

7th Session CG KO CIGRE – preferential topics

Group A1 - rotating electrical machines

1. Rotating electrical machines and renewable energy sources
2. Transients in rotating electrical machines
3. Isolation systems of rotating electrical machines - experience from practice
4. Optimizing electrical drives
5. Regulation of the voltage and power of synchronous machines

Group A2 – Transformers

1. Maintenance of transformers in the field, their preventive control and revitalization
2. Estimation of lifetime of energy and measuring transformers and proposal of measures for further exploitation
3. Replacement of old transformers with new ones due to the dilapidation and reliability of the system
4. New test methods, applied technologies and monitoring

Group A3 - High voltage equipment

1. Problems with the use of high voltage equipment
2. Maintenance and repair of high voltage equipment
3. New test methods, technology and monitoring
4. Influence of current regulations and technical standards on the selection of HV equipment in HV facilities

Group B1 – Cables

1. Laying of cables and cable accessories
2. Exploitation of cable
3. Cable Network
4. Regulation for cable and cable accessories

Group B2 – Overhead lines

1. Coordination of insulation on overhead lines, especially from the aspect in cases of high values of specific soil resistance
2. Experiences and measures to improve the transient resistance of overhead line earthers in conditions of high values of specific soil resistance
3. Corridors and protected areas of overhead lines, experiences and recommendations (spatial planning, technical and environmental aspects)
4. Experiences towards improving the transmission power characteristics of overhead lines
5. Technical and environmental aspects of overhead line impacts, measures and experiences

Group B3 – plants

1. Design and implementation of new technical solutions and technologies in plants
2. Operation, maintenance, reconstruction, capacity expansion and plant optimization
3. Influence of transmission and distribution network development on plant conception
4. Optimization of auxiliary power supply in electric power plants
5. Reconstruction and modernization, overhaul and analysis of transient regimes in hydro power plants

6. Impact of the plant on the environment, health and safety

Group B4 - high voltage one-way (HVDC) systems and Power Electronics

1. HVDC systems and their components: performance, control, reliability, maintenance, measurement of electromagnetic fields and environmental impact.
2. HVDC systems and connected HV AC transmission networks: benefits, challenges, mutual impact, harmonisation and technical solutions for future development.
3. Power electronics in transmission systems (FACTS and other devices)
4. Power electronics application in renewable energy systems
5. Electromagnetic compatibility of power electronics
6. Advanced control methods for power converters and electrical drives

Group B5 - Protection and Automation

1. Modern solutions for protection system in hydro power plants, thermal power plants, high-voltage and medium-voltage facilities
2. Modern solutions for automation in hydro power plants, thermal power plants, high-voltage and medium-voltage facilities
3. Joint control and optimization of the operation of hydroelectric power plants
4. Problems of security, due to increased levels of automation
5. Standardization of labeling system
6. Application of various communication protocols in automated systems
7. Protection and automation for small and mini hydro power plants
8. Specifics of facilities that are without crew
9. Protection and automation at wind power plants
10. Social aspects of automation

Group C1 - Development and EEC economy

1. Decarbonization of the electricity sector
2. Network development planning in order to enable safe operation of the system with high penetration of renewable energy sources
3. Planning the optimal production mix from the aspect of power system operation safety
4. Optimal management of fixed assets

Group C2 - the exploitation and management of EES

1. New concepts of system observability, controllability and flexibility
2. New solutions for provision of ancillary services: frequency and voltage control
3. Wide area control
4. Disturbance management and restoration strategies, including cross border approach
5. Coordination TSOs/DSOs/Grid User (renewable generation, distributed generation, and demand) in managing disturbances

Group C3 - System Environmental Performance

1. Public acceptance of electric power facilities, practical experiences and recommendations
2. Impact of electric power facilities on the environment
3. Standardisation in the field of environmental protection and occupational safety

Group C4 - Technical performance of power systems

1. Improvement of power system technical performances through the use of advanced methods, models and tools
2. Power quality
3. Overvoltages and insulation coordination
4. Influence of electromagnetic fields of low frequencies and electromagnetic compatibility

Group C5 - electricity markets and deregulation

1. The role and importance of cyber security in the electricity market
2. The impact of the development of the electricity market on metering and metering data in Montenegro
3. Analysis of the impact of CO2 emissions on electricity prices in Montenegro
4. Impact of distribution production on the electricity market
5. The role of regulators in changing markets
6. Changes in the market - the transition from centralized to distribution planning

Group C6 - Distribution Systems and decentralized production

1. Planning, maintenance and operation of distribution and transmission grid
2. Decentralized production of electrical energy from RES
3. Grid connection issue for RES
4. Smart grid
5. Transmission and distribution system automation
6. Advanced metering systems
7. Design and implementation of SCADA systems

Group D2 - Information Systems and Telecommunications

1. Development and modernization of SCADA systems in accordance with new needs and development of hardware and software technologies
2. Integration of local and remote control functions of systems for automation of transmission and generation plants and application of equipment based on IEC 61850
3. Information and communication technologies for connecting distributed energy sources (acquisition, management, security, use of existing standards, interoperability). Smart grid applications in ICT sense for DSO (Distribution System Operator) and TSO (Transmission System Operator) organizations
4. Coupling of SCADA and MMS / OMS / AMS systems - SCADA as a data source for Maintenance Management System (MMS), Outage Management System (OMS) and Asset Management System (AMS)
5. Ensuring the security (confidentiality, integrity and availability) of information through security policy, architecture of TC Systems and equipment with the application of existing standards related to information security and interoperability; Cloud services, application, availability and security, as well as virtualization in IT technology; certification of resistance of information and telecommunication systems to cyber attacks; Disaster recovery systems
6. Experiences in the construction, integration and operation of TK transmission networks in the main and regional level, as well as functional power grids based on the application of IP technologies