

SC A1 – ROTATING ELECTRICAL MACHINES



1. Diagnosis, monitoring, and maintenance of electrical machines in thermal power plants (TPP) and hydropower plants (HPP).
2. Effects of replacement of excitation systems in turbo generators or hydro generators.
3. Methods of balancing synchronous generator rotors.
4. Assessment of the condition of synchronous generators based on electrical surveys.
5. Transient processes in rotating electrical machines.

SC A2 – POWER TRANSFORMERS AND REACTORS



1. Different experiences with operating power transformers in the power system (Generation, Transmission, Distribution);
2. Maintenance of power transformers on site, preventive control, their revitalization, and monitoring of power transformers;
3. Advanced methods for testing and diagnosing power transformers;
4. Policies and procedures for replacing old power transformers with new ones due to reliability reduction;
5. Software modeling of processes in power transformers and reactors;
6. Power transformers and their impact on the environment.

SC A3 – TRANSMISSION & DISTRIBUTION EQUIPMENT



1. Experiences and problems during the use of transmission and distribution equipment;
2. Digitization and decentralization of transmission and distribution equipment;
3. Problems and possible technical solutions for the expansion of transmission and distribution substations in their existing spaces.
4. New testing methods, technology, and condition monitoring of transmission and distribution equipment.
5. Special operating conditions for transmission and distribution equipment.
6. Decarbonization of transmission and distribution equipment - Transition from SF6 gas to new alternative mediums that have a less environmental impact

SC B1 – INSULATED CABLES



1. The influence of 110kV cables on the power system
2. Design, installation, operation, and techniques to improve the safety of cables from induced voltages and currents (applied);
3. Assessment of the existing condition of cables, diagnostics, and monitoring of the cable system;
4. Improvement of the cable system installation methodology based on previous experiences in Distribution/Transmission;
5. Evaluation of the lifespan and environmental impacts of cable systems;
6. Application of long cable lines for higher voltage levels;
7. Trends in maintenance strategies for cable systems.

SC B2 – OVERHEAD LINES



1. The corridors of OHLs and the legislation that regulates their construction in our country.
2. Technical aspects and environmental impacts of OHLs.
3. New technologies and their application, materials, and accessories in OHLs.
4. Analysis and possibilities for increasing the carrying capacity of OHLs.
5. Analysis of the load in cases of connecting renewable energy sources.

SC B3 – SUBSTATIONS AND ELECTRICAL INSTALLATIONS



1. Wind turbines (on-shore, off-shore), solar parks, geothermal systems, hydropower plants, and their integration.
2. Substation design, engineering, construction, rehabilitation, IEC 61850 standards, and their implementation.
3. Battery energy storage systems (BESS), hydrogen, synchronous compensators, reactors (parallel, series).
4. Application of GIS and HIS in substations, modernization, smart devices, expert systems, Internet of Things (IoT), digitalization, monitoring, and management of substations through advanced technologies.
5. Sustainability, reliability, supply security, and life cycle coordination of substations.
6. Emission management, SF6 alternatives, circular economy of materials, reuse, reduction, recycling, environmental impact.
7. Knowledge transfer, application of high education standards in engineering skills.

SC B4 – DC SYSTEMS AND POWER ELECTRONICS



1. Planning and implementation of new HVDC projects including integration of renewable sources, environmental and economic assessment, cyber security and advanced controls, multi-terminal HVDC, and hybrid HVDC systems.
2. Renovation and improvement of existing HVDC systems, service, and operational experience of converter stations, including offshore converters and implications for converter devices resulting from AC to DC conversion.
3. Design of HVDC converter stations with energy storage batteries, and new DC energy storage systems.
4. HVDC applications for long-distance power transmission.
5. New concepts, technologies, and designs of DC/AC and AC/DC converters for distribution systems. Power quality and harmonics.
6. Planning and implementation of new FACTS systems and other power electronic devices, including the need, justification, and integration of renewable sources, and environmental and economic assessment.
7. Application of new technologies in FACTS systems and other power electronic devices, including the interconnection of generation and storage to the grid.
8. Renovation and improvement of existing FACTS systems and other power electronic devices, service, and operational experience.

