



14-17 June 2027
Stockholm, Sweden

CALL FOR PAPERS

The 29th International Conference
& Exhibition on Electricity Distribution

Deadline for abstract submission
14 SEPTEMBER 2026

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Four days of technical presentations and discussions covering the very latest challenges and issues facing electricity distribution today and in the future, including:

6 Oral Sessions	19 Round Tables	140 Exhibiting Companies
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5 Research and Innovation Forums	1 Opening Forum with Keynote Speakers	

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- Selected authors will be invited by the session chairs to give a 12-minute oral presentation in the main sessions with the aim of ensuring an interesting and balanced debate
- Papers with a special focus on research and innovation will be selected for oral presentation and discussion in the Research and Innovation Forum

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How to submit a paper

Prospective authors are invited to submit an abstract of 2 A4 pages (including diagrams and illustrations) by 14 September 2026. All the papers will be peer reviewed by the Technical Committee and by the National or Liaison Committee of the author's country, if any. Successful authors will be invited to submit a full paper by 22 January 2027.

Simply [go to the website](#) to download the abstract template and submit online

DEADLINES

14 September 2026	Abstract submission deadline
13 November 2026	Notification of acceptance
22 January 2027	Full paper submission deadline

CIRED 2027 Organizers

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Fast tracks from topical subjects to sessions (detailed preferential subjects inside)

Session	Asset management	Flexibility management & DSO/TSO interface	Microgrids, citizens energy communities, local markets	Energy transition, sector coupling, Hydrogen & e-mobility	Resiliency, reliability, & the impact of climate change, geopolitics, security of critical infrastructure	Digital transformation, artificial intelligence & cyber Security
Session 1 Network Components	<ul style="list-style-type: none"> New, recycled and bio-sourced materials Greener components eco design, life cycle analysis Limitation of visual and noise impact Life extension, upgradeability Standards Safety and ergonomics 	<ul style="list-style-type: none"> Components and sensors for voltage control and power flow management Power-electronics based components for load and generation management Storage devices 	<ul style="list-style-type: none"> Components for microgrids, Components for disconnection and reconnection with main grid 	<ul style="list-style-type: none"> Components for charging station and DER connection Improving connection speed and configuration for new generation or load Components for large cities (high ampacity, superconductivity, fault current limiters...) Reduction of losses Components for DC and AC/DC hybrid networks 	<ul style="list-style-type: none"> Condition assessment, ageing models Diagnostics and monitoring and related sensors Resilient components, impact of climate change, resilience to geopolitical context (including supply chain management) 	<ul style="list-style-type: none"> Digital solutions for maintenance Data analytics and AI for asset management Components' digital twins Local intelligence and communication capabilities Components for smart metering systems
Session 2 Power Quality & Safety	<ul style="list-style-type: none"> Integration of PQ functionalities into secondary equipment Emission and immunity of equipment and installations Impact of PQ on lifetime of equipment Efficient design of grounding systems, Active and passive EMF shielding design 	<ul style="list-style-type: none"> Impact of new operational flexibility schemes on PQ Effect of flexible assets, including electric vehicles (V2G) and BESS on PQ PQ coordination between DSO and TSO 	<ul style="list-style-type: none"> PQ challenges in LV DC grids Voltage and frequency stability as well as PQ related issues Resonance stability Aspects of PQ regulation Dealing with emission of self-sufficient grid connected end users 	<ul style="list-style-type: none"> PQ Issues related to storage, distributed energy resources and e-mobility PQ in grids with high share of inverter-based generation Needs for revision of PQ standards and EMC concepts Impact of large industrial LCT installations on PQ 	<ul style="list-style-type: none"> Voltage dip immunity and ride through capability of grid-interactive inverters Lightning and switching overvoltages New trends in PQ standards related to climate change Relation between resilience strategies and PQ 	<ul style="list-style-type: none"> Data mining and data analytics for PQ related data Application of AI in big PQ data Novel methods for PQ data visualisation Efficient design and implementation of PQ monitoring campaigns
Session 3 Operation	<ul style="list-style-type: none"> Inspection and Condition assessment Maintenance strategies and processes Wide area load and generation data acquisition Real time monitoring and control systems Training and Education Occupational risk assessment and safety (EN50110) 	<ul style="list-style-type: none"> Operational planning (e.g. day ahead) in distribution network Capacity calculation and management Customer interfaces for flexibility in generation and load Interaction between DSO and TSO Reactive power management 	<ul style="list-style-type: none"> Operation of microgrids Integrated operation of local energy communities Detection, operation and resynchronizing of islanded grids Decentralization of intelligence (e.g. edge computing) Interface to local markets and communities 	<ul style="list-style-type: none"> Forecast for generation from DER Multi-energy system operation – storage and power2X Role of distribution networks in integrating low carbon, sustainable energy supplies Cross vector coupling of SCADA-systems 	<ul style="list-style-type: none"> Resolving constraints in distribution systems Crisis management Blackout: stability assessment and restoration strategies Implementation of energy intervention High level automation in network control Integration of social and environmental criteria in network operation 	<ul style="list-style-type: none"> Large scale data analytics for grid operation Forecast for operational planning State estimation New applications in grid operation (e.g. AI, quantum and edge computing) Augmented reality operation Operation in case of cyber security disturbances
Session 4 Protection, Control, Automation & Cybersecurity	<ul style="list-style-type: none"> Flexible software defined applications, including virtualization Refurbishment strategies for secondary technology to implement innovative schemes and functions 	<ul style="list-style-type: none"> New SCADA functions and AI applications TSO/DSO interface for use flexibility New Protection schemes and system protection features Cybersecurity and resilience aspects for access and exchange of information 	<ul style="list-style-type: none"> Detecting islanding grids Protection and control for grids hosting lot of decentralized generation units and microgrids Control solutions in energy communities 	<ul style="list-style-type: none"> Wide area protection schemes Control and monitoring system developments for sectors coupling energy systems Contribution of automation to energy transition Influence of grid forming and grid following generation as well as of virtual synchronous machine on protection, control and automation 	<ul style="list-style-type: none"> Solutions of resiliency for converging communication and power systems SCADA and local automation concepts for large outages, blackout and crisis scenarios 	<ul style="list-style-type: none"> AI in SCADA and network Remote access and cybersecurity Multivendor solutions – security and interoperability Application and implementation of cybersecurity Virtualisation, centralisation of secondary technology and testing
Session 5 Planning of Power Distribution Systems	<ul style="list-style-type: none"> Managing ageing assets Asset failure risk and performance models DC distribution Multi-annual experiences AI applications HILP Risk based asset management 	<ul style="list-style-type: none"> Flexibility and distribution development DSO as system dispatcher. TSO/DSO integrated/coordinated distribution planning Forecast and uncertainties management 	<ul style="list-style-type: none"> Microgrids and local energy communities Rural Electrification DERMS and system development V2G and storage DER supporting load hosting capacity 	<ul style="list-style-type: none"> Planning for energy transition E-mobility and sector coupling Fast development of distribution systems Hosting capacity assessment 	<ul style="list-style-type: none"> HILP events in planning Resiliency and reliability in smart grids Trade-off Reliability vs resiliency Solutions to improve resiliency 	<ul style="list-style-type: none"> Planning with AI Data analytics and AI for Customer segmentation P2P markets in planning Data Centre grid connection and integration solutions
Session 6 Customers, Regulation, DSO Business & Risk Management	<ul style="list-style-type: none"> Standardization including ISO55000 Evolved DSO business processes Risk and resilience management methods, processes & tools Financial grids (CAPEX/OPEX/TOTEX) Environmental analysis and reporting 	<ul style="list-style-type: none"> Regulation incentives for flexibility, lower losses and more efficient use of the grid Flexibility services on different system levels DSO/TSO coordination, exchange and interoperability Short- and long-term forecasting 	<ul style="list-style-type: none"> Accelerated grid capacity and resilience with integrated flexibility Role of DSOs in relation to prosumers, energy communities, energy sharing, microgrids and storage Fairness in energy – energy justice and energy poverty Resilience of society, island-mode and off-grid possibilities 	<ul style="list-style-type: none"> Regulation and market mechanism accelerating the energy transition and sustainability Balancing grid costs and financing Bi-directional e-mobility (V2X) – business models and case studies 	<ul style="list-style-type: none"> Regulation and practices to measure and incentivise resilience Securing assets for extreme events Management of extreme weather events & environmental impacts Case studies and cooperations for preparing and protecting grids 	<ul style="list-style-type: none"> Cyber-security best practices and case studies Resilience in data, IT systems and architecture Open data case studies Digitalization of business processes Unlock the potential of (generative) AI Edge computing

Session 1

Network Components

Session 1 deals with all aspects related to the components used in the electricity distribution networks: cables, overhead lines, primary and secondary substations, transformers, switchgear, protection and monitoring systems, power electronics. It covers topics related to the life cycle of assets from design to end of life management. The session also covers environmental concern including eco-design and life cycle analysis, standardisation, ergonomics and safety. It aims at providing an overview of the state-of-the-art and proposals for future components, including those needed for smart grids, e-mobility, smart cities and microgrids, as well as components for more resilient networks in the context of climate change anticipation. This session is an opportunity for DSOs and manufacturers to share their objectives.

