

5th Session CG KO CIGRE – preferential topics

Group A1 - rotating electrical machines

1. Testing of generators insulation systems - methods, international standards, experience
2. The influence of starting, stopping and transients to exploit and the lifetime of hydro and turbo generators
3. Rotating Machines for Renewable and dispers generation
4. Usage of the optimization technique for excitation system PID parameters determination

Group A2 – Transformers

1. Maintenance of transformers in the field, their diagnosis and repair
2. Lifetime transformers and proposal of measures for further exploitation
3. New technologies, test methods 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

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. Modern methods for designing, establishing the conditions, revitalization, construction and maintenance of overhead line
2. New technologies, materials, components and techniques for overhead lines
3. Standards and regulations
4. Economy and Management of overhead lines in terms of deregulated and competitive market

Group B3 – plants

1. Implementation of new technical solutions and technologies in plants and substations
2. Experience from reconstruction, modernization and maintenance of plants and substations
3. Specific characteristics plants of wind power plants
4. Transient hydro-mechanic regimes in hydro power plants
5. Hydraulic – hydrological and hydrogeological measurements and optimization of production in power plants
6. Optimization of electric power proper consumption in power plants
7. Reconstruction and modernization in power plants
8. Experience in construction and exploitation of SHPP

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

1. HVDC systems and their components (performance, control, reliability , maintenance, environmental impact , ...).
2. Power electronics in transmission systems (FACTS and other devices).

3. Power electronics application in renewable energy systems.
4. Electromagnetic compatibility of power electronics
5. 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
 - Analysis of the existing protection systems, problems, suggestions for improvements, criteria for replacement or reconstruction
 - Characteristics of the new protection systems that have been implemented or whose implementation is in progress
 - Testing of the protection systems: calculations, procedures, settings and experiences
 - New trends in the design of protection systems in power plants

2. Modern solutions for automation in hydro power plants, thermal power plants, high-voltage and medium-voltage facilities
 - Characteristics of automation on projects that have been realized in the last 10 years in Montenegro and abroad
 - Characteristics of automation on projects whose implementation is in progress in Montenegro and abroad
 - Analysis of the already automated systems, problems and recommendations for new projects
 - Application of various communication protocols in automation
 - Problems of security, due to increased levels of automation
 - Joint control and optimization of work - analysis of realized solutions and recommendations for the future
 - Secondary and tertiary regulation - analysis of realized solutions and recommendations for the future
 - Standardization of labeling system
 - Measuring and accounting systems and systems for power quality
 - New trends in the design of control systems

3. Protection and automation for small and mini hydro power plants
 - Characteristics of of the protection systems and automation on projects that have been realized and projects whose implementation is in progress in Montenegro
 - Specifics of facilities that are without crew and method of control and maintenance of such facilities
 - New trends in the design of small and mini hydro power plants

4. Protection and automation at wind power plants
 - Characteristics of of the protection and automation in projects whose implementation is in progress in Montenegro
 - Specifics of control and maintenance of wind power plants
 - New trends in the design of wind power plants

5. Social aspects of automation

Group C1 - Development and EEC economy

1. Strategies of Systems Development and capital investments
2. State of the art approaches and standardization in asset management decision making
3. Interface and allocation issues in planning T&D networks with multi-parts projects
4. New system solutions and planning techniques for flexible and robust system plans
5. Securing investment in transmission networks with an increased share of renewable sources

Group C2 - the exploitation and management of EES

1. Grid operation solutions to changes in generation mix including distributed and renewable generating resources
 - Monitoring, operation and control of frequency and voltage
 - Control of stability including excitation system, power stabilizers, governors and converters (due to decreased system inertia)
 - Managing integration of HVDC into the interconnected power grid
2. Managing system disturbances and system restoration
 - Essential load and critical generator consideration
 - Disturbance management and restoration strategies, including cross border approach
 - TSOs/DSOs/Grid User cooperation requirements

Group C3 - System Environmental Performance

1. Environmental and other restrictions in the design of energy facilities.
2. Evaluation of the impact of power plants to climate change, living and working environment. Impact mitigation measures.
3. Monitoring the impact of existing power plants to climate change, living and working environment.
4. Power plants waste management.

Group C4 - Technical performance of power systems

1. Analysis of overvoltages and insulation coordination in HV networks and substations
2. Transient modeling and analysis of the HVDC systems
3. Modeling, measuring and assessment of the impact of new technologies on the power quality and electromagnetic compatibility
4. Reliability of power systems

Group C5 - electricity markets and deregulation

1. Regulatory changes and its impact on the electricity sector in general.
2. Regulatory incentives for development and investment of the power sector.
3. Implementation of new technologies and its impact on more efficient work and system development of the electricity market.
4. Impact of the electricity market on the operation of the electricity transmission system.
5. Electricity market and renewable energy (the impact of renewable energy sources on the electricity market).
6. Impact of CO₂ emissions in the further development of the electricity market.
7. Electricity market in Montenegro and the region (organizations, regulations, regional initiatives, Energy Community of South Eastern Europe, ...).

Group C6 - Distribution Systems and decentralized production

1. Design, Operation and Maintenance of Distribution and Transmission system
2. Decentralized electrical energy production from RES
3. Development of small power plants and grid connection issues
4. Smart grids

Group D2 - Information Systems and Telecommunications

1. Development and implementation of remote control system with a view of the experiences of the implemented systems
2. Advanced information technologies in the service of electricity organizations business
3. Planning, development and construction of telecommunication systems in electric power companies by using a different technologies and experience in the implementation of it
4. Joining of electric power companies on deregulated telecommunication market