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Tematy preferowane 42. Sesji Generalnej CIGRE – 2008

Następna 42. Sesja Generalna CIGRE odbędzie się w Paryżu w dniach od 24 do 29 sierpnia 2008 r. PKWSE – jako Polski Komitet Narodowy CIGRE – ma prawo zgłoszenia trzech referatów na Sesję. Warto dodać, że będzie istniała możliwość zgłoszenia dodatkowych referatów, pod warunkiem uznania ich zawartości, przez poszczególne Komitety Studiów, za szczególnie interesujące.

Zgłoszenia referatów krajowych można dokonać jedynie za pośrednictwem PKWSE.

Wszystkich zainteresowanych, w imieniu PKWSE, uprzejmie zapraszamy do zgłaszania propozycji referatów – w postaci streszczeń obejmujących minimum 500 słów lub – w miarę możliwości – pełnych tekstów, wskazanie tematu preferowanego, którego referat dotyczy oraz podanie adresu internetowego głównego autora.

Streszczenia powinny być opracowane w języku angielskim i zgodne ze wzorem zamieszczonym na stronie CIGRE (www.cigre.org).

Jednocześnie przypominamy, że główny autor referatu musi być członkiem CIGRE.

Uprzejmie prosimy o nadsyłanie streszczeń referatów do sekretariatu PKWSE (e-mail: pkwse@ien.com.pl) w terminie do 20 kwietnia 2007 r. tak, aby można było wybrać referaty najlepiej dostosowane do preferowanej tematyki prac CIGRE i zgłosić je do Biura Centralnego CIGRE w wyznaczonym terminie.

Poniżej wymieniono tematy preferowane 42. Sesji Generalnej CIGRE.

Komitet Studiów A1: Elektryczne maszyny wirujące

- Temat preferowany 1: **Developments in Electrical Machine design and experience in service**
 - Developments in design and materials, improving reliability, efficiency, operability, maintenance and costs; more environmental friendly materials.
 - Design tool development with related verification by testing or in service experience.
 - New designs and methods for life extension, retrofitting, rewinding and core replacements, associated increased power output, efficiency enhancement and performance improvement.
- Temat preferowany 2: **Machines for dispersed generation and renewable energy, including wind power machines**
 - Design and development for efficiency, performance, operating and maintenance improvement.
 - Designs and methods to improve control grid stability, voltage dip survival, stabilization after grid faults, and provide reactive power control and energy storage...

Komitet Studiów A2: Transformatory

- Temat preferowany 1: **Performance in service of new insulation systems for transformers**
 - Thermal, electrical and environmental performances, fire safety.
 - Applications of new insulation systems, underground substations, compact transformers...
 - Experiences accumulated in view of the revision of existing standards (hybrid insulation system, SF6-filled units, etc), condition assessment, gas in oil analysis, oil tests, by-products, maintenance related aspects...
- Temat preferowany 2: **Reliability and Risk assessment of transformers in service**
 - Purchasing new transformers vs 'Refurbishment to new' (technicaleconomical comparisons, use of spares units, reliability, testing, technical improvements on aged units).
 - Diagnostics, risk assessment, post-mortem post scrapping investigations, on-line monitoring, moisture assessment, maintenance operation (drying, online degassers and dehumidifiers), quality controls.
 - Oil corrosivity and mitigation technique, re-inhibiting, metal passivators.
- Temat preferowany 3: **Reactors (shunt, shunt with regulation, series, neutral) and related items**
 - Impact of specifications (acceptance tests, losses, noise, vibrations, etc) on the design.
 - Loading, switching operations, experiences in service, system aspects, new applications and designs.
 - Reliability, condition assessment, end of life evaluation.

Komitet Studiów A3: Aparatura wysokonapięciowa

- Temat preferowany 1: **Managing an ageing high voltage asset population**
 - End of life assessment (age, capability, reliability, technical risks, expertise).
 - Refurbishment and replacement strategies.
 - Application of monitoring and condition assessment techniques.
 - Operation of equipment beyond design life.
- Temat preferowany 2: **Developments in testing and verification of HV substation equipment**
 - Increasing test requirements (1000kV transmission, large out-of-phase angles, changing network topologies) and decreasing margins between operation and design/test conditions.
 - Use of simulations for verification.
 - Interpretation and extrapolation of type tests for special system conditions.
 - Testing of hybrid switchgear assemblies.

■ Temat preferowany 3: **Acceptance and experience of new substation equipment and techniques**

- Stress alleviation techniques including controlled switching and novel applications of surge arresters (mid-line, non-line to ground).
- Non-conventional instrument transformers, IEC 61850 and monitoring and intelligence within equipment.
- Mixed technology and composite insulated switchgear.
- Fuseless capacitors.

**Komitet Studiów B1:
Kable**

■ Temat preferowany 1: **Technical challenges overcome in newly installed underground and submarine transmission systems**

- Current state-of-the-art in design, testing of AC and DC, submarine and underground cable systems (including High Temperature Superconducting, HTS) and Gas Insulated Lines (GIL).
- Innovations in cable systems installation.