Components for Smart Distribution Grids

- Smart substations
- Components with capabilities for data acquisition, information generation, communication and cybersecurity
- Components and sensors for voltage and power flow management
- Power electronics-based grid components
- Components for DC and AC/DC hybrid networks
- Components for integration of distributed generation
- Storage devices
- Components for e-mobility charging stations
- Components for the disconnection and reconnection of microgrids

Component's Reliability, Diagnosis and Maintenance Strategy

- Condition assessment, aging models, lifetime assessment, diagnostics
- Online monitoring of distribution system assets and related sensors
- Use of new solutions like digital tools, big data, machine learning, drones for diagnostics and maintenance
- Life extension, upgradeability, retrofit operations of existing components,
- Components for more resilient networks
- Impact of climate change on network components

Components for Large Cities Distribution Networks

- Compact substations
- Modular components for fast installation and extensibility
- High reliability solutions
- Short circuit current mitigation solutions
- Components with increased power capabilities

Towards "Greener Components"

- Circular Economy, eco-design, use of bio-sourced and recycled materials, life-cycle analysis
- Reduction of losses
- Limitation of visual and noise impact
- Management of hazardous substances

Innovation in Design of Components

- Modelling including digitalization e.g. Digital twins of components
- Testing
- New materials
- Safety aspect, ergonomics and usability
- Evolution of standards
- New functional specifications

Session 2

Power Quality & Safety

Session 2 deals with any phenomena related to power quality (PQ) especially initiated by the massive introduction of Low Carbon Technologies (LCT) and the power electronics associated to it in distribution grids. This includes among others slow voltage variations, flicker, unbalance, distortion in the frequency range from DC up to 500 kHz as well as events like sags or swells. Impact of flexibility measures (e.g. demand side management) and grid integration of LCT on PQ is also covered. In addition, the theme covers all aspects of electromagnetic compatibility (EMC) including emission, immunity, its coordination and standardisation related to PQ and Safety. Moreover, the theme includes measurement techniques and advanced data analysis for PQ. Electromagnetic interferences, electric and magnetic fields (EMF) as well as grounding issues are addressed.

Equipment Related PQ Aspects

- Emission and immunity of LCT equipment, like electrical storage systems, electric vehicles, heat pumps, ...
- Converter driven Resonance stability related to converters in grid-forming or grid-following operation
- Emission and immunity of equipment for DC applications
- Impact of PQ on lifetime of equipment

System Related PQ Aspects

- Propagation and summation of emission in AC and DC systems
- Simulation of PQ phenomena across network levels including frequency-dependent network impedance
- Definition of grid strength related to PQ in inverter-based AC and DC networks
- Strategies for PQ management in planning and operation
- Hosting capacity related to PQ for distributed generation and V2G applications
- Identification of sub-synchronous oscillations

PQ Measurement, Analysis and System Monitoring

- Measurement techniques and indices from DC - 500 kHz
- Integration of PQ functionalities into secondary equipment
- Accuracy and bandwidth of measurement systems including voltage and current transducers
- Efficient design and implementation of monitoring campaigns
- Techniques for large data analytics and visualization, including AI
- PQ data formats and data interchange

Continuity of Supply, PQ Standards and Regulatory Issues

- Low and overvoltage ride through capability
- Developments and trends in related standards for AC and DC networks
- Concepts for improvement of voltage dip immunity
- Allocation principles for emission limits and compliance verification
- New EMC concepts driven by energy transition and climate change
- Experiences with and development of regulatory frameworks for PQ

PQ Issues at the Interface Between Distribution and Transmission Grids

- PQ management at the interface, including coordination of planning levels and emission limits
- Interactions and disturbances related to large industrial LCT installations
- Resonances related to increased cabling

Electric and Magnetic Fields

- EMF measurement, simulation and remedial measures
- Low frequency electromagnetic interference (ohmic, inductive, capacitive)
- Active and passive shielding design

Safety Issues

- Earthing systems design and verification
- Step and touch voltages, risk evaluation
- Safety issues related to AC and DC (micro)grids
- Live line working

Session 3

Operation

Session 3 deals with operational use of components (Session 1) and systems (Session 4) in public, industrial and private distribution networks in normal operation as well as in any case of disturbance.

