

# PREFERENTIAL TOPICS

## for the 1st Conference of NC CIGRE Kosovo

### SC A1 – Rotating electrical machines

1. Transition processes in rotating electrical machines
2. Optimization the operation of rotating electrical machines
3. Voltage and power regulation of synchronous electrical machines
4. Impact of power factor on driving units led by frequency converters
5. Innovations in rotating electrical machines

### SC A2 – Power transformers and reactors

1. Maintenance of power transformers, identification of failures, different analyses after breakdowns, preventive control and their revitalization
2. Management of power transformers life cycle, analysis and proposal of measures for further use,
3. Reliability of power transformers and their components,
4. Application of conventional and advanced diagnostic methods for testing power transformers,
5. Remote monitoring and analysis of real-time key parameters of power transformers,
6. Software modelling of processes in power transformers and reactors.

### SC A3 – Transmission & distribution equipment

1. Experiences and problems in using HV and MV equipment,
2. Maintenance and repair of HV and MV equipment,
3. Advanced methods and technologies for testing HV and MV equipment
4. Impact of environment and working conditions on the lifetimeof HV and MV equipment

### SC B1 – Insulated cables

1. Power Cable laying and cable equipment's.
2. Exploitation of power cables.
3. Power cable networks
4. Power cable regulation and cable elements.
5. Impact of other existing networks (water, heating, sewage, LV, MV, telecommunication, etc.) on 110kV insulated cables.
6. Research methods for finding defects in power cable networks
7. Application of power cables with fibre optic.



### SC B2 – Overhead lines

1. Overhead lines corridors and legislation regulating their construction in our country.
2. Harmonization of regulations for construction of overhead lines in accordance with new practices.
3. Technical aspects and environmental impacts of overhead lines.
4. Application of contemporary technologies in the construction of overhead lines.
5. The general problem of overhead lines maintenance
6. Activities, actions and procedures during planning and construction of overhead lines in respect of technical standards regulating the construction of overhead lines.

### **SC B3 – Substations and electrical installations**

1. Implementation of new solutions and technologies in facilities and substations
2. Experiences from reconstruction, modernization and maintenance of facilities and substations
3. The impact of transmission and distribution networks development on the facilities' concept.
4. Reliability, status monitoring, facility and substation diagnosis
5. Reconstruction and capital repairs in Power Systems
6. Solid connections and technical solutions during the rehabilitation of power facilities
7. Ways of designing grounding systems for electricity facilities.

### **SC B4 – DC systems and power electronics**

1. DC control systems in substations, advanced technologies
2. Application of power electronics in the transmission system (FACTS devices and other equipments)
3. Application of power electronics in systems and facilities for power generation from renewable energy sources (RES)
4. Electromagnetic Compatibility of power electronics devices
5. Advanced converters topologies
6. Power electronics for micro-networks; concepts and future trends
7. Modelling, analysis and simulation techniques.

### **SC B5 – Protection and automation**

1. Contemporary solutions for the relay protection systems of electrical power plants and HV and MV facilities
2. Contemporary automation (control) solutions of electrical power plants, HV and MV facilities
3. Application of various protocols to automation systems
4. Selectivity challenges in relay protection in the border between the transmission and distribution system.

### **SC C1 – Power system development and economics**

1. System Development Strategy and Capital Investment - impact of social factors and uncertainty in selection of strategic objectives and investments
2. Coordinated network development planning including network operators at all voltage levels
3. Impact of new Grid Code requirements in the process of planning and integrating RES in the power system.

### **SC C2 – Power system operation and control**

1. New concepts of real time system operation and control
2. Forecasting, coordination of capacity calculation and congestion management
3. Reserves and the emergency situation, restoration and resilience strategy
4. Using Big Data in system operations
5. Coordination of activities between Transmission System Operator, Distribution Operator and Service Providers
6. The consequences of high Renewable Energy Sources (RES) penetration.

### **SC C3 – Power system environmental performance**

1. Treatment of asbestos material in electric power plants
2. Environmental Infrastructure and Environmental Impact Assessment
3. Environmental impact of electromagnetic fields (EMF)

### **SC C4 – Power System technical performance**

1. Power quality analysis in different parts of Power Systems
2. Dynamic network modelling and stability (reliability), analytical techniques.
3. Handling network losses from a technical aspect
4. Handling overvoltage, short-circuits and coordination of isolation;
5. Effects of RESs connection on the technical performance of Power System operation
6. Possibilities for applying SMART Grid technologies in the Power System
7. Experiences gained from projects with impact on Power System performance

### **SC C5 – Electricity markets and regulation**

1. Liberalization of the electricity market: challenges and benefits;
2. Regulation and integration of renewable energy sources;
3. Impact of environmental policies on the electricity market
4. Market coupling, capacity allocation and congestion management;
5. The Strategic planning issues for long term market energy design for developing countries;
6. Balancing and ancillary services markets;
7. Market and regulation from wholesale transmission focus to include retail distribution.

### **SC C6 – Active distribution systems and distributed energy resources**

1. Planning, operation and maintenance of distribution network
2. Decentralized generation of electricity from distributed sources
3. Legal and regulatory aspects of connecting power distributed sources to the power network
4. Smart grids
5. Advanced electricity measuring systems
6. Managing power flows and congestion using distributed energy sources.

### **SC D1 – Materials and emerging test techniques**

1. Advanced methods for diagnosing HV and MV equipment's;
2. Protection and Safety at Work
3. Advanced Security and Emergency Systems (Risk, CERT, BMS, etc.)
4. Standards and quality testing of electrical materials

### **SC D2 – Information Systems and telecommunication**

1. Development of SCADA systems in accordance with new industry needs
2. Interconnection of the technical and business information system
3. Intelligent network systems from the ICT aspect
4. Challenges of cyber security in the use of IoT and cloud-based platforms
5. Packet switching vs. circuit switching in networks
6. ICT for connecting the distributed generation of alternative power providers.