligence.
 - Permanent monitoring techniques and online diagnosis.
 - Intelligent energy delivery systems. Uninterrupted power supplies.
 - Expert systems applications.
 - Devices, equipment and power systems. Control centres.
 - Specific problems and studies cases.
 - Power quality influence in deregulated markets.
 - High frequency disturbances (radiated).
 - Data security and electromagnetic pulses.
 - Protection against natural and intentional EMI.

SPONSORSHIP

Sincere thanks are expressed to the organisations listed below who have given valuable support to ICREPQ'26: EA4EPQ (European Association for the Development of Renewable Energy, Environment and Power Quality), University of Cantabria, REE&PQJ (Renewable Energy, Environment and Power Quality Journal), AEDIE (Spanish Association for the Development of Electrical Engineering), E&Q Journal (Energies and Power Quality Journal), OPAL-RT TECHNOLOGIES.

INSTITUTIONAL COLLABORATORS: Santander Ciudad, Santander Destino, Santander Convention Bureau



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González Díaz, B.J. (Spain)	Zobaa Ahmed (UK)



Wednesday June 10, 2026						
9:00 – 12:30	Welcome & Registration “ICREPQ’26 Secretariat”					
9:30 – 10:15	Opening Ceremony ROOM A “Universidad de Cantabria”					
10:15 - 11:00	ROOM A “Universidad de Cantabria”. Plenary Session PL1					
	Hydrogen in Electricity’s Future: Enabling Scalable, Flexible and Low-Carbon Energy Systems By Prof. Dr. Ahmed F. Zobaa. Brunel University of London. United Kingdom					
	EXTRA TIME FOR DISCUSSION					
11:00 – 11:45	Posters Session at ROOM C "OPAL-RT" (Session P1) Coffee Break	Poster Session P1				
		208	212	214	217	224
		225	227	234	235	242
		244	253	256	262	272
		280				
11:45 – 13:00	ROOM A “Universidad de Cantabria”			ROOM B "AEDIE"		
	Oral Session A1			Oral Session B1		
	218	238	273	203	230	240
	352	363		317	338	
	EXTRA TIME FOR DISCUSSION			EXTRA TIME FOR DISCUSSION		
13:30 -- 15:00	Welcome Lunch (Hotel Palacio del Mar)					
15:30 – 16:15	ROOM A “Universidad de Cantabria”					
	Round Table					
16:15 – 18:00	ROOM A “Universidad de Cantabria”			ROOM B “AEDIE”		
	Oral Session A2			Oral Session B2		
	210	237	248	215	222	250
	257	274	276	300	310	334
	385			344	374	
	EXTRA TIME FOR DISCUSSION					
18:00 -- 21:00	Cultural Visit-1 to Santander and Civic Reception at Paraninfo of Cantabria University					

ROOMS: Room A: "Universidad de Cantabria". Room B: "AEDIE". Room C: "OPAL-RT".
Numbers of the papers: **Green Color** (In-person), **Blue Color** (Online)





Thursday June 11, 2026

9:00 – 12:30	Registration. “ICREPQ’26 Secretariat”					
9:00 – 9:45	ROOM A “Universidad de Cantabria”. Plenary Session PL2					
	Sustainable Development to Produce Sweet Fuel Gas, Delivering Green Energy and Reducing Greenhouse Gases					
	By Prof. Dr. Tariq Masood. Frostburg State University MD. USA					
	EXTRA TIME FOR DISCUSSION					
9:45 – 11:00	ROOM A "Universidad de Cantabria"			ROOM B "AEDIE"		
	Oral Session A3			Oral Session B3		
	204	206	245	220	223	254
	247	296		372	394	400
	EXTRA TIME FOR DISCUSSION			EXTRA TIME FOR DISCUSSION		
11:00– 11:45	Poster Session at ROOM C "OPAL-RT" (Session P3) Coffee Break	Poster Session P2				
		282	283	284	295	298
		299	311	312	315	318
		326	336	348	388	396
		397				
11:45 – 13:00	ROOM A "Universidad de Cantabria"			ROOM B "AEDIE"		
	Oral Session A4			Oral Session B4		
	286	333	342	330	332	373
	365	366		383	399	
	EXTRA TIME FOR DISCUSSION			EXTRA TIME FOR DISCUSSION		
13:30 – 15:00	Lunch (Hotel Palacio del Mar)					
15:30 --16:15	ROOM A "Universidad de Cantabria". Plenary Session PL3					
	The blackout of the Iberian Peninsula on April 28, 2025					
	By Prof. Dr. Luis Rouco. Universidad Pontificia Comillas. Madrid					
	EXTRA TIME FOR DISCUSSION					
16:15 -- 18:00	ROOM A "Universidad de Cantabria"			ROOM B “AEDIE”		
	Oral Session A5			Oral Session B5		
	232	251	270	226	267	277
	320	370	392	303	306	343
	393			347	354	
	EXTRA TIME FOR DISCUSSION			EXTRA TIME FOR DISCUSSION		
19:30-22:30	Conference Dinner (Optional) Eurostars Hotel Real					

ROOMS: Room A:"Universidad de Cantabria". Room B:"AEDIE". Room C:"OPAL-RT".
Numbers of the papers: **Green color** (In-person), **Blue Color** (Online)





Friday June 12, 2026						
9:00 – 12:30	Registration. “ICREPQ’26 Secretariat”					
9:30 - 10:15	ROOM A "Universidad de Cantabria". Plenary Session PL4					
	<i>A novel approach to solve the trade-off between higher energy performance equipment and a rational use of raw materials</i> By Dr. Fernando Nuño . International Copper Association Europe					
	EXTRA TIME FOR DISCUSSION					
10:15 -- 11:00	Poster Session at ROOM C "OPAL-RT" (Session P5) Coffee Break	Poster Session P3				
		323	337	340	351	355
		357	358	360	361	364
		368	376	377	378	380
		382				
11:00 – 12:15	ROOM A "Universidad de Cantabria"			ROOM B "AEDIE"		
	Oral Session A6			Oral Session B6		
	200	241	263	211	231	258
	268	287		264	265	
	EXTRA TIME FOR DISCUSSION			EXTRA TIME FOR DISCUSSION		
12:15– 13:00	ROOM A “Universidad de Cantabria”. CLOSING SESSION					
	Conclusions and time for the next conference (ICREPQ’27)					
13:30 – 15:00	Awards for the three best posters					
	Farewell Lunch (Hotel Palacio del Mar)					
15:00– 19:00	Cultural Visit-2 to Comillas and Santillana del Mar					

ROOMS: Room A:"Universidad de Cantabria". Room B:"AEDIE". Room C:"OPAL-RT".
Numbers of the papers: **Green color** (In-person), **Blue Color** (Online)



AUTHORS

Oral Presentations (A, B)

Each speaker of one oral presentation, in-person or on-line, has an available time of 15 minute (12 minutes for the presentation and 3 minutes for questions) and the speaker must be stay in the session room 10 minutes before of the beginning of the session. The face-to-face speakers will need to test the audiovisual equipment and surely to exchange opinions with the Session Chairman. We suggest that the speakers of one oral presentation prepare their material in Power Point or, in the case of on-line presentations the speakers can prepare a video that they can send to the organizing committee before of the session for to check it, but we suggest that they present their paper on-line but in real time using Power Point.



Poster Presentations (P)

IN-PERSON. The posters presented in-person must be numbered, on the up left corner, with the number of the paper and it will be put, about 15 minutes before of the beginning of the session, on the pin board that you previously can chose and it must be taken out 15 minutes after of the end of the session. The author(s) must be stay near the poster during the 45 minutes of the session duration for to answer all the questions that the audience or the chairmen could formulate. The maximum available surface for each poster will be 1000 mm x 1500 mm (width x high). You must select your poster size take into account this maximum available surface (Perhaps an A0 size, 841×1189 mm, could be appropriate). Put on the pin board separated sheets of the paper are not allowed.

SESSION CHAIRMEN

On behalf of the International Scientific Committee, Steering Committee and the Organising Committee of the ICREPQ'26 and take into account their eminent position in the world of science we have selected 29 session chairmen. It is an honour for us their collaboration for to chair the sessions of ICREPQ'26 and their contribution would be greatly appreciated. We wish to express our warmest thanks.

Traditionally the Chairmen of each Session are independent in organising the Session. Nevertheless it is of special importance that the different session chairmen prepare some questions about the papers of their session in order to get a more dynamic one. Furthermore we expect of the session chairmen the following:

Oral sessions

Each oral paper presentation should not exceed 15 minutes including presentation and discussion (12 minutes for presentation and 3 minutes for questions).

Poster sessions

The author(s) of a poster presentation in-person must be stay near to their poster during the 45 minutes of the session duration and in order to get a more dynamic session it is important that along this period of time each of the chairmen of the poster sessions will formulate questions to the authors in-person or online through E-mail and check that all is OK. The chairmen of each of the poster sessions file up one sheet, with punctuations for each of the presented poster in that session and then, take into account these evaluations, the Organizers will deliver during the Closing Session one silver plate and one diploma to the three best posters selected.



