

#### Reactors (shunt, Shunt with regulation, series, neutral)

- 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.
- New aspects in Operation & Maintenance requirements.

#### Power Capacitors

- Economics for applications of Power capacitors.
- Impact of specifications on the design.
- Capacitors Bank stability
- Harmonics and capacitors capability
- Failures modes of Capacitor Units/Banks and their causes.
- New aspects in Operation & Maintenance requirements.

#### THEME FIVE:

##### High Voltage Equipment

#### (Switchgears, Surge arresters, instrument transformers and insulators).

- 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.
- Developments in testing and verification of HV substation equipment
- Testing of hybrid switchgear assemblies.
- Acceptance and experience of new substation equipment and techniques
- 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.

#### THEME SIX:

##### Power Transmission Lines

#### Overhead Lines.

- Solution to improve the availability of overhead lines.
- Techniques, new innovative solutions, diagnostic tools and methods for line up rating and optimised use of existing capacities.
- 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, de-icing methods, anti-cascading towers, etc...
- Solutions for a quick recovery: emergency structures, details of fault and emergency recovery plans; construction of temporary lines, etc...

#### Insulated Cables

- Technical challenges overcome underground & submarine transmission systems.
- Cable terminations design, installations & in - experiences service.
- Maintenance policies
- Diagnostic methods applied to Cable Systems.
- Remaining Life Assessment Methods.

#### THEME SEVEN:

##### HVDC and Power Electronics

#### HVDC transmission projects

- Operational Performance of existing HVDC projects, Upgrading/replacement of older projects and application of Reliability.
- 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.

#### HVDC transmission projects

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

#### THEME EIGHT:

##### Rotating Electrical Machines

#### 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.

#### 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.

## GCC Power 2009 Conference and Exhibition is an opportunity not to be missed

#### Language of the Conference

Papers are accepted in either Arabic or English, provided that a translation of the abstract to the other language is submitted. However all presentations should be only in English.

#### Seminar Proceedings

Original papers in their original form delivered to GCC Cigre will subsequently be published in a volume comprising the overall conference proceedings. Therefore, authors of accepted abstracts are requested to comply with "instruction for papers preparation" which will be sent to them together with the letter of acceptance of their abