

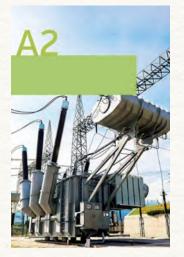
for the 3rd Conference of NC CIGRE Kosovo

KS A1 - POWER GENERATION AND ELECTROMECHANICAL ENERGY CONVERSION



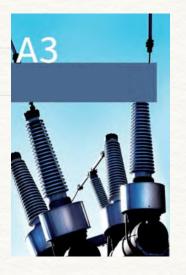
- 1. Advanced control systems in photovoltaic station and wind farm.
- 2. Energy efficiency connected with power generation.
- 3. Excitation systems of generators in small hydropower plants and the application of advanced programming techniques for calculating the parameters of the excitation system
- 4. Diagnosis and monitoring of rotating machines.
- 5. The impact of transient processes on rotating machines.
- 6. Factors influencing the vibrations of rotating machines.

KS A2 - POWER TRANSFORMERS AND REACTORS



- 1. Various experiences with the operation of transformers in the power system (Generation, Transmission, Distribution).
- 2. On-site maintenance of transformers, preventive inspection, their revitalization, and transformer monitoring
- 3. Digitalization and online monitoring of power transformers.
- 4. Standardization and testing of power transformers and reactors for the requirements of the modern grid.
- 5. Methodology for the optimal replacement of power transformers based on their health index
- 6. Power transformers and their impact on the environment.

KS A3 -TRANSMISSION AND DISTRIBUTION EQUIPMENT



- 1. Digitalization and smart devices in energy transmission and distribution
- 2. Alternative options for Sf6 and their impact on the environment
- 3. Advanced diagnostics and monitoring for efficient asset management
- 4. Specific operating conditions of transmission and distribution equipment
- 5. Life cycle management and strategies for extending the lifespan of aging equipment.
- 6. Integration of renewable energy sources into transmission and distribution networks.
- 7. The use of new technologies to enhance the security and stability of electrical grids.



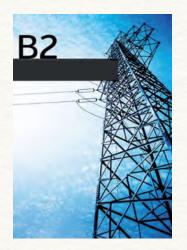
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KS B1 - INSULATED CABLES



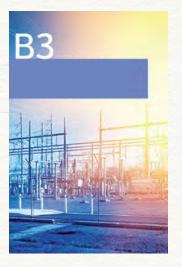
- 1. Trends and experiences in the maintenance, operation, and optimization of cable lines.
- 2. Design of new lines and reconstruction of existing cable lines.
- 3. Condition monitoring and diagnostic techniques.
- 4. Assessment of lifespan and environmental impacts on cable systems.
- 5. Experiences in the installation and operation of medium and high voltage cables.
- 6. Grounding methods for cable lines.
- 7. Challenges of connecting renewable energy sources (RES) with cables.

KS B2 - OVERHEAD LINES



- 1. Challenges of integrating renewable energy sources and the energy transition.
- 2. Technical aspects and environmental impacts of overhead lines.
- 3. Advanced high-capacity conductor technologies for transmission and distribution lines.
- 4. Integration of Dynamic Line Rating (DLR) and advanced monitoring systems.
- 5. Overhead lines and information technology.
- 6. Climatic, environmental, and safety aspects of overhead lines.

KS B3 - SUBSTATIONS AND ELECTRICAL INSTALLATIONS



- 1. Integration of renewable energy sources into substations
- 2. Substation design, engineering, construction, renovation, implementation of IEC standards, and their application.
- 3. Battery Energy Storage Systems (BESS), hydrogen, synchronous compensators, reactors (parallel, series), hybrid systems (HESS).
- 4. Operational experiences and asset management, application of advanced technologies, asset management through IoT and AI.
- 5. Electrical substations, planning, modernization, application of smart grids, advanced SCADA, maintenance, and reconstruction.
- 6. Advanced monitoring, diagnostics, control, and predictive maintenance of substation equipment.
- 7. Substation performance, application of advanced technologies in the inspection of electrical substations.



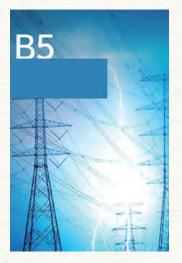
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KS B4 - DC SYSTEMS AND POWER ELECTRONICS



- 1. Renovation and improvement of existing DC systems.
- 2. Service and operational experiences of DC systems.
- 3. Applications of DC systems enabling the energy transition.
 - 4. Power electronics for grid stability and flexibility.
 - 5. New concepts, technologies, and designs of DC/AC and AC/DC converters for transmission and distribution systems.
 - 6. Advances in power electronics equipment technologies.
 - 7. Integration of renewable energy sources into DC systems for sustainable energy solutions.

