Call for papers

HYDRO HYBRIDIZATION

30 June and 1 July 2026 ~ Porto, Portugal

organised by

THE INTERNATIONAL JOURNAL ON HYDROPOWER & DAMS
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Hybrid renewable energy schemes of various types are playing an increasingly major role in the energy transition throughout the world.

- Combining various renewable power sources to optimize electricity supply, stabilize operation of grid systems, improve flexibility and make use of existing infrastructure, are among the obvious benefits.
- In drought-prone areas of North Africa it has been calculated that floating solar panels can save up to 30 per cent of evaporation from reservoirs.
- Technical developments are advancing fast, and many countries are embarking on hybrid schemes for the first time, making it essential for all stakeholders to exchange knowledge and experience.

Potential, options, specific needs and benefits of hybridization vary from country to country. This event will bring together experts from Europe, Asia, Africa and Latin America for two days of constructive discussions, in a country which is a leader in Europe for FPV and hybridization.

The programme will highlight technical innovation, experience and case studies (hybrid projects including floating solar, wind and hydro, associated pumped storage and battery energy storage systems), control systems, safety aspects, environmental benefits and finance, plus many additional topics as listed on the following pages.

A strong focus will be put on the new challenges posed by the penetration of renewable energy, and on how hybridization and new solutions can help meet the requirements for a stable grid.

Topics for abstract submissions

The following indicates the range of topics which can be covered in the conference sessions and discussions.

Plans, potential and opportunities

- Global potential and national plans for floating solar and solar-hydro hybrid schemes
- Recent, on-going and planned FPV and hybrid schemes (solar/hydro/wind)
- Innovation, scale, challenges to overcome
- New business opportunities at existing schemes
- Dam-mounted solar panels

Financial and legal issues

- Revenue optimisation modelling and economic aspects of hybridized projects
- Technical risk analysis
- Certification and compliance frameworks to meet insurer requirements

Design issues

- Civil design aspects including moorings for FPV and wind installations
- Design of upgrades of existing schemes to improve flexibility
- Site investigation methodologies: Best practices for surveys of natural conditions
- Data interpretation for design and risk assessment
- Innovation in digital technology, including digital twins, big data, automation, IoT, and AI in design and optimization

Safety and security

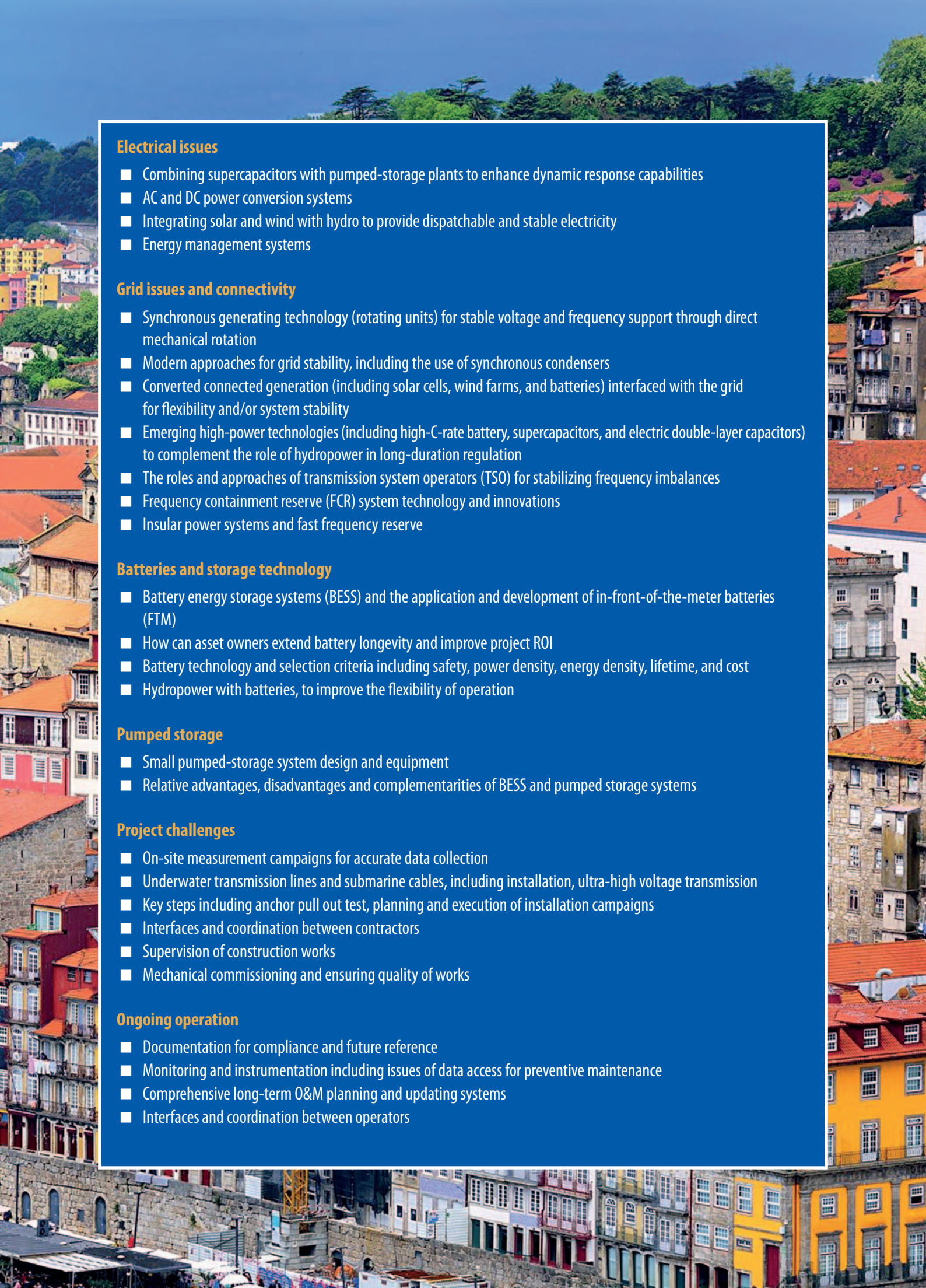
- Safety and risk (including; assessing and managing risk; experience of overcoming specific risks; measures to enhance safety; special considerations for FPV on large and deep reservoirs; extreme weather/wave conditions)
- Dam safety considerations and reservoir management at hybrid schemes
- Physical and cyber security at power projects