Session 3 covers all aspects of grid operation including strategies and management topics, challenges and new application, the integration of DER and special applications. Focus is on the use of new technologies like artificial intelligence and the operational challenges to integrate and operate new types of load like electric vehicles and storage.

Strategies and Management

- Organization strategies and schemes for grid operation
- Training and Education
- Maintenance strategies
- Condition monitoring
- Management strategies for DER, generation, storage and flexible loads (electric vehicles, heat pumps)
- Larger scale DER integration data analytics and intelligence for distribution network management

Operation Center

- Energy efficiency in operation (use of e.g. optimized power flow)
- Reactive power management
- Capacity calculation and management
- Planning of operation
- Detection and operation of islanded grids
- Interaction between DSO and TSO
- Crisis management
- Blackout: stability assessment and restoration strategies
- Operation in case of cyber security disturbances
- Ergonomics of operation center

Operation in the Field

- Occupational safety in grid operation (acc. EN 50110)
- Augmented reality in manual operation and for inspection
- Workforce management tools and techniques to improve operation efficiency

New Use Cases & Special Applications

- New applications in grid operation (e.g. Artificial Intelligence)
- Role of distribution networks in delivering low carbon, sustainable energy supplies
- Multi-energy system operation – storage and power2X (gas, heat, ...)
- Operation of microgrids and local energy communities



Session 4

Protection, Control, Automation & Cybersecurity

Session 4 deals with design and implementation of systems for protection, control and automation, as well as with communication and cybersecurity in distribution networks and their associated central systems.

The topics of this session are the latest developments in the world of protection, control, automation, communication and operational cybersecurity. Emphasis is also placed on practical application and experience in operating and maintaining the systems. But the latest developments, scientific findings and considerations as well as algorithms and simulations are also of great importance and part of the session.

Protection

- New or *improved* protection schemes and functions for up-to-date grid structures.
- Modernization and renewal strategies for existing protection systems considering *standardization*
- Protection algorithms and simulation models as well as tools for protection virtualization
- Protection management considering remote access and cybersecurity
- Virtualization, centralized protection, digital twin, tests in the virtual environment
- Impact of distributed generation (GFL, GFM)
- Protection communication, interface, cybersecurity
- Fault location, fault records and analyses
- Detection of unwanted islanding in distribution grids
- Adaptive protection of microgrids, when connected to the grid and in intentional island mode
- Protection of DC distribution grids
- Support of AI in protection applications, fault location and prediction
- Non-conventional instrument transformers (LPIT, LPCT, LPVT) in protection
- Testing of protection relays, functions and systems as well as type tests
- Technical findings from trials relating to stability, protection and system reliability
- Utilization of HIL in development of protection and control schemes as well as to proof the conformity of inverter-based generation devices

Control and Automation

- Concept for SCADA systems in coordination with decentralized control
- Development and Test environments for SCADA systems
- Additional management and support systems like FLISR- or ADMS-systems (e.g. for power flow, voltage control, system stability, capability constraints and ancillary services)

- Improvements and extended possibilities in SCADA systems by including specific information (e.g. online weather information, lightning detector etc.)
- Automation on distribution level e.g. voltage control
- Challenges associated with the integration of DER assets, including energy storage, flexibility, demand side management and control solutions
- Implementation of TSO/DSO-Interface
- Control algorithms and philosophies
- Optimization potential of digital substations considering new automation tasks
- System functions for controlling and monitoring island grids and for resynchronization capabilities
- Artificial Intelligence (AI) in context of SCADA and automation (e.g. analyses, diagnostics etc.)
- Big data in the context of control and automation

Communication and Cybersecurity

- Communication architectures with MPLS-TP, IP-MPLS and 5G for different applications in field of protection, control and automation
- Requirements for communication technology in technical systems at different levels and applications, including connection to customer sites
- Centralized management and monitoring of communication networks
- Cybersecurity and resilience aspects of information access and information exchange
- Measures to ensure confidentiality in integrity in communications (e.g. encryption, key exchange, certificate management)
- Secure use of public networks e.g. 5G, wireless
- Convergence of power grids and communication grids

Session 5

Planning of Power Distribution Systems

Session 5 deals with short- and long-term development of high, medium and low voltage distribution networks, concerning the changing requirements for electricity distribution including, but not limited to, smart grids and active distribution networks, electrification and electromobility, energy storage, flexibility, distributed energy resources integration, present and future customer quality of supply requirements, and optimum asset utilisation techniques and strategies. Papers dealing with meeting the energy transition goals, rural electrification, data centre grid connection, and strategies to increase resiliency are also expected. Consequently, particular attention is given to how these transformative elements drive the evolution of Distribution Network Development Plans (DNDPs) toward data-driven, risk-aware, and flexibility-integrated frameworks.