Chairmen Session distribution

Wednesday 10 th June, 2026		
HOUR	SESSION	CHAIRMAN/CHAIRWOMAN
9:30 – 10:15	Opening Ceremony	
10:15 - 11:00	PLENARY SESSION PL1	Santiago Arnaltes Gómez
11:00 - 11:45	POSTER SESSION P1	Adrás Futó
		Klemen Deželak
		M ^a . Reyes Sánchez Herrera
		Rosario Carbone
11:45 – 13:00	ORAL SESSION A1	Valery Vodovozov
	ORAL SESSION B1	Laura Castro Santos
13:30 – 15:00	Welcome Lunch	
15:30 – 16:15	ROUND TABLE	Mario Mañana Canteli
16:15 – 18:00	ORAL SESSION A2	Pablo Benavente Rico
	ORAL SESSION B2	Marene Larruskain Escobal
Thursday 11 th June, 2026		
9:00 - 9:45	PLENARY SESSION PL2	Péter Kádár
9:45 - 11:00	ORAL SESSION A3	Luis Sainz Sopera
	ORAL SESSION B3	Boštjan Polajžer
11:00 - 11:45	POSTER SESSION P2	Sebastijan Seme
		Daiane Rodrigues dos Santos
		Vincent Boitier
		José María Yusta Loyo
11:45 - 13:00	ORAL SESSION A4	Deborah Ritzmann
	ORAL SESSION B4	Alfredo Alcayde García
13:30 - 15:00	Lunch	
15:30 - 16:15	PLENARY SESSION PL3	Wolf-Gerrit Früh
16:15 - 18:00	ORAL SESSION A5	Klemen Sredenšek
	ORAL SESSION B5	Adam Muc
Friday 12 th June, 2026		
9:30 - 10:15	PLENARY SESSION PL4	Gorazd Štumberger
10:15- 11:00	POSTER SESSION P3	Julio J. Melero Estela
		Julio Cesar Tafur Sotelo
		Alberto Falces de Andrés
		Almudena Filgueira Vizoso
11:00 - 12:15	ORAL SESSION A6	Rizwan Uddin
	ORAL SESSION B6	Esther Torres Iglesias
12:15 - 13:00	Closing Session	Posters Awards & ICREPQ'27
13:00 - 14:30	Farewell Lunch	

NOTE: When the Chairman of one Oral Session need to present his own paper in that session, then we suggest that he present his paper at the first or at the end of the session. If you are the Chairman of one Poster Session in which you present a paper like poster, please, inform at the ICREPQ'26 Secretariat about it.



ICREPQ'26 KEYNOTES

PL1. Hydrogen in Electricity's Future: Enabling Scalable, Flexible, and Low-Carbon Energy Systems

By

Prof. Dr. Ahmed F. Zobaa

Brunel University of London, United Kingdom

Abstract

The global energy landscape is undergoing a profound transformation driven by the urgent need to decarbonize while maintaining reliability, affordability, and resilience. Although renewable electricity generation continues to expand rapidly, significant challenges remain in addressing variability, long-duration storage, and the decarbonization of hard-to-abate sectors. Hydrogen is emerging as a critical enabler in this transition, offering a flexible energy vector that can bridge gaps across power systems, industry, transport, and heating.

This plenary talk presents a comprehensive and forward-looking perspective on the role of hydrogen in electricity's future. It examines the current state of hydrogen production, where the majority is still derived from fossil fuels, and evaluates the pathways toward scaling low-carbon hydrogen through electrolysis and carbon-managed processes. The discussion highlights the technical, economic, and environmental trade-offs associated with green and blue hydrogen, including their dependencies on renewable energy expansion, carbon capture technologies, and global supply chains.

The talk further explores hydrogen's potential to transform electricity systems through long-duration energy storage, dispatchable low-carbon generation, and enhanced system flexibility. It addresses how hydrogen can enable sector coupling, linking electricity with industrial processes, transportation networks, and building energy systems. Real-world developments and emerging applications are used to illustrate how hydrogen is transitioning from concept to deployment.

At the same time, the plenary provides a critical assessment of the challenges that must be addressed to unlock hydrogen's full potential. These include efficiency losses across the hydrogen value chain, infrastructure requirements for storage and transport, safety considerations, regulatory frameworks, and competition with alternative decarbonization pathways such as direct electrification and battery storage.

The talk concludes by outlining strategic priorities for research, policy, and investment, emphasizing the importance of international collaboration and integrated energy system planning. It provides a balanced and evidence-based

perspective that moves beyond expectations toward actionable pathways for implementing hydrogen at scale.

Key Contributions of the Plenary

- Provides a holistic, systems-level perspective on hydrogen in future electricity networks
- Bridges technical innovation with policy and infrastructure considerations
- Identifies realistic pathways for scaling low-carbon hydrogen
- Offers critical insight into risks, trade-offs, and competing technologies
- Connects global trends with practical implementation strategies

Main Topics Covered

- The evolving role of hydrogen in the global energy transition
- Hydrogen production pathways: green, blue, and emerging alternatives
- Infrastructure challenges: storage, transmission, and distribution
- Hydrogen for long-duration energy storage and grid flexibility
- Sector coupling: integration with industry, transport, and buildings
- Economic, environmental, and geopolitical implications
- Key barriers, risks, and research opportunities

Relevance to the Conference

This plenary aligns strongly with conference themes related to sustainable energy, decarbonization, smart grids, and emerging energy technologies. It offers both depth and breadth, making it suitable for a diverse audience and setting the stage for subsequent technical sessions and discussions.

Short biography of Dr. Ahmed F. Zobaa



Dr. Ahmed F. Zobaa is a Reader in Electrical and Power Engineering at Brunel University London and a member of the Brunel Interdisciplinary Power Systems Research Centre. He is a Senior Member of IEEE and an internationally recognized authority in power systems, renewable energy, and smart grid technologies.

He received his B.Sc. (Hons.), M.Sc., and Ph.D. degrees in Electrical Power and Machines from Cairo University, Egypt, and was awarded the Doctor of Science degree from Brunel University London in 2017. He also holds a Postgraduate Certificate in Academic Practice from the University of Exeter.



Over the course of his career, Dr. Zobaa has held academic positions at Cairo University, the University of Exeter, and Brunel University London, where he has made significant contributions to research, education, and academic leadership. His work focuses on power quality, marine and renewable energy systems, smart grids, energy efficiency, and sustainable energy applications.

Dr. Zobaa is a Chartered Engineer, Chartered Energy Engineer, European Engineer, and International Professional Engineer. He is a Fellow of the African Academy of Sciences (FAAS) and serves as Chair of the Scientific Advisory Committee of the African Research Initiative for Scientific Excellence (ARISE), playing a key role in advancing research capacity and scientific leadership across Africa.

He is also a Principal Fellow of the Higher Education Academy in the United Kingdom and a Fellow of several prestigious professional institutions, including the Institution of Engineering and Technology, the Energy Institute, the Chartered Institution of Building Services Engineers, the Institution of Mechanical Engineers, and the Royal Society of Arts.

In addition to his academic achievements, Dr. Zobaa is widely recognized for his leadership in scholarly publishing. He serves as the Managing Editor of the *Journal of Engineering and Applied Science* and contributes to numerous international journals as an editor, associate editor, and editorial board member.

PL2. Sustainable Development to Produce Sweet Fuel Gas, Delivering Green Energy and Reducing Greenhouse Gases

By

Prof. Dr. Tariq Masood.

Frostburg State University MD. USA

Abstract

In this discussion, we will present a cutting-edge simulated virtual model that showcases the Light Gasoline Treatment Process. This innovative method effectively converts mercaptans into disulfides, which remain in the final gasoline product, thereby enhancing its quality and marketability. The essential steps in treating sour gasoline products include:

- ***Extraction***
- ***Reaction***
- ***Caustic Regeneration***

In certain scenarios, pretreatment is crucial, particularly when the feed contains low levels of hydrogen sulfide (H₂S). It is imperative to pass the light hydrocarbon through a caustic guard scrubber for complete removal of H₂S. While H₂S does not poison the catalyst, it competes with mercaptans for available oxygen, potentially reducing the process's efficiency. Embracing this

treatment process not only optimizes product quality but also ensures compliance with environmental standards.

Key Takeaway Points from the Workshop:

1. Theoretical approach for Hydrocarbon Treatment
2. Light, Heavy and LPG Products Treatment
3. What are Treatment processes
4. What are the Extraction processes
5. Types of undesired Mercaptan to be removed
6. How to manage Catalyst activity/selectivity
7. How to manage critical parameters
8. Product Quality and Environment Compliance

Conclusions:

Achieved **NO_x**, **SO_x** and **CO₂** releases as well as product quality as listed:

- Specific Gravity AT 15 °c: 711-700
- RVP, bara: 0.685
- Total Sulphur, wt%: 0.12
- Mercaptan wppm max: 510-470
- H₂S wppm max: 4-5

Short biography of Prof. Dr. Tariq Masood



Dr. Tariq Masood is a distinguished professional with a wealth of academic qualifications in electrical power system engineering. His credentials **include an M.Eng, M.Phil, and a Ph.D. (Smartgrid/Microgrid Renewable Energy Distributed Power Generation)** from the esteemed University of Bath, Bath, U.K. He also obtained **Scientific Teaching Fellowship-2022**, Accredited/Sponsored by the **NSF**-National Science Foundation and **hhmi**- Howard Hughes Medical Institute in the **United States**. These qualifications, coupled with his status as a chartered engineer registered with the Royal Engineering Council in the U.K., a senior member of IEEE-USA, a senior member of AIChE-USA, and a member of IET-UK, reassure his extensive expertise. His professional affiliations also include

being a certified CET International USA member and a registered ASCET (American Society of Certified Engineers and Technicians) USA member.



Dr. Masood is an Assistant professor (**Tenured-Track**) at Frostburg State University in Frostburg, Maryland. His leadership roles at the university, including serving as a Senator **of the Faculty Senate**, a Member of the Academic Affairs Committee, and a Member of the Academic Standard Committee, demonstrate his commitment to fostering academic excellence.

Dr. Masood is a versatile, collaborative, accomplished, and knowledgeable professional. His successful track record as a **Professional Engineer/Academician**. His collaborative approach makes everyone feel included and part of a team. He has also contributed as a Visiting & Adjunct Professor and Invited speaker at [OIT](#), [UTT](#), [Texas A&M Qatar](#), [UTA](#), [TTU](#), [UND](#), [U.B.](#), and [UDC](#) in the United States of America. He is also certified by the Lean Six Sigma Green Belt. In the past, he also served as a **Vice President of Technical Operations** at Energy and Utilities Service in New Jersey, USA.

He joined Qatar Petroleum in 1997 as a Technical Coordinator Operations/Advisor. He is a member of the BPTC (Best Practices Technical Committee) and other production integrity committees under the patronage of **H.E. Dr. Mohd Saleh Al-Sada**, Minister of Energy and Industry Qatar. His contributions to the field are evident in his more than 68 technical research papers published in IEEE Conference, Journal, papers and books **ISBN:978-3-659-40995-0 ISBN: 978-9-387-78831-2, ISBN:978-1-394-32764-5 ISBN: 978-3-031-94311-9, ISBN: 978-1-394-40520-6**. He has received several awards for his outstanding performance and dedication to improving Qatar Petroleum's production operations and control, including two Mubarak awards from the H.E Minister of Energy and Industry, and three Al-Hasba Awards from the Vice President of Operations. He was the secretary for the GCC oil-producing companies (**QP-Qatar, PDO-Oman ARAMCO-Saudi Arabia, KOC-Kuwait, TATWEER-Bahrain, and ADNOC-United Arab Emirates**) Production and Maintenance Technical Committee in 2008 and 2011. **He is also serving as an Associate Editor of IEEE Access (Impact Factor 3.44).**
You may reach by email: t.masood.dr@ieee.org

PL3. The blackout of the Iberian Peninsula on April 28, 2025

By

Prof. Dr. Luis Rouco.

Universidad Pontificia Comillas. Madrid

Abstract

At 12:33 on 28th April 2025, a blackout occurred in the Iberian electricity system. Sixty million people lost the electricity supply. This is the first time in the history of the Spanish peninsular electricity system that a blackout has occurred. The most serious incidents in the peninsular system (July 1977, October 14, 1987, and August 24, 1994) never resulted in a blackout in the Iberian system. It is only

comparable in continental Europe, in terms of severity, with the blackout of the Italian system on September 28, 2003.

On April 30, the Spanish government established a committee to analyze the electricity crisis, chaired by the Third Vice President and Minister for Ecological Transition and Demographic Challenge. On June 17, the Council of Ministers approved the report drawn up by this Committee. On June 18, Red Eléctrica, the Spanish TSO, presented its report on the events. On May 9, ENTSO-e established a panel of experts to investigate the incident. ENTSO-e presented its factual report on October 3.

This presentation summarizes the investigation conducted by a team led by the author at the request of Endesa and Iberdrola (the two largest Spanish electric utilities), examining the facts and circumstances that led to the blackout in the Iberian system on April 28, 2025. Although the investigation addresses all the facts and circumstances that led to the blackout, this presentation aims to bring to the audience's attention novel analyses that offer well-founded answers to unresolved questions arising from a careful study of the reports issued. In preparing the report, the team, led by the author, used non-public data provided by Endesa and Iberdrola. In particular, the presentation offers a contribution to the challenge posed by ENTSO-e in its press release of July 16, 2025:

“The Expert Panel is looking particularly at the cascading series of generation disconnections and voltage increases as the most probable trigger for the blackout. Such cascading voltage increases have never before been linked to a blackout in any part of the European power system. If confirmed, this high-voltage blackout mode will require a thorough analysis and investigation by all power system experts of the ENTSO-E community.”

Short biography of Prof. Dr. Luis Rouco Rodríguez



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Luis Rouco obtained his MSc and PhD degrees in Electrical Engineering from the Polytechnic University of Madrid in 1985 and 1990 respectively. He is Full Professor of Electrical Engineering in the School of Engineering of Universidad Pontificia Comillas.

He is the Director of the Course on Power System Operation jointly developed by Universidad Pontificia Comillas and Red Electrica de España. He has also



served as Head of the Department of Electrical Engineering from 1999 through 2005.

Prof. Rouco teaches undergraduate courses on Electrical Machines and Power System Protection and graduate course on Electric Power Systems.

Prof. Rouco develops his research activities at Instituto de Investigación Tecnológica (IIT). His areas of expertise are modelling, simulation, simulation, control and identification of electric power systems where he has led more than 250 research projects for Spanish public administrations, Spanish electric utilities and other Spanish engineering and industrial companies. He has also developed research projects for foreign companies and institutions.

Prof. Rouco has published more than 200 papers in international journals and conferences. Prof. Rouco is Senior Member of IEEE and Distinguished Member of Cigré.

He is president of the Electric Energy Systems-University Enterprise Training Partnership (EES-UETP), Member of the Executive Committee of the Spanish National Committee of CIGRE, Convener of the Advisory Group A1.5 New Technologies of the Study Committee A1 Rotating Machines of CIGRE, editor of IEEE Transactions on Power Systems, member of the Technical Program Committee of Power Systems Computation Conference (PSCC) and Technical Program Chair of the IEEE PowerTech Madrid 2021. Stanford University has included him in the 2% of the most cited scientists in the world since 2021.

He has been visiting scientist at Ontario Hydro (Toronto, Canada), MIT (Cambridge, Massachusetts, USA) y ABB Power Systems (Vasteras, Sweden).

PL4. A novel approach to solve the trade-off between higher energy performance equipment and a rational use of raw materials

By

Dr. Fernando Nuño.

International Copper Association Europe

Abstract

The EU Ecodesign for Sustainable Products Regulation (ESPR) goes beyond energy performance requirements for energy-using equipment and tries to ensure the coherence with the EU Critical Raw Materials Act. This raises the question of how the aggregated supply risk of critical raw materials (CRM) used in Ecodesign-regulated products could be calculated to optimise policy incentives and design options. A methodology is proposed to solve the trade-off between energy performance and a rational use of scarce and critical raw materials. Examples are given for electric motors and power transformers as ESPR-regulated products, while covering wind and solar power as electricity generation sources.

Short biography of Fernando Nuño



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Fernando Nuño is an energy engineer specializing in power plant design and electricity market regulation. Since 2007, he has held a key role at the International Copper Association, overseeing the development of the power cable, electric motor, and transformer markets. His work bridges the gap between technical analysis and policy, with an expertise in sustainability, economic modelling, and strategic marketing and advocacy.

ROUND TABLE

Challenges for High Renewable Penetration in Power Systems Dominated by Inverter-Based Resources

Moderator: **Mario Mañana**. Full Professor. Universidad de Cantabria.

Panelist:

- **Rafael Mínguez**. Grid Management Manager. Viesgo Distribución.
- **Agustín Valcarce**. President of the Cantabria Wind Energy Association.
- **Santiago Arnaltes**. Full Professor. Universidad Carlos III de Madrid.

Wednesday June 10th, 2026

9:30– 10:15 **Opening Ceremony** ROOM A “Universidad de Cantabria”

10:15-11:00 **Plenary Session PL1** ROOM A “Universidad de Cantabria”

Chairman: **Santiago Arnaltes Gómez**



PL1. *Hydrogen in Electricity's Future: Enabling Scalable, Flexible and Low-Carbon Energy Systems*

By **Prof. Dr. Ahmed F. Zobaa**
Brunel University of London. United Kingdom

Wednesday June 10th, 2026 11:00-11:45 Poster Session P1 – Coffee Break ROOM C "OPAL-RT"
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- 208 Floating solar on Colombia's reservoirs: opportunities, challenges, and regulatory pathways**
Chica E.(1), Laura Vel squez(1), Rubio-Clemente A.(1,2)
1. Grupo de Investigaci n Energ a Alternativa, Facultad de Ingenier a, Universidad de Antioquia UdeA, Medell n. Colombia
2. Escuela Ambiental, Facultad de Ingenier a, Universidad de Antioquia UdeA, Medell n. Colombia
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Aleksandar Stjepanovi (1), Gordana Jotanovi (2), Svetko Milutinovi (3), Đorđe Stjepanovi (4)
1,2,3. University of East Sarajevo, Faculty of Transport and Traffic Engineering, Dobo  University of East Sarajevo, Dobo . Bosnia and Herzegovina
4. University of Novi Sad, Faculty of Technical Sciences, Novi Sad. Serbia
- 214 A Comparative Study of Non-Isolated Voltage Balancers Applied to Bipolar DC Microgrids**
A. A. Dionizio, L. P. Sampaio, S. A. O. da Silva
Department of Electrical Engineering. Federal University of Technology – UTFPR-CP, Campus of Corn lio Proc pio – PR – Brazil
- 217 Enhancing the Power Control of Wind Turbines in the Pitch Region Using PSO-Optimized Fuzzy Controller**
Mohammad Sadeghi(1), J. Enrique Sierra-Garc a(1), Matilde Santos(2), Lei Ren(3)
1. Department of Digitalization, University of Burgos. Spain
2. Institute of Knowledge Technology, Complutense University of Madrid. Spain
3. College of Mechanics and Engineering Science, Hohai University, Nanjing. China

- 224 Impact of On-Load Tap Changer Operation on Voltage Control in Distribution Networks with High PV Penetration**
P. Benavente, E. Sainz, L. Vejo, S. Bustamante, A. Laso, R. Martínez, A. Arroyo, M. Mañana
Department of Electrical and Energy Engineering. Universidad de Cantabria. Spain
- 225 Short-Term Streamflow Forecasting for Run-Of-River Hydropower Plants using PCA-MLP and Local Linear Adjustment**
J.D. Bautista-Izquierdo, L.A. Fernández-Jiménez
Department of Electrical Engineering. E.T.S.I.I., La Rioja University. Spain
- 227 Performance analysis of Savonius rotors with straight and Bach-type twisted blades**
Velásquez L.(1), Chica E.(1), Rubio-Clemente A.(1,2)
1. Grupo de Investigación Energía Alternativa, Facultad de Ingeniería, Universidad de Antioquia UdeA, Medellín. Colombia.
2. Escuela Ambiental, Facultad de Ingeniería, Universidad de Antioquia UdeA, Medellín. Colombia
- 234 Spanish Facilities For Developing Photovoltaic Offshore Energy**
L. Castro-Santos, C. Fernández-Blanco, D. Cordal-Iglesias, D. Fernández-Mira, A. Filgueira- Vizoso
Universidade da Coruña, Centro de Investigacións en Tecnoloxías Navais e Industriais (CITENI), Departamento de Enxeñaría Naval e Industrial, Escola Politécnica de Enxeñaría de Ferrol. Spain
- 235 Location feasibility of a floating photovoltaic plant in inland waters. The case study of Lago de As Pontes in Spain**
R. Doporto-Regueiro(1), A. Filgueira-Vizoso(2), M. Á. Graña-López(2), J. Sande(1), A. Figuero(1), C. Fernández-Blanco(2)
1. Universidade da Coruña, Enxeñaría da Auga e do Medio Ambiente (GEAMA), Centro de Innovación Tecnolóxica en Edificación e Enxeñaría Civil (CITEEC), A Coruña. Spain.
2. Universidade da Coruña, Centro de Investigacións en Tecnoloxías Navais e Industriais (CITENI), Departamento de Química, Escola Politécnica de Enxeñaría de Ferrol. Spain
- 242 Impact of Electricity Market Volatility on the Management of Hybrid Renewable Systems with Storage**
Lizbeth Tipán-Salazar, Natalia Naval, Jose M. Yusta
Department of Electrical Engineering. E.I.N.A., University of Zaragoza. Spain
- 244 Assessing the Impact of PNIEC Implementation Delays on the Business Models of Pumped Hydro Storage Projects**
Jose M. Yusta, Natalia Naval, Lizbeth Tipán-Salazar
Department of Electrical Engineering. E.I.N.A., University of Zaragoza. Spain

- 253 Laboratory experimental platform studying renewable energy integration using green hydrogen**
A. Falces, P. Lara-Santillán, E. Zorzano-Alba, C. Capellán-Villacián, T. Laencina-Santolaya, L.A. Fernández-Jiménez
Department of Electrical Engineering. E.T.S.I.I., La Rioja University. Logroño. Spain
- 256 Teaching laboratory exercises for analyzing the performance of a proton exchange membrane electrolyzer in hydrogen generation systems**
C. Capellán-Villacián, M. Mendoza-Villena, E. García-Garrido, A. Falces, P. Zorzano-Santamaría, L.A. Fernández-Jiménez
Department of Electrical Engineering. E.T.S.I.I., La Rioja University. Logroño. Spain
- 262 Day-Ahead Price Arbitrage for Chebren Pumped Storage Hydropower Using Mixed-Integer Linear Programming**
S.Vulovski Ivanov, M. Celeska Krstevska
Faculty of Electrical Engineering and Information Technologies
Ss. Cyril and Methodius University in Skopje. North Macedonia
- 272 A new Double-Layer Photovoltaic Installation: Illustration of the basic Idea and first Performance Tests**
R. Carbone(1), C. Borrello(2), F. Gioia(2)
1. Department of Information, Infrastructures and Sustainable Energy (DIIES), University "Mediterranea", Reggio Calabria. Italy
2. A.M.P.S.s.r.l., Reggio Calabria. Italy
- 280 Design and Planning of the Implementation of an Educational Escape Room for Teaching Fundamental Electrical Circuit Analysis**
T. Laencina-Santolaya, P.M. Lara-Santillán, M. Mendoza-Villena, C. Capellán-Villacián
Department of Electrical Engineering. E.T.S.I.I., La Rioja University. Logroño Spain

Wednesday June 10th, 2025



Wednesday June 10th, 2026
11:45-13:00 Oral Session A1 **ROOM A "Universidad de Cantabria"**

In-person Session

Chairman: **Valery Vodovozov**

- 218 High-Fidelity Co-Simulation and Wind-Grid Coupling Mechanism Analysis of 15 MW Integrated Wind Turbines**
Bowen Chen, Yonggang Lin, Danyang Li, Zhongpeng Cao
The State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University, Hangzhou. China
- 238 Development of a Digital Twin Framework for Condition Monitoring and Performance Assessment of a Wind Turbine**
M. Celeska Krstevska(1), Zh. Kokolanski(1), V. Dimchev(1), V. Stoilkov(1), M. Srbínovska(1), Č. Zeljković(2), B. Blanuša(2), E. Todorova(1)
1. Faculty of Electrical Engineering and Information Technologies, Ss Cyril and Methodius University in Skopje. North Macedonia
2. Faculty of Electrical Engineering, University of Banja Luka, Republic of Srpska
- 273 NSGA-II Optimization Framework for Multi-Criteria Individual Pitch Control Design in Floating Offshore Wind Turbines**
Lei Ren(1), Matilde Santos(2), Xin Cai(1), J. Enrique Sierra-Garcia(3)
1. College of Mechanics and Engineering Science, Hohai University. Nanjing. China
2. Institute of Knowledge Technology, Complutense University of Madrid. Spain
3. Systems Engineering and Automation, University of Burgos. Spain
- 352 Enabling Effective Consumer Adoption of Local Renewable Energy Systems through Integrating Societal-Readiness Thinking**
W.G. Früh
Institute of Mechanical, Process and Energy Engineering, School of Engineering & Physical Sciences. Heriot-Watt University. Riccarton. Edinburgh. UK
- 363 Inverter-Based Power Flow Control of a Small-Scale Grid-Connected Doubly-Fed Induction Generator in Wind Energy Conversion Systems Under Variable Wind Speed Conditions**
Milkias Berhanu Tuka(1,2), Anatoli Wellhöfer(3)
1. Alexander von Humboldt Foundation Postdoctoral Research Fellowships Programme, Technical University of Applied Sciences Würzburg-Schweinfurt (THWS). Schweinfurt. Germany
2. Addis Ababa Science and Technology University. Addis Ababa. Ethiopia
3. Technical University of Applied Sciences Würzburg-Schweinfurt (THWS). Schweinfurt. Germany



Wednesday June 10th, 2025

Wednesday June 10th, 2026
11:45-13:00 Oral Session B1 **ROOM B "AEDIE"**

In-person Session

Chairwoman: **Laura Castro Santos**

- 203 Innovative short-circuit comparative analysis technique, leveraging the Millman, Thevenin, Rosen, and Kron Theorems, to significantly enhance the operational sustainability of power system networks**
Tariq Masood, Jamil Abdo, Kiamiao Liu, Shakil M. Rahman, Iftikhar UI- Haq
Department of Engineering and Sustainable Technologies. Frostburg State University, Frostburg, Maryland. USA
TOPSOE Making Energy Transition. Denmark
- 230 Case Study 2: Payback Scenario of Solar, Wind and Hybrid Power System - Deployment at CPDAM Frostburg State University**
Tariq Masood, Jamil Abdo, Kaimiao Liu, Shakil M. Rahman, Iftikhar UI_Haq
Department of Engineering and Sustainable Technologies. Frostburg State University. USA
TOPSOE Making Energy Transition. Denmark
- 240 Pilot Project for Tidal Current Exploitation on the Huelva Coast (TidUtil)**
Álvaro de la Cruz Álamo, Jesús Clavijo Camacho, José Antonio Hernández Torres, María Reyes Sánchez Herrera
Department of Electrical Engineering. E.T.S.I., Huelva University
Escuela Técnica Superior de Ingeniería. Spain
- 317 Controllability of Magnetic Flux Linkages in Variable-Speed Electrically-Excited Synchronous Generators**
B. Polajžer(1), A. Muetze(2), S. A. Seyed-Bouzari(2), J. Ritonja(1)
1. Faculty of Electrical Engineering and Computer Science. University of Maribor. Slovenia
2. Electric Drives and Power Electronic Systems Institute. Graz University of Technology Graz. Austria
- 338 Use of the Traditional Wattmetric Function in Networks with Zig-Zag Transformer Grounding**



I. San Sebastian(1,2), Felipe Uriondo(2), Endika Garcia(1), Juan María Garcia(1)

1. INGETEAM.Power Technology. Parque Tecnológico de Bizkaia. Spain
2. Department of Electrical Engineering. UPV/EHU University of the Basque Country. School of Engineering Bilbao. Spain

Wednesday June 10th, 2025

Wednesday June 10th, 2026

15:30-16:15 Round Table ROOM A "Universidad de Cantabria"

***Challenges for High Renewable Penetration in Power Systems
Dominated by Inverter-Based Resources***

Moderator: **Mario Mañana**. Full Professor. Universidad de Cantabria.

Panelist:

- **Rafael Mínguez**. Grid Management Manager. Viesgo Distribución.
- **Agustín Valcarce**. President of the Cantabria Wind Energy Association.
- **Santiago Arnaltes**. Full Professor. Universidad Carlos III de Madrid.