■ Temat preferowany 2: **Current and future methods supporting efficient operation, maintenance and upgrading/replacement decisions of cable systems**

- Maintenance policies.
- Diagnostic methods applied to Cable Systems.
- Remaining Life Assessment Methods.

■ Temat preferowany 3: **Future technical solutions of underground and submarine transmission systems addressing environmental and economical considerations**

- Balancing environmental requirements against economy.
- Electromagnetic Fields (EMF) mitigation, restricted access, installation in tunnels, bridges and along motorways and railways.
- Development trends towards higher voltages and ratings.

**Komitet Studiów B2:
Linie napowietrzne**

■ Temat preferowany 1: **Increasing capacity of overhead lines**

- Techniques, new innovative solutions, diagnostic tools and methods for line up rating and optimised use of existing capacities.
- Taking into account OHL up rating options in planning.
- How to improve the planners - designers relationship from the expression of planners needs to the decision.

– Temat preferowany 2: **Solutions to improve the availability of overhead lines**

- Maintenance and refurbishment methods based on diagnostic tools and methods.
- Increasing reliability and security by improving electrical and mechanical performances: mechanical strength coordination, foundation assessment, deicing methods, anti-cascading towers, mechanical fuses, etc...
- Solutions for a quick recovery: emergency structures, details of fault and emergency recovery plans; construction of temporary lines, etc...
- Economical aspects of these solutions.

**Komitet Studiów B3:
Stacje elektroenergetyczne**

■ Temat preferowany 1: **Lessons learned on Substation Asset Use Optimization**

- Refurbishment, renewal and maintenance strategies.
- Influences of dynamic loading on maintenance policy and asset performance.
- Substation lifecycle cost reduction.
- Benefits of condition monitoring for decision support.

■ Temat preferowany 2: **New Challenges in Substations**

- Impacts of future network concept, e.g. "smart grids", on substation design, primary and secondary (digital communication, automation, control and operation).
- Connecting new renewable generation including offshore substations.
- Coping with major growth, e.g. mega-cities and metropolitan areas.
- Designs for least environmental impact.
- Innovative designs/layouts to increase operational flexibility, overcome site constraints (including economical consequences), etc.
- Impact and experience of the process bus on the substation as a whole.

**Komitet Studiów B4:
Układy prądu stałego wysokiego napięcia i urządzeń energoelektronicznych**

■ Temat preferowany 1: **HVDC transmission projects including applications at 800 kV**

- Operational Performance of existing HVDC projects, Upgrading/replacement of older projects and application of Reliability Centred Maintenance (RCM) in HVDC system design.
- Feasibility studies of new HVDC projects.
- Planning, Design and Reliability criteria and characteristics of new HVDC projects, also including considerations on overload capabilities and market aspects.
- Issues and experiences with ground return and ground electrodes.
- New developments such as ± 800 kV and VSC based HVDC projects.

■ Temat preferowany 2: **FACTS applications and new developments**

- Feasibility studies.
- Operational performance and system impact of existing projects.
- New FACTS projects.

■ Temat preferowany 3: **New power electronic equipment development and applications**

- New development on power electronic devices.
- Applications in Distribution systems.
- Applications for Wind Power and renewable energy sources.
- Applications in DC Grids for urban applications.

**Komitet Studiów B5:
Automatyka i zabezpieczenia**

■ Temat preferowany 1: **Impact of Process-Bus (IEC61850-9-2) on Protection and Substation Automation Systems**

- System reliability.
- System architecture.
- Experiences so far.

■ **Temat preferowany 2: Life Cycle Management of Protection and Control Systems**

- System testing policies.
- Testing of Protection and Substation Automation Systems.
- Procedures, tools and experiences in Life Cycle Management.
- Experiences/systems for remote maintenance.

Komitet Studiów C1:

Rozwój i ekonomika systemu elektroenergetycznego

■ **Temat preferowany 1: Development and justification of transmission investment**

- Elements of business case, methodologies, prioritization of investments, delay vs advancement.
- Planning of long term network developments, economic vs non-economic, probability, risk, impact, stakeholder input.
- Planning regulated vs un-regulated projects, short vs long term issues.
- Development of a capital expenditure plan, business organisation, performance indicators, incentive mechanisms.

■ **Temat preferowany 2: Design strategies to make power systems resilient to failure including tools to enable effective planning**

- Post event network topology strategies, use of special protection schemes and their reliability.
- How can resilience be measured, tools and methods used?
- Planning and investing for effective supply restoration plans.
- How can failure modes be identified?

■ **Temat preferowany 3: Adequacy and security in Generation and Transmission in the context of the future generation mix and location**

- How can acceptable risk levels be defined? Risk analysis techniques?
- Deterministic, probabilistic reliability based analysis methods, reserve margins.
- How can risk of increasing levels of intermittent generation be defined?
- Generation off-site supply security.

Komitet Studiów C2:

Eksploracja i sterowanie systemem elektroenergetycznym

■ **Temat preferowany 1: New applications in system operation and control for detection and mitigation of system conditions**

- Requirements and experience from new substations control system and design; impact on the grid under severe conditions.
- Application of synchronised phasor measurements.
- Improved modeling and improvement in large computational system for operational studies.
- Reliability and dependability of special protection system: performance indicators.
- Requirements in design and implementation of restoration tools and procedures.

■ **Temat preferowany 2: Evolution of operation reliability standards in the context of open markets and reduced security margins**

- Criteria and standards level metrics and performance indicators.
- Impact on operation of increased physical and security requirements.
- Incident review process in use and its contribution to preventing disturbances.
- Operators training requirements and certification.

■ **Temat preferowany 3: Impact on system operation and control of the integration of large wind generation**

- Forecasting techniques and methods.
- Security of supply, demand response and reserve margins.
- Balancing techniques and methods.
- Frequency control.

Komitet Studiów C3:

Wpływ systemu elektroenergetycznego na środowisko

■ **Temat preferowany 1: Implications of climate change on the electric power system**

- Strategies and actions (generation, transmission and distribution systems).
- Economic analysis.
- Impact on Utilities strategies.
- Communication with stakeholders and public.

■ **Temat preferowany 2: Strategic Environmental Assessment methodologies in the planning of system expansion**

- Approach and examples for transmission planning.
- Approach and examples for generation expansion planning.
- Uses of energy resources integrated planning and environmental policies.

■ **Temat preferowany 3: Power system and large urban areas environment**

- Specific approach to network development.
- Co-generation and district heating.
- Electricity penetration in residential sector and high efficiency electric technology.
- Cost and benefits: criteria of evaluation and case studies.

Komitet Studiów C4:

Zagadnienia techniczne systemu

■ **Temat preferowany 1: How can system technical performance be specified, evaluated, and improved by considering**

- New techniques, tools and application experiences related to electromagnetic compatibility, insulation coordination, lightning protection, power quality and power system security.
- System technical performance indices and their impact on customers, asset owners and regulators.
- The influence of environmental stresses (such as lightning and pollution).
- The interaction of electrical equipment and customer installations with the power system.

Komitet Studiów C5: Rynki energii elektrycznej i regulacja

- Temat preferowany 1: **Information and Communication Systems in the deregulation of the electric sector (wspólny z D2)**
 - Impact of the unbundling of vertically integrated companies on the information and communication systems.
 - Implementation of the new market oriented services.
 - Integration of the new information and communication system.
- Temat preferowany 2: **Incentives for investing in generation and transmission in an electricity market environment**
 - Investment criteria (for generation and transmission) in a market environment, role of capacity markets.
 - Experience on investments.
 - Role of regulators in expansion: defining objectives; implementing rules, measures.
- Temat preferowany 3: **Interactions between system security rules and market rules**
 - Security of supply / reliability: definition by Regulators, technical perspectives and rules.
 - Regulation of quality, performance and management of interconnected systems: command and control issues, markets issues, measures of success, responsibilities.

Komitet Studiów C6: Systemy rozdzielcze i wytwarzanie rozproszone

- Temat preferowany 1: **Development and operation of power systems incorporating Dispersed and Renewable Energy Resources (DER/RES)**
 - Integration issues at the planning and operation stage, experience: impact of large scale integration, constraints on penetration...
 - Balancing DER/RES output fluctuations; provision of ancillary services by DER/RES.
 - Business models and market rules for DER/RES.
 - Asset and reliability management in rural distribution systems.
- Temat preferowany 2: **Concepts and technologies for active distribution networks**
 - Transition from passive to active distribution network (planning, economic analysis, distribution re-structuration,...).
 - New hardware and software solutions for Demand/DER/RES management and control.
 - Use of communication systems and use of INTERNET technology.

- Temat preferowany 3: **Storage to support DER and RES integration in distribution grids and stand-alone systems**
 - Functions and performances required by power systems.
 - Available technologies (hydrogen included).
 - Tools for planning and operating storage systems.

Komitet Studiów D1: Nowe materiały i technologie

- Temat preferowany 1: **Status of emerging technologies for power systems**
 - Development of renewable energy sources.
 - Development of energy storage systems.
 - New energy transmission systems.
 - Future insulating and conducting material in AC and DC.
- Temat preferowany 2: **Diagnostic of material properties in power equipment: Development and practical experiences**
 - Measuring and diagnostic systems, on-site measurements.
 - Data analysis techniques, parameter evaluation processes.
 - Use of classification tools.
- Temat preferowany 3: **Challenges for materials in future power systems**
 - Low/high temperatures.
 - Ice/wind.
 - Harsh marine conditions.
 - Overloading operating conditions.
 - High electric field stress.

Komitet Studiów D2: Systemy informatyczne i telekomunikacja

- Temat preferowany 1: **Information and Communication Systems in the deregulation of the electric sector (wspólny z C5)**
 - Impact of the unbundling of vertically integrated companies on the information and communication systems.
 - Implementation of the new market oriented services.
 - Integration of the new information and communication system.
- Temat preferowany 2: **Frameworks for the governance and the management of the information and communication systems in the Electric Power Utilities**
 - Description of best practices.
 - Utilization of emerging standards (COBIT, ITIL, BS15000...).
 - Organization of the utility for ICT governance.