KS B5 - PROTECTION AND AUTOMATION



- 1. Advanced practices and requirements for preventive maintenance of microprocessor-based relay protections.
- 2. Acceptance, commissioning, and field testing of relay protection, automation, and control systems.
- 3. Relay protection principles for future distribution networks.
- 4. Challenges of relay protection, control, and measurement in emergency situations.
- 5. Modern energy grid systems operational experiences.
- 6. Challenges in integrating renewable energy control systems and energy storage systems at the substation and dispatch center level.
- 7. Protection of the energy sector from cyberattacks in the era of digitalization.
- 8. The use of SCADA and EMS for intelligent management of grids

KS C1 - POWER SYSTEM DEVELOPMENT AND ECONOMICS



- 1. Flexibility as a Pivotal Criterion for System Development
- 2. Resilience in Power System Planning and Development
- 3. Economic and System Analysis Methods for Power System Development
- 4. Impact of Electrification and Sector Coupling on Power System Development
- 5. Long-Term Planning of Energy Security and Security of Supply
- 6. Modeling and Forecasting Techniques for Power System Planning and Economics
- 7. Power System modeling and simulations



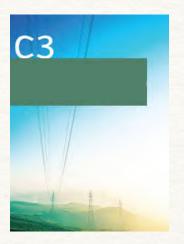
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KS C2 - POWER SYSTEM OPERATION AND CONTROL



- 1. Operational resilience to extreme and unexpected events
- 2. Increasing system flexibility and ancillary services in systems with high RES participation
- 3. Management of consumption connected to TSO and DSO as an opportunity for ancillary services in the system
- 4. Operation of power system in conditions of extensive integration of distributed generation and power park modules interconnected through power electronics
- 5. System safety and regional safety coordination
- 6. Advanced monitoring and control techniques for network stability and reliability
- 7. Automation and autonomous control of the operation of the power system (special system protection schemes).

KS C3 - POWER SYSTEM SUSTAINABILITY AND ENVIRONMENTAL PERFORMANCE



- 1. Integration of new technologies in the energy sector and their environmental impacts.
- 2. Resilience to climate change and adaptation measures for the powers system
- 3. Paths and strategies for the decarbonization of the power system
- 4. Implementation of the Energy Strategy: challenges and environmental impacts.
- 5. Energy efficiency and reducing the impact of the power system on climate change.
- 6. Biodiversity conservation and land use in the power system planning.
- 7. Life cycle analysis of components in the power system.

KS C4 - POWER SYSTEM TECHNICAL PERFORMANCE

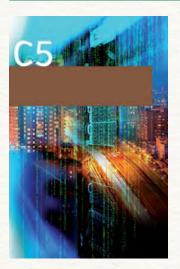


- Coordination of Insulation and Lightning Arrester Performance in Developing Power Systems
- 2. Innovative Inverter Technologies for Power Quality Enhancement
- 3. Artificial Intelligence and Machine Learning for Power System Performance and Optimization
- 4. Dynamic Analysis of the Power System in the Energy Transition
- 5. The Impact of Distributed Energy Resources (DER) on Technical Performance of the Grid
- 6. Performance of Protection and Automatic Systems



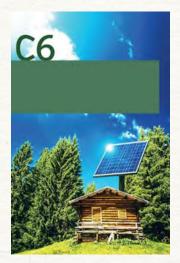
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KS C5 - ELECTRICITY MARKETS AND REGULATION



- 1. Market Design Developments to Facilitate the Integration of New Participants and Renewable Resources.
- 2. Flexibility and Market Mechanisms (Balancing markets, Balancing Platforms, Congestion Management, Aggregators, DSM, storage facilities, etc.).
- 3. The role and importance of cybersecurity in the electricity market.
- 4. Regulatory Challenges for Integration of Renewable Energy Sources and Battery Storage (connection costs, flexibility incentives, appropriate tariff models, etc.).
- 5. The impact of distributed generation on the electricity market.
- 6. Market Coupling (regional initiatives for market coupling, Kosovo, Albania Market Coupling, etc.).

KS C6 - ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES



- 1. Distribution network planning and asset management,
- 2. Impact of RES on the power system,
- 3. Active management and control of distribution networks,
- 4. The importance of grid development in accommodating RES,
- 5. Application of advanced metering infrastructure (AMI) and smart grid technologies in the distribution system,
- 6. Impact of electric vehicles (EVs) and charging infrastructure on distribution networks,
- 7. The role of prosumers in the energy transition.



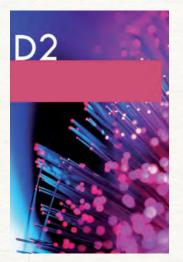
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KS D1 - MATERIALS AND EMERGING TEST TECHNIQUES



- 1. Advanced materials for high-voltage equipment and components in the power system
- 2. Innovative materials for testing and diagnostics of the power system components.
- 3. Advanced materials for high-voltage insulation in transformers and electric motors.
- 4. Transforming the power system through AI: Strategies for Testing, Monitoring, and Recycling for Energy Sustainability.
- 5. Testing techniques for underground and overhead cables for condition monitoring and defect detection.
- 6. Analysis of insulating materials in distribution transformers and the environmental impact on their degradation
- 7. Testing methods for batteries and energy storage systems in the power system

KS D2 - INFORMATION SYSTEMS TELECOMMUNICATIONS AND CYBERSECURITY



- 1. New Cybersecurity Challenges in the Changing Electricity Industry
- 2. Meeting the Challenges of Energy Transition with Reliable, Scalable, and Efficient Telecommunications Networks
- 3. Digital Platforms for Acquisition, Processing and Analysis of Big Data in Power Systems and Exchange Between Market Participants
- 4. Telecommunication Networks for Real-Time Grid Monitoring and Control
- 5. Interoperability and Communication Protocols for Smart Grid Devices and Distributed Energy Resources (DERs) Integration.
- 6. Blockchain for secure P2P energy trading, grid management, and data integrity in decentralized systems
- 7. Machine learning for predicting solar and wind power generation