Wednesday June 10th, 2025

Wednesday June 10th, 2026

16:15-18:00 Oral Session A2 ROOM A "Universidad de Cantabria"

In-person Session

Chairman: **Pablo Benavente Rico**

**210 A Novel Framework for Converter-Driven Stability
Assessment in Large-Scale Power Systems**

Oriol Cartiel, Luis Sainz, Juan José Mesas

Department of Electrical Engineering (DEE) Escola Tècnica
Superior d'Enginyeria Industrial de Barcelona (ETSEIB)
Universitat Politècnica de Catalunya - BarcelonaTech (UPC).
Spain

- 237 High-Capacity Conductor Data-Based Models for Dynamic Rating of Electrical Lines**
Julio J. Melero, M. Paz Comech, José F. Sanz
Instituto Universitario de Investigación Mixto de la Energía y la Eficiencia de los Recursos de Aragón, ENERGAIA
Universidad de Zaragoza-Fundación CIRCE. Zaragoza. Spain
- 248 Laboratory Characterisation of PMU-based Detection of Sub-Synchronous Oscillation**
Stefano Lodetti(1), Frederick Wilkins(1), Peter Davis(1), Sahara Moshref(1), Paul Wright(1), Guglielmo Frigo(2), Deborah Ritzmann(1)
1. National Physical Laboratory, Hampton Road, Teddington, United Kingdom
2. Federal Institute of Metrology, Bern. Switzerland
- 257 Enhanced distance-protection algorithm for accurate fault location and resistance characterization under double phase-to-ground conditions**
I. San Sebastian(1,2), Marene Larruskain(1), Felipe Uriondo(1), Itxaso Aranzabal(1)
1. Department of Electrical Engineering. UPV/EHU University of the Basque Country. School of Engineering Bilbao. Spain
2. INGETEAM.Power Technology. Parque Tecnológico de Bizkaia. Spain
- 274 Small-signal stability study of grid-connected voltage source converters with grid forming control**
L. Sainz de Ezquerro(1), J. Pedra(1), L.I. Monjo(2), J.J. Mesas(1), O. Cartiel(1), L. Sainz(1)
1. Department of Electrical Engineering (DEE) Escola Tècnica Superior d'Enginyeria Industrial de Barcelona (ETSEIB). Universitat Politècnica de Catalunya – BarcelonaTech (UPC). Spain
2. Department of Electrical Engineering (DEE). Escola Politècnica Superior d'Enginyeria de Vilanova i la Geltrú (EPSEVG). Universitat Politècnica de Catalunya – BarcelonaTech (UPC). Vilanova i La Geltrú. Spain
- 276 Methodological Proposal for the Analysis of Land Suitability for Corn Cultivation as an Energy Crop through the Application of Geographic Information Systems**
J. Sedano-Cibrián(1), R. Pereda-García(1), R. Pérez-Álvarez(1), L. Vejo-Fernández(2,3), B.R. Salas-Menocal(1),
1. Grupo de Investigación de Ingeniería Cartográfica y Explotación de Minas, Escuela Politécnica de Ingeniería de Minas y Energía, Universidad de Cantabria. Spain
2. Consejería de Educación, Gobierno de Cantabria. Spain
3. Departamento de Transportes y Tecnología de Proyectos y Procesos, Universidad de Cantabria, Santander. Spain

385 Real-World Energy Consumption Comparison Between a Diesel Vehicle and a Battery-Electric Vehicle

M. Fike, A. Predin, A. Roger

Faculty of Energy Technology, University of Maribor, Slovenia

Wednesday June 10th, 2025

Wednesday June 10th, 2026

16:15-18:00 Oral Session B2

ROOM B "AEDIE"

Online Session

Chairwoman: **Marene Larruskain Escobal**

215 A Novel Method for Optimizing Offshore Substation Installation and Commissioning for Offshore Wind Projects

Antonio Martín-Aparici, Paula Bastida-Molina, Elías Hurtado-Pérez, César Berna-Escriche

Instituto Universitario de Investigación en Ingeniería Energética (Institute for Energy Engineering), Universitat Politècnica de Valencia, Spain

222 Data driven identification and current control on dual active bridge systems for low power applications

Arroyo, Jesus(1), Tafur, Julio(1), Sal y Rosas, Damian(2)

1. Control and Automation Engineering Master Degree Program, Pontificia Universidad Catolica del Peru, Lima, Peru
2. Research Laboratory Specialized in System Analysis and Architecture, Université de Toulouse III Paul Sabatier, France

250 A Framework based on Load Monitoring and Association Rules Mining for Pattern Recognition in Smart Homes

Mahan Ahmadi Rahmatabadi(1), Hamid Reza Pilehvar Javid(2), Zahra Dehghani Arani(2), Hamid Reza Baghaee(3), Gevork B. Gharehpetian(2)

1. Department of Energy Engineering and Physics, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran
2. Department of Electrical Engineering, Amirkabir University of Technology
3. Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Tehran, Iran

300 Fast-Simulation Methods for LCC-S Wireless Power Transfer Systems in Electric Vehicles

Juan M. Perié, José F. Sanz, O. García-Izquierdo, Marta Calavia, Julio J. Melero, M. Paz Comech



Instituto de Investigación Mixto de la Energía y la Eficiencia de los Recursos de Aragón, ENERGAIA. Universidad de Zaragoza-Fundación CIRCE. Zaragoza. Spain

- 310 Electromagnetic Forces and Mechanical Stresses in the Outer Segments of Turbine Generator Stator**
M. Roytgarts
Department of Turbo Generators JSC Power Machines. Saint Petersburg. Russia
- 334 Impact of African Dust Events on Wind Energy in the Canary Islands: A Review on Key challenges**
J. López-Solano, K. Mahtani, S. Alonso-Pérez, B. González-Díaz
Departamento de Ingeniería Industrial. Escuela Superior de Ingeniería y Tecnología, Universidad de La Laguna. San Cristóbal de La Laguna, Tenerife. Spain
- 344 Real-Time Estimation of Polarization Dynamics and Stress Regimes in Lithium-Ion Batteries Based on Thevenin Equivalent Model and Extended Kalman Filter**
Mauricio Mendes da Silva(1), Mario Lucio da Silva Martins(1), Conrado Fleck dos Santos(2), Éder Bridi(2), Sergio Pires(2)
1. UFSM — Universidade Federal de Santa Maria, Santa Maria—RS, Brasil
2. UTEC — Universidad Tecnológica, Rivera. Uruguay
- 374 ANN and MRAS based Speed Observer for Sensorless Control of Induction Motor Drive**
S. Damkhi
Department of Electrical Engineering. Batna University. Algeria

18:00 -- 21:00

Cultural Visit-1 to Santander and Civic Reception at Paraninfo of Cantabria University



Thursday June 11th, 2026

9:00-9:45 Plenary Session PL2 ROOM A "Universidad de Cantabria"

Chairman: **Péter Kádar**

**PL2. *Sustainable Development to Produce Sweet Fuel Gas,
Delivering Green Energy and Reducing Greenhouse Gases***

By **Prof. Dr. Tariq Masood**
Frostburg State University MD. USA

Thursday June 11th, 2026
9:45-11:00 Oral Session A3 ROOM A "Universidad de Cantabria"

In-person Session

Chairman: **Luis Sainz Sapera**

- 204 Case Study 1: Hybrid Solar and Wind Power Generation Prototype Model Tailored and Implemented at CPDAM Frostburg State University**
Tariq Masood, Jamil Abdo, Kiamiao Liu, Shakil M. Rahman, Iftikhar Ul-Haq
Department of Engineering and Sustainable Technologies. Frostburg State University, Frostburg, Maryland. USA
TOPSOE Making Energy Transition. Denmark
- 206 Impact of Forecast-Aware Observations and Attention Mechanisms in a Multi-Agent Deep Reinforcement Strategy for Voltage Control**
Alan Lizarazo, G. Osma-Pinto, César Duarte
Escuela de Ingenierías Eléctrica, Electrónica y de Telecomunicaciones (E3T), Universidad Industrial de Santander (UIS), Bucaramanga. Colombia
- 245 From Energy Security to Water Stress: Implications of Pakistan's Solar Success**
Rizwan-Uddin
Master of Engineering in Energy Systems Program. The Grainger College of Engineering, University of Illinois Urbana-Champaign. USA



- 247 Evaluation of Fixed-Tilt and Single-Axis Tracking Strategies in Open-Field Agrivoltaics: Assessing Biological Constraints and Economic Viability**
A. León-Vinet, E. Peñalvo-López, I. Valencia-Salazar, V. León-Martínez
Universitat Politècnica de València, Department of Electrical Engineering. Valencia. Spain
- 296 Economic feasibility analysis of a SeaVolt offshore solar farm in the Canary Islands**
C. Fernández-Blanco(1), D. Cordal-Iglesias (1), D. Fernández-Mira(1), A. Filgueira-Vizoso(2), L. Castro-Santos(3)
1. Universidade da Coruña, Centro de Investigacións en Tecnoloxías Navais e Industriais (CITENI), Escola Politécnica de Enxeñaría de Ferrol. Spain
2. Universidade da Coruña, Centro de Investigacións en Tecnoloxías Navais e Industriais (CITENI), Departamento de Química, Escola Politécnica de Enxeñaría de Ferrol. Spain
3. Universidade da Coruña, Centro de Investigacións en Tecnoloxías Navais e Industriais (CITENI), Departamento de Enxeñaría Naval e Industrial, Escola Politécnica de Enxeñaría de Ferrol. Spain

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Thursday June 11th, 2026
9:45-11:00 Oral Session B3 **ROOM B "AEDIE"**

Online Session

Chairman: **Boštjan Polajžer**

- 220 Regulations and certification systems on Daylighting performance metrics in workspaces**
Entrena-Martínez, I.(1), Castillo-Martínez, A.(2), Peña-García, A.(1)
1. Department of Civil Engineering. University of Granada. Spain
2. Department of Mechanical and Mining Engineering, University of Jaén. Spain
- 223 Renewable Generation and OPS Demand Optimisation in Ports: A Decision-Support Tool**
E. Quiles-Cucarella(1), P. Larrea-Pajares(1), C. Roldán-Blay(2), C. Roldán-Porta(2), G. Escrivá- Escrivá(2)
1. Instituto Universitario de Automática e Informática Industrial. Universitat Politècnica de València. Spain
2. Institute for Energy Engineering. Universitat Politècnica de València. Spain

- 254 Detailed Simulation and Loss Estimation of Active-Clamped ZVS Current-Fed Full-Bridge Isolated DC/DC Converter**
Andras Futo, Attila Balogh, Zoltan Suto, Laszlo Stranyoczky
Department of Automation and Applied Informatics. Budapest University of Technology and Economics (BME), Faculty of Electrical Engineering and Informatics. Hungary
- 372 Community Energy as a Distributed Flexibility and Social Innovation Mechanism in Central Europe: A V4 Comparative Study**
K. Zs. Kincses, M. Szalmane Csete
Department of Environmental Economics and Sustainability. Faculty of Economic and Social Sciences. Budapest University of Technology and Economics. Hungary
- 394 The application of orthogonal vector theory to optimize the coordination between a 3-level inverter and a 2-level inverter**
A. Muc
Department of Ship Automation. Gdynia Maritime University. Gdynia. Poland
- 400 Current Control Capability of the AC/DC Converter**
J. Iwaszkiewicz
Department of Ship Automation. Gdynia Maritime University. Gdynia. Poland

Thursday June 11th, 2026	
11:00-11:45 Poster Session P2 – Coffee Break	ROOM C "OPAL-RT"

In-person Session

Chairmen: **Sebastian Seme, Daiane Rodrigues dos Santos, Vicent Boitier**
José María Yusta Loyo

- 282 Comprehensive Evaluation of Protection Strategies in Power Systems with High Inverter-Based-Resources Integration**
D.M. Larruskain(1), José M. Guerrero(1), U. Villena(1), Asier A. De Miguel(2,3), Igor Gabiola(2), Alain Sanchez-Ruiz(3)
1. Department of Electrical Engineering, School of Engineering in Bilbao, University of the Basque Country EHU. Bilbao. Spain
2. Tecnalia, Basque Research and Technology Alliance (BRTA). Derio. Spain
3. Department of Electronic Technology, University of the Basque Country EHU, Vitoria-Gasteiz. Spain
- 283 Travelling-Wave Strategy to Distance Protection for Fast Fault Location**
J.M. Gómez-Castillo, A. Blazquez, E. Torres, D.M. Larruskain, A. Iturregi



Department of Electrical Engineering, School of Engineering in Bilbao, University of the Basque Country EHU. Bilbao. Spain

- 284 A Time-Domain Incremental Approach to Distance Protection for Networks with High IBR Penetration**
A. Blazquez, E. Torres, D.M. Larruskain, A. Iturregi, P. Eguia
Department of Electrical Engineering, School of Engineering in Bilbao, University of the Basque Country EHU. Bilbao. Spain
- 295 Porosity Strategies to Optimize Temperature Distribution in Oil-Directed Power Transformers**
P. Quintanilla(1,2), E. Sanchez(1), T. Laneryd(1), A. Ortiz(2)
1. R&D Department, Hitachi Energy. Cordoba. Spain
2. Department of Electrical Engineering E.T.S.I.I.T., University of Cantabria. Spain
- 298 Modeling Wind–Solar Complementarity under Heatwave Conditions: A Copula-Based Study for Southern Spain**
Tuany Esthefany Barcellos(1), Daiane Rodrigues dos Santos(2), Marco Aurélio Sanfins(3)
1. Management Department. Estácio de Sá University. Rio de Janeiro. Brazil
2. Department of Economics. State University of Rio de Janeiro. Brazil
3. Department of Statistics. Fluminense Federal University. Rio de Janeiro. Brazil
- 299 Economic–Operational Assessment of the Spanish Power Market: A Monthly TOPSIS Approach with Endogenous Weights**
Daiane R. Santos(1), Jose Maria Yusta(2), Tuany Barcellos(3), Natalia Naval(2)
1. Department of Economics. State University of Rio de Janeiro. Brazil
2. Department of Electrical Engineering. E.I.N.A., University of Zaragoza. Spain
3. Management Department. Estácio de Sá University. Rio de Janeiro. Brazil
- 311 Hybrid Renewable Microgrid Design for a Public University Building: Technical, Economic, Environmental and Educational Assessment**
M. González-Pérez(1), F. J. Asensio(1), A. Ordoño(1), J. Rodriguez-Gongora(1), G. Saldaña(2), O. Oñederra(2)
1. Department of Electrical Engineering. G.I.E. Eibar, University of the Basque Country (EHU). Eibar. Spain
2. Department of Electrical Engineering. B.I.E., University of the Basque Country (EHU). Bilbao. Spain
- 312 Impact of re-synchronization strategies on the power sharing of grid-forming converters at black start**
J. Rodríguez-Góngora(1), A. Ordoño(2), M. González-Pérez(2), M. Zubiaga(1), A. Sanchez-Ruiz(3)
1. Department of Electronic Technology. Engineering School of Gipuzkoa. University of the Basque Country (UPV/EHU). Spain

2. Department of Electrical Engineering. Engineering School of Gipuzkoa University of the Basque Country (UPV/EHU). Spain
3. Department of Electronic Technology. Engineering School of Vitoria-Gasteiz. University of the Basque Country (UPV/EHU). Spain

315 Control Strategy for Isolated Small Wind Generators for Countryside Uses

LI. Pacheco(1), N. Luo(1), I. Ferrer(1), J. Vilà,(1), J. R. González(2)

1. Department of Electrical Engineering, Electronics and Automation, University of Girona. Spain
2. Department of Mechanical Engineering and Industrial Construction, University of Girona. Spain

318 Impact of Retail Tariff Choice and Virtual Wallet on Forecast-Based PV Sharing in Residential Energy Communities

J. Serrano González, J.T. Villalonga Palou, J.M. Riquelme Santos, J.M Roldán Fernández

Department of Electrical Engineering. University of Seville. Spain

326 Design and Experimental Validation of an Active Cell-Balancing Battery Management System for Lithium-Ion Energy Storage Applications

F.J. Asensio(1), E. Vázquez(1), M. González-Pérez(1), J. Rodríguez-Góngora(1), A. Ordoño(1), G. García-Ramos(2)

1. Department of Electrical Engineering. Engineering School of Gipuzkoa – University of the Basque Country - UPV/EHU. Eibar. Spain
2. MC3 Mondragon Components Competence Center. Spain

336 Battery energy storage capacity for self-consumption according to the required autonomy in transformer substations

Klemen Deželak

Environment and Energy Statistics Section. Statistical Office of the Republic of Slovenia (SURS). Ljubljana. Slovenia

348 Probabilistic and Time-Series Analysis of the Combined Impact of Electric Vehicles and Photovoltaic Systems on Voltage Profiles in a Real Low-Voltage Distribution Network

E. Simonič(1), K. Sredenšek(1,2), J. Počivalnik(1), D. Kuhar(1), B. Stergar(1), K. Zupanc(3), S. Seme(1,2)

1. Faculty of Energy Technology, University of Maribor. Slovenia
2. Faculty of Electrical Engineering and Computer Science, University of Maribor. Slovenia
3. Elektro Gorenjska, d. d. Kranj. Slovenia



- 388 Laboratory Test Facility for Real-Time Thermal Rating Validation of Insulated Power Cables**
S. Bustamante, M. Sotelo, M. Mañana, A. Arroyo, P. Benavente, E. Sainz-Ortiz, L. Vejo
Department of Electrical Engineering and Energy Engineering.
E.T.S.I.I.T., Universidad de Cantabria, Santander. Spain
- 396 Role of External Grid Representations in Frequency Stability Studies of Power Systems with High Non-Synchronous Generation**
I. Taczi, I. Vokony, G. M Peter
Department of Electric Power Engineering. Budapest University of Technology and Economics. Budapest. Hungary
- 397 System Rigidity: A Comprehensive Approach to Enhancing Power System Stability**
I. Vokony
Department of Electric Power Engineering. Budapest University of Technology and Economics. Budapest. Hungary

Thursday June 11th, 2026	
11:45-13:00 Oral Session A4	ROOM A "Universidad de Cantabria"

In-person Session

Chairwoman: **Deborah Ritzmann**

- 286 Assessment of Local Photovoltaic Inverter Control Strategies for Voltage Regulation in Low-Voltage Distribution Networks**
O. Abarrategi, E. Torres, D.M. Larruskain, V. Valverde, I. Zamora
Bilbao School of Engineering, EHU. Spain
- 333 Methodology for Sizing Regional Energy Storage for Large-Scale PV Deployment**
M. Pintarič(1), N. Lukač(1), P. Rijavec Simonič(1), P. Sukič(1), M. Božič(2), G. Dolanc(3), S. Gerkišič(3), G. Štumberger(1)
1. Faculty of Electrical Engineering and Computer Science. University of Maribor. Slovenia
2. Dravske elektrarne Maribor. Slovenia
3. Jožef Stefan Institute, Ljubljana. Slovenia
- 342 Impact of PV Inverter Reactive Power Control on Local Voltage and Real Power Generation**
Sampson A. Bendor, Yahia Baghzouz
Department of Electrical Engineering. University of Nevada, Las Vegas. USA

365 Economic Viability of Photovoltaic and Battery Storage Systems for Residential Electric Vehicle Charging in Slovenia

D. Kuhar(1), J. Počivalnik(1), E. Simonič(1), B. Stergar(1), S. Seme(1,2), K. Sredenšek(1,2)

1. Faculty of Energy Technology, University of Maribor. Slovenia
2. Faculty of Electrical Engineering and Computer Science, University of Maribor. Slovenia

366 Receding Horizon Optimization of Residential Photovoltaic and Battery Storage Systems using Differential Evolution

J. Počivalnik(1), D. Kuhar(1), E. Simonič(1), B. Stergar(1), S. Seme(1,2), K. Sredenšek (1,2)

1. Faculty of Energy Technology, University of Maribor. Slovenia
2. Faculty of Electrical Engineering and Computer Science, University of Maribor. Slovenia

Thursday June 11th, 2025

Thursday June 11th, 2026

11:45-13:00 Oral Session B4

ROOM B "AEDIE"

Online Session

Chairman: **Alfredo Alcayde García**

330 Application of Q-Methodology for Characterizing Electric Vehicle Demand Profiles and Governance

F. J. Ramos-Real(1,2), I. Medina-Jiménez(1,2), F. J. Calero-García(1,2), M. G. Rodríguez-Brito(1,2), M. C. Rodríguez-Donate(2,3), I. L. Nieto-González(3), E. Pereda de Pablo(4), J. A. Méndez-Pérez(5), Ó. García-Afonso (4), B. González-Díaz(4) .