Demand and Generation Forecast

- Evolution of the demand (e.g., the electrification, electromobility and transport systems, hydrogen and green gas production, data centre, etc.)
- Methodologies for demand and generation forecast

Performance Requirements, Results, and Benchmarking

- Economical versus technical performance
- System reliability and degree of adequacy
- Performance assessment and benchmarking
- Evaluation of technical and non-technical losses
- Increasing resiliency against low probability high-risk extreme events
- Microgrids and local energy communities to provide security of supply

Network Schemes and Design Criteria

- Innovative solutions for enabling energy transition (e.g., RES integration, electric vehicles, DC distribution, flexibility procurement, etc.)
- Distributed energy resources management systems
- Active networks and smart grids
- Distribution systems for offshore wind farms
- Low-losses distribution systems
- Sector-coupling and distribution development
- Design criteria for increasing resiliency
- Distribution network schemes for developing countries
- Asset performance, probability of failure and remaining useful life models

Network Planning

- Planning the distribution development with the AI
- Distribution planning and flexibility (forecast, uncertainties, market, standardisation, etc.)
- Integrated/coordinated transmission and distribution planning
- Sector-coupling for energy transition
- Improving efficiency in distribution networks
- Integration of distributed energy resources (distributed generation, storage, EV, etc.)
- Planning criteria for electrification in low-load-density areas
- Integration of EV bidirectional charging installations
- Microgrids and local energy communities in distribution planning
- The resilience of smart grid when deployed at scale and the impact on network planning standards (i.e., IT/telecoms requirements, common-mode failures)
- Distribution systems for data centre connections
- Flexibility as a solution to optimize grid investment

Investment Strategies

- Least cost investment plans
- Financial planning and cash flow for investment
- Network ageing
- Risk analysis and asset management implications
- Non-network solutions
- Obsolescence: shorter life-cycles due to automation and ICT technologies
- Trade off CapEx vs OpEx, Long Term vs Short Term, and Cost vs Performance
- Resiliency enhancing investment strategies

Session 6

Customers, Regulation, DSO Business & Risk Management

The DSO business environment has drastically changed over the course of the last years making prioritization and optimizations complex and challenging. Financing grids, affordability for the customer, increased resilience and implementing policies for the energy transition are but a few aspects to juggle for the DSO's.

The DSO's continue to be in the center and have critical roles for the success of a resilient and sustainable grid. We see solutions and implementation being done that show that the DSO's are up to the task, see for example the area of flexibility that has developed significantly, but also that more action is needed.

Policy, Regulation, Integrated Energy Systems, Balancing Grid Costs with Affordability

- Regulation and market mechanism accelerating the energy transition and sustainability
- Regulation incentives for flexibility, lower losses and more efficient use of the grid
- Regulation and practices to measure and incentivize resilience
- Move from DNO to DSO
- DSO/TSO coordination, exchange and interoperability
- Financing grids (CAPEX/OPEX/TOTEX)
- Balancing grid costs and financing
- Fairness in energy – energy justice and energy poverty

Customer Interaction, Energy Sharing, Flexibility, Batteries and V(2/4)G

- Flexibility services on different system levels interoperability, including flexibility needs assessments
- Accelerated grid capacity and resilience with integrated flexibility
- Role of DSOs in relation to prosumers, energy communities, energy sharing, microgrids and storage
- Network development plans and capacity maps
- Resilience of society, island-mode and offgrid possibilities
- Bi-directional e-mobility (V2X) – business models and case studies

DSO Resilience, Business Risk Management and Roles

- Standardization including ISO55000
- Evolved DSO business processes
- Short- and long-term forecasting
- Risk and resilience management methods, processes & tools
- Securing assets for extreme events
- Case studies and cooperations for preparing and protecting grids
- Management of extreme weather events & environmental impacts
- Environmental analysis and reporting

Digitalization, AI, Business Processes, Standards and Cyber-Security

- Cyber-security best practices and case studies
- Resilience in data, IT systems and architecture
- Open data case studies
- Open source software development and implementation
- Digitalization of business processes
- Unlock the potential of (generative) AI
- Edge computing