New technologies

- On-going and new research areas
- Emerging solar technologies and materials, including flexible perovskite cells, efficiency improvements, and reduced manufacturing costs
- Technical advances in the wind power industry, including direct-drive turbines, recyclable turbine blades, and semi-submersible platforms

Environmental aspects

- Positive aspects of limiting evaporation; impacts on marine life (positive and negative); data collection and management; technology to mitigate impacts
- Meteorological hindcast and modelling of wind, waves, and currents
- Environmental and social aspects of hybrid and FPV schemes
- Specific considerations for sea-based or coastal projects



Electrical issues

- Combining supercapacitors with pumped-storage plants to enhance dynamic response capabilities
- AC and DC power conversion systems
- Integrating solar and wind with hydro to provide dispatchable and stable electricity
- Energy management systems

Grid issues and connectivity

- Synchronous generating technology (rotating units) for stable voltage and frequency support through direct mechanical rotation
- Modern approaches for grid stability, including the use of synchronous condensers
- Converted connected generation (including solar cells, wind farms, and batteries) interfaced with the grid for flexibility and/or system stability
- Emerging high-power technologies (including high-C-rate battery, supercapacitors, and electric double-layer capacitors) to complement the role of hydropower in long-duration regulation
- The roles and approaches of transmission system operators (TSO) for stabilizing frequency imbalances
- Frequency containment reserve (FCR) system technology and innovations
- Insular power systems and fast frequency reserve

Batteries and storage technology

- Battery energy storage systems (BESS) and the application and development of in-front-of-the-meter batteries (FTM)
- How can asset owners extend battery longevity and improve project ROI
- Battery technology and selection criteria including safety, power density, energy density, lifetime, and cost
- Hydropower with batteries, to improve the flexibility of operation

Pumped storage

- Small pumped-storage system design and equipment
- Relative advantages, disadvantages and complementarities of BESS and pumped storage systems

Project challenges

- On-site measurement campaigns for accurate data collection
- Underwater transmission lines and submarine cables, including installation, ultra-high voltage transmission
- Key steps including anchor pull out test, planning and execution of installation campaigns
- Interfaces and coordination between contractors
- Supervision of construction works
- Mechanical commissioning and ensuring quality of works

Ongoing operation

- Documentation for compliance and future reference
- Monitoring and instrumentation including issues of data access for preventive maintenance
- Comprehensive long-term O&M planning and updating systems
- Interfaces and coordination between operators

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SUBMISSION OF ABSTRACTS

Abstracts of up to 300 words, in English, are invited on the topics listed in this brochure, or on related topics. Please email abstracts to the address below as soon as possible and by **20 February 2026** at the latest. The current job title and a short CV of each author/co-author should be included.

Abstracts should summarize the scope and content of the paper proposed. No artwork is required at this stage. In the case of project case studies, please mention the current status or date of completion. Please incorporate the author's name in the file name.

Abstracts should only be submitted if the author plans to attend the conference (or send a representative, if unable to attend). Speakers are eligible for reduced registration fees (about 50 per cent of the full fees).

If your proposed paper is accepted, you will be asked to sign a form confirming willingness to attend, and that you have obtained any necessary permission, from a project owner or client, if you are intending to discuss a specific project. We require this firm commitment, on acceptance of papers, to ensure that time allocated for an oral presentation is not wasted close to the date of the conference.

Technical abstracts will generally be reviewed by members of our International Steering Committee, and authors may be asked to modify some aspects.

Full papers will be required by **20 May 2026**, and format guidelines will be sent to all authors whose papers are accepted. The papers accepted for the conference will be made available to all delegates. **Please do provide a full paper**. Our policy is to ensure that all international participants have substantial background information to take away, after listening to a talk.

- ☐ I am interested in attending the Conference as a delegate. Please keep me informed with further details.
- ☐ I attach/am sending an abstract for consideration. If it is accepted, I (or a co-author or a representative) will attend the conference to present the paper.
  (Speakers will be eligible for reduced registration fees, which will cover attendance of the whole event, including the technical and social programmes and meals during the conference).
- ☐ My organisation may wish to participate in the Exhibition. Please send further details.
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