1. Departamento de Economía, Contabilidad y Finanzas, Universidad de La Laguna, San Cristóbal de La Laguna. Spain
2. Instituto Universitario de Investigación Social y Turismo (ISTUR), Universidad de La Laguna, San Cristóbal de La Laguna. Spain
3. Departamento de Economía Aplicada y Métodos Cuantitativos, Universidad de La Laguna, San Cristóbal de La Laguna, Spain
4. Departamento de Ingeniería Industrial, Universidad de La Laguna (ULL). Tenerife. Spain
5. Departamento de Ingeniería Informática y de Sistemas, Universidad de La Laguna (ULL), Tenerife. Spain



- 332 Real-Time Multi-Objective Optimization for Reactive Power Dispatch in Islanded Power System**
Carolina M. Martín, Francisco Arredondo, Santiago Arnaltes, Jaime Alonso-Martínez, José Luis Rodríguez-Amenedo
Departamento de Ingeniería Eléctrica. Universidad Carlos III de Madrid. Spain
- 373 Smart Charging of Urban Electric Bus Fleets Using Proximal Policy Optimization**
A. Martínez (1), M. Alonso(1), H. Amaris(1), M. Cordeiro-Costas(2)
1. Department of Electrical Engineering. Universidad Carlos III de Madrid. Spain
2. CINTECX, Universidade de Vigo. Spain
- 383 Thermo–Energetic Modelling and Operational Load Limits of a Solar Dryer for Chestnuts**
Nicole Leonardo, Freddy J. Rojas, Celso De-La-Cruz
Department of Engineering. Pontifical University Catholic of Peru. Perú
- 399 Enhanced Power Control for Voltage Support Strategy and Virtual Inertia Emulation for Distributed Battery Energy Storage System**
Ahmed Alharbi(1), Fahd Hariri(1), Yusuf Alturki(1,2)
1. Department of Electrical and Computer Engineering, Faculty of Engineering, King Abdulaziz University, Jeddah, Saudi Arabia
2. Research and Innovation Center, King Abdulaziz University, Jeddah, Saudi Arabia

Thursday June 11th, 2026

15:30-16:15 Plenary Session PL3 ROOM A “Universidad de Cantabria”

Chairman: **Wolf-Gerrit Früh**

PL3. *The blackout of the Iberian Peninsula on April 28, 2025*

By **Prof. Dr. Luis Rouco**
Universidad Pontificia Comillas. Madrid

Thursday June 11th, 2026
16:15-18:00 Oral Session A5 ROOM A “Universidad de Cantabria”



In-person Session

Chairman: **Klemen Sredenšek**

- 232 Analysing Energy Allocation in Renewable Energy Communities: A Hybrid Static-Dynamic model**
I. Martínez-Romero, E. Peñalvo-López, I. Valencia-Salazar
Departamento de Ingeniería Eléctrica, Universitat Politècnica de València. Spain
- 251 Development and HIL Validation of a Low-Cost Two-Level Control Strategy for HVAC Systems**
Jesús Clavijo-Camacho, Álvaro de la Cruz Álamo, Gabriel Gómez-Ruiz, Cristian Díaz-Martín, Juan P. Torreglosa, Reyes Sánchez-Herrera
Department of Electrical, Thermal, Design and Projects Engineering.
University of Huelva Higher Technical School of Engineering. Spain
- 270 Leakage-Safe Evaluation for Day-Ahead Load Forecasting Under an Operational Data Gap Constraint based on a Minimal Information Set**
Luis Carreño-Barrera, Jairo Blanco-Solano, Cesar Duarte
School of Electrical, Electronic and Telecommunications Engineering (E3T)
Universidad Industrial de Santander (UIS). Bucaramanga. Colombia
- 320 AI Poses New Challenges in Energy Education: On the Example of Robotics**
V. Vodovozov, Z. Raud
Department of Electrical Power Engineering and Mechatronics. Tallinn University of Technology. Tallinn. Estonia
- 370 Social Impact in the Optimization of Logistics Chains for Waste-Derived Biofuels: Comparison between Mono- and Multi-Objective Approaches in Colombia**
Simón Herrera Ramírez, Juan David Parra Cantor, Laura Andrea Carmona Morales, Raúl Valencia, Carlos A. Bustamante, Whady F. Flórez Escobar, Hader V. Martínez Tejada, Oscar Vasco-Echeverry
Optimization Research Group / Grupo GINUMA. Universidad Pontificia Bolivariana, Mechanical Engineering Program. Medellín. Colombia
- 392 Making the traditional Home Smart**
Péter Kádár
Óbuda University. KVK Dept. of Power Systems. Budapest. Hungary
- 393 Assessment of the Guaranteed Origin of Electricity Used for Green Hydrogen Production in an Integrated Energy System**
P. Lezhniuk(1,2), M. Belik(3), O. Rubanenko(1,2,3,4), I. Hunko(1,2)



1. Institute of Renewable Energy, Kyiv, Ukraine,
2. Department of electric station and system, Vinnytsia, Ukraine
3. Department of Electrical Power Engineering, University of West Bohemia in Pilsen. Czech Republic
4. Research and Innovation Centre for Electrical Engineering, University of West Bohemia, Plzen. Czech Republic

Thursday June 11th, 2025

Thursday June 11th, 2026
16:15-18:00 Oral Session B5 **ROOM B "AEDIE"**

Online Session

Chairman: **Adam Muc**

- 226 Hierarchical Mathematical Optimization Model for Grid-Oriented Management of Aggregated Prosumer Communities**
Iraide López, Julen Gómez-Cornejo, Itxaso Aranzabal, Elvira Fernández, Angel Javier Mazón
Department of Electrical Engineering. Bilbao School of Engineering, University of the Basque Country (UPV/EHU), Biscay. Spain
- 267 Assessment of Dynamic Line Rating for Transmission Planning in the Costa Rican Power System**
P. Castillo(1), G.A. Gómez-Ramírez(2), M.T. Bedialauneta(1), I. Albizu(1)
1. Department of Electrical Engineering. University of the Basque Country UPV/EHU. Campus of Gipuzkoa. Spain
2. Department of Electromechanical Engineering. Costa Rica Institute of Technology TEC. Cartago. Costa Rica
- 277 Impact of Different Soiling Materials on Key Electrical Parameters of Photovoltaic Panels: An Experimental Analysis**
J.A. Clavijo-Blanco, D. Tur-Pérez, C. García-López, N. Saborido-Barba, G. Álvarez-Tey, R. Jiménez-Castañeda
Department of Electrical Engineering. E.S.I., University of Cádiz. Spain
- 303 Optimizing battery energy storage systems simplified dispatch: comparative analysis of temporal resolution, complexity and multi-market participation strategies**
Manuel Barão(1), Tomás Freitas Rocha(2), Paulo Pinto(2), Adriano Carvalho(3)
1. Department of Mechanical Engineering, Faculty of Engineering. University of Porto. Portugal



2. MEGAJOULE S.A. Moreira. Portugal
3. Department of Electrical and Computer Engineering, Faculty of Engineering.
University of Porto. Portugal

306 Assessing the impact of price information on battery energy storage systems profitability: a rule-based dispatch analysis
Manuel Barão(1), Tomás Freitas Rocha(2), Paulo Pinto(2), Adriano Carvalho(3)

1. Department of Mechanical Engineering, Faculty of Engineering. University of Porto. Portugal
2. MEGAJOULE S.A. Moreira. Portugal
3. Department of Electrical and Computer Engineering, Faculty of Engineering.
University of Porto. Portugal

343 AI-Driven Energy Management for Interconnected Microgrid: A Comparative Performance Analysis

P. Motevakel, C. Roldán-Blay, C. Roldán-Porta

Institute for Energy Engineering. Universitat Politècnica de València. Spain

347 Stability Control of a SG–PV Integrated Distribution Network Basrah City Case Stud

Salam B. Abood(1), Ali Jafer Mahdi(2,3), Ali K. Abdulabbas(1)

1. Electrical Engineering Department, Basrah University. Iraq
2. Electrical and Electronics Engineering Department, University of Kerbala, Iraq.
3. College of Information Technology Engineering, Al-Zahraa University for Women. Karbala. Iraq

354 MILP-Based Optimal Sizing of a Hybrid Battery-Hydrogen Energy Storage in a Grid-Connected Photovoltaic System

Zakaria A. Souleymane(1), A. Mpanda Mabwe(1), H. Augendre(2), J. Fortin(1)

1. UniLaSalle, GeNumEr, Amiens. France
2. BELLOVA, Aéroport Paris-Beauvais, Lillé. France

19:30-22:30

Conference Dinner (Optional)
Eurostars Hotel Real



Friday June 12th, 2026

9:30-10:15 Plenary Session PL4 ROOM A "Universidad de Cantabria"

Chairman: **Gorazd Štumberger**

PL4. *A novel approach to solve the trade-off between higher energy performance equipment and a rational use of raw materials*

By **Dr. Fernando Nuño**
International Copper Association Europe

Friday June 12th, 2026
10:15-11:00 Poster Session P3 – Coffee Break ROOM C "OPAL-RT"

In-person Session

Chairmen: **Julio J. Melero Estela, Julio Cesar Tafur Sotelo, Alberto Falces de Andrés, Almudena Filgueira Vizoso**

- 323 A Risk-Aware Market Selection Framework for Prosumers in Multi-Market Energy Environments**
R. Estudillo(1), G. Fernández(1), R. Rocca(1,2), M. Gallego(1), M. García(1), D. Ferreira(3)
1. CIRCE Technology Centre. Zaragoza. Spain
2. ENERGAIA Mixed Research Institute (University of Zaragoza and CIRCE Technology Centre). Zaragoza. Spain
3. URBENER S-L. — Sistemas Urbanos de Energías Renovables, Zaragoza. Spain
- 337 Automatic Tuning of Operator-Supplied Dynamic Models in PSS®E Based on Real-Plant Measurements**
M. Lozano Deiros, D. Marquina Cordero, D. M. Rivas Ascaso
CIRCE – Technology Center. Parque Empresarial Dinamiza. Zaragoza. Spain
- 340 Operating Envelopes Assessment Using Temporally Power Sensitivities Derived from a Data-Driven Approach**
L.D. Andagoya-Alba, E. Torres
Department of Electrical Engineering. School of Engineering in Bilbao, University of the Basque Country. Bilbao. Spain

- 351 Assessment of Photovoltaic-Hydraulic Hybridisation for Firm Power Supply**
Juan A. Tejero-Gómez, Ángel A. Bayod-Rújula, Natalia Naval
Department of Electrical Engineering. E.I.N.A., Universidad de Zaragoza. Spain
- 355 Integration of High-Frequency and Harmonic Measurements from Open-Source Meters into NILMTK Datasets**
C. Rodriguez-Navarro(1), F. Portillo(1), I. Robalo(1), L. Castro-Santos(2), A. Filgueira-Vizoso(3), F. G. Montoya(1), A. Alcayde(1)
1. Departamento de Ingeniería. Escuela Superior de Ingeniería, Universidad de Almería. Spain
2. Departamento de Enxeñaría Naval e Industrial. Centro de Investigación en Tecnoloxías Navais e Industriais (CITENI), Escola Politécnica de Enxeñaría de Ferrol, Universidade da Coruña. Spain
3. Departamento de Química. Centro de Investigación en Tecnoloxías Navais e Industriais (CITENI), Escola Politécnica de Enxeñaría de Ferrol, Universidade da Coruña. Spain
- 357 Implementation of 132 kV for inner-array systems in offshore wind farms**
Iñaqi Arrambide
Department of Electrical Engineering. Escuela de Ingeniería de Guipúzcoa, University of the Basque Country. Donostia-San Sebastián. Spain
- 358 Comparative analysis of inner-array systems in offshore wind farms mixing copper and aluminium raw materials**
Iñaqi Arrambide
Department of Electrical Engineering. Escuela de Ingeniería de Guipúzcoa, University of the Basque Country. Donostia-San Sebastián. Spain
- 360 Activated Carbon Production from Biomass and its Use in Industrial Effluent Treatment**
Rafael Pochmann Ferreira, Felipe de Aguiar Linhares, Pedro Juarez Melo, Dirléia dos Santos Lima Bortoletti, Nilson Romeu Marcilio
Department of Chemical Engineering. Federal University of Rio Grande do Sul. Brazil
- 361 Environmental Impact of Produced Water: A Comparative Review of Regulatory Frameworks and Ecotoxicological Assessment**
Luiz Fernando Pereira Marcilio(1), Adriene Maria Sampaio Pereira(2), Nilson Romeu Marcilio(1), Andre Camargo de Azevedo(1)
1. Federal University of Rio Grande do Sul. Brazil
2. Pontifical Catholic University of Rio Grande do Sul. Brazil

- 364 The Integration of a Photovoltaic/Thermal System into a District Heating System**
K. Sredenšek(1,2), J. Počivalnik(1), D. Kuhar(1), B. Stergar(1), E. Simonič(1), G. Štumberger(2), S. Seme(1,2)
1. Faculty of Energy Technology, University of Maribor. Slovenia
2 Faculty of Electrical Engineering and Computer Science, University of Maribor. Slovenia
- 368 Stand-Alone Solar Systems: an Educational Platform for Undergraduate and Graduate students**
V. Boitier(1), J. Dedieu(2), H. Martinetti (2)
1. LAAS-CNRS, Université de Toulouse, CNRS. Toulouse, France
2. Université de Toulouse. France
- 376 Grid Resilience under high shares of Non-Synchronous Generation: Insights from the 2025 Iberian Peninsula Blackout**
S. Martín-Arroyo(1), M. García-Gracia(1), J.A. Cebollero(1), Á. Llamazares(1), O. Anaya-Lara(2)
1. Department of Electrical Engineering. EINA, Zaragoza University. Spain
2. Department of Electronic and Electrical Engineering. Faculty of Engineering. University of Strathclyde, Glasgow. UK
- 377 Control of an Islanded PV–Battery–PEM Electrolyzer Microgrid for Green Hydrogen Production**
A. Llamazares, S. Martín-Arroyo, J.A. Cebollero, M. García-Gracia
Department of Electrical Engineering. EINA, Zaragoza University. Spain
- 378 Optimal Sizing of Photovoltaic System and Battery Storage in Self-Consumption Applications under Contemporary Regulatory Conditions**
S. Seme(1,2), J. Počivalnik(1), D. Kuhar(1), B. Stergar(1), E. Simonič(1), K. Sredenšek(1,2)
1. Faculty of Energy Technology, University of Maribor. Krško. Slovenia
2 Faculty of Electrical Engineering and Computer Science, University of Maribor. Slovenia
- 380 Where to Run the EMS Planner: Practical Cloud–Edge Placement for Two-Level Hierarchical EMS in Microgrids**
G. Fernández(1), R. Estudillo(1), I. Sanz(1), J.F. Sanz-Osorio(2), L. Elorza-Uriarte(3)
1. Department of Electrical Systems, CIRCE Technology Centre, Zaragoza. Spain
2. Instituto Universitario de Investigación Mixto ENERGIA (Universidad de Zaragoza—Fundación CIRCE). Spain
3. Energy Storage System unit, CIDETEC (BRTA). Donostia-San Sebastián. Spain

382 Thermal Aging Assessment of Photovoltaic Cable Insulation Using XRF Spectroscopy

B. Stergar(1), J. Počivalnik(1), D. Kuhar(1), E. Simonič(1), S. Seme(1,2), K. Sredenšek(1,2)

1. Faculty of Energy Technology, University of Maribor. Krško. Slovenia

2 Faculty of Electrical Engineering and Computer Science, University of Maribor. Slovenia

Friday June 12th, 2026

11:00-12:15 Oral Session A6

ROOM A "Universidad de Cantabria"

In-person Session

Chairman: **Rizwan Uddin**

200 Optimizing MBR Performance: CFD and Experimental Insights on Aeration Design for Fouling Control

S. Khakpour, F. Nocera, S. Mauro, A. Latteri, C. Tosto, L. Saitta

Department of Civil Engineering and Architecture (DICAr), University of Catania. Italy

241 Physical Model Experimental Study on the Characteristics of Tidal Current Turbine Array Development in Narrow Channels

Qingjun Li, Hongwei Liu, Kun Zhou

The State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University. Hangzhou, China

263 Automated Time-Domain Detection and Characterization of Supraharmonic Impulsive Emissions

I. Zuazo, A. Gallarreta, J. González-Ramos, J. Vildósola, I. Angulo, I. Fernández, A. Arrinda, D. de la Vega

University of the Basque Country (UPV/EHU). Bilbao. Spain

268 Detection of Cyber-Attacks on Grid-Connected Converter with Output LCL Filter

Viktor Valouch(1), Martin Bejvl(2), Petr Šimek(2), Miroslav Chomát(2)

1. Faculty of Electrical Engineering. Czech Technical University. Prague. Czech Republic

2. Department of Electrotechnics and Electrophysics. Institute of Thermomechanics, Czech Academy of Sciences, Praha. Czech Republic

287 A Novel Hybrid Model for Dynamic Line Rating Using Artificial Neural Networks

A. Alarcon, I. Sanz, A. Lostale, P. Inda, M.G. Cañete, S. Borroy, A. P. Talayero

CIRCE Centro Tecnológico, Zaragoza. Spain



Friday June 12th, 2025

Friday June 12th, 2026
11:00-12:15 Oral Session B6 **ROOM B "AEDIE"**

Online Session

Chairwoman: **Esther Torres Iglesias**

- 211 Metrics for assessing daylight performance in workspaces: A systematic review of research approaches**
Entrena-Martínez, I.(1), Castillo-Martínez, A.(2), Peña-García, A.(1)
1.Department of Civil Engineering. University of Granada. Spain
2.Department of Mechanical and Mining Engineering, University of Jaén. Spain.
- 231 An Electric Field Energy Harvesting System Prototype for Smart High-Voltage Transmission Grids**
M. Moreno-Eguilaz(1), S. Bogarra (2), M. Cruble(3), A. Autuche(3), J.R. Riba(2)
1. Department of Electronic Engineering. AMBER, Universitat Politècnica de Catalunya. Terrassa. Spain
2. Department of Electrical Engineering, Universitat Politècnica de Catalunya, Terrassa (UPC). Spain
3. Polytech Clermont INP, Université Clermont Auvergne. Campus Universitaire des Cézeaux. France
- 258 On the Formulas Used To Determine Fair Weather Corona Losses in Transmission Line Conductors**
J.-R. Riba, M. Soltany, S. Bogarra
Department of Electrical Engineering. AMBER High-Voltage Laboratory, Universitat Politècnica de Catalunya.Terrassa. Spain
- 264 Influence of the Gap Distance on the Repetition Rate and Apparent Discharge Power in Corona Discharges**
M. Soltany, J.-R. Riba, P. Canalda, S. Bogarra
Department of Electrical Engineering. AMBER High-Voltage Laboratory, Universitat Politècnica de Catalunya.Terrassa. Spain
- 265 Modelling the Temperature-Dependent AC Resistance of Two-Layer Steel-Core Conductors for DLR Applications**
A. Soni (1,2), J.-R. Riba(2), M. Moreno-Eguilaz(2)
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24th International Conference on Renewable Energy and Power Quality
(ICREPQ'26)
Santander. Spain
10, 11, 12 of June 2026

12:15– 13:00	ROOM A “ <i>Universidad de Cantabria</i> ”. CLOSING SESSION
	Conclusions and time for the next conference (ICREPQ'27)
	Awards for the three best posters

15:00– 19:00	Cultural Visit-2 to Comillas and Santillana del Mar
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