SC B5 – PROTECTION AND AUTOMATION



1. Contemporary practices and requirements for preventive maintenance of microprocessor relay protections
2. Comparison of calculated and measured data for the impedance of transmission lines, the changes in values over the years, and the impact on the parameters and performance of relay protections
3. Reduction of energy consumption in thermal power plants through the use of advanced automation and control technologies
4. Development of an automatic coal quality monitoring system and artificial intelligence systems and their impact on the automation of Thermal Power Plants
5. Relay protection, automation, control, and measurement systems in the conditions of the increased share of electricity production from renewable sources

SC C1 – POWER SYSTEM DEVELOPMENT AND ECONOMICS



1. Energy Storage System Integration in the Power System
2. Transmission and distribution network planning with large-scale RES integration
3. Decarbonisation of the Electricity Sector, Measures and Policies
4. Planning solutions and techniques for new energy systems
5. Energy security and investment

SC C2 – POWER SYSTEM OPERATION AND CONTROL



1. Coordinated congestion management in the interconnected power system
2. Power system planning and operation on the integration of RES
3. The training of operators in real-time using new tools
4. Advanced and intelligent methods applied to power systems planning and operation
5. The implementation and impact of EU and Kosovo regulations on the power system operation

SC C3 – POWER SYSTEM ENVIRONMENTAL PERFORMANCE



1. The specific impacts of parts of the power system (magnetic field, electrochemical corrosion, visual impact, network losses, etc.) on the environment and human health;
2. Keeping up with the times of electricity operators in the framework of environmental and social leadership performance;
3. Environmental and legal obligations related to infrastructure for electricity production, transmission, and distribution;
4. The benefits of applying ISO management standards for environmental protection and occupational safety in power systems;
5. Environmental and energy management systems. Implementation of the Energy Strategy: Challenges and Environmental Effects;
6. Energy efficiency, application of measures, practical experience, and recommendations for reducing the impact of energy systems on environmental climate change;
7. Renewable resources and biodiversity conservation - studies, challenges, risks, solutions, and opportunities.

SC C4 – POWER SYSTEM TECHNICAL PERFORMANCE



1. The technical performance and reliability of the Power System, as well as the quality supply of electrical energy.
2. The impact of integrating Renewable Energy Sources and Cogeneration on the Stability and Security of the Power System.
3. Smart Grids and their impact on Power System Management.
4. Challenges and progress in Power System Dynamics.
5. Protection from Lightning Strikes and Overvoltage Causes.
6. Development of advanced tools and techniques in Power System Design for sustainable procurement.

SC C5 – ELECTRICITY MARKETS AND REGULATION



1. Market design developments in order to facilitate the integration of new participants and renewable energy sources.
2. Energy crisis – challenges and management.
3. The role and importance of cyber security in the electricity market.
4. Challenges and opportunities of participants in the liberalized electricity market.
5. Challenges and benefits of electricity market integration.
6. Balancing markets – a situation in the Republic of Kosovo and trends in the rest of Europe.

SC C6 – ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES



1. Planning, operation, and maintenance of distribution networks during the energy transition.
2. Decentralized generation of electricity from distributed sources.
3. The role of prosumers in the energy transition and their impact on the safety and operation of the distribution system.
4. Legal and regulatory aspects of integrating distributed energy resources and prosumers into the electrical grid.
5. Smart distribution networks, advanced systems for measuring electricity, and the design and implementation of the SCADA system.
6. Data exchange between the Distribution System Operator (DSO) and the Transmission System Operator (TSO) and preparing for a fair energy transition.
7. The quality of electricity in distribution networks during the operation of distributed generators.
8. Electric vehicles – their impact on distribution networks.

SC D1 – MATERIALS AND EMERGING TEST TECHNIQUES



1. The use of SF6 gas as an insulating material, advantages, and disadvantages;
2. Fundamental aspects of new and existing materials for electrotechnology (conductive and insulating materials for electrical use);
3. Determination of relevant factors for the stability of materials in terms of their insulation properties;
4. Presentations of new technologies for insulation testing in the field and for finding defects in parts where physical evaluation or physical discovery is not accessible;
5. The impact of multi-component insulation techniques with one or more electrically insulating materials used in electrotechnical;
6. The impact of insulation installed during repairs of various defects;
7. Diagnostic techniques and rules of knowledge related to them;
8. New testing techniques;
9. Division of testings and their application according to their temporal development.

SC D2 – INFORMATION SYSTEMS AND TELECOMMUNICATION



1. Cyber security of power system facilities and control centers.
2. Experiences gained from maintenance and revitalization of existing technical systems.
3. Artificial intelligence, big data, and analytics tools to improve asset management in electric power utilities.
4. IoT technologies and architectures in physical asset management
5. Cyber security for critical infrastructure.
6. "Smart Grid" concept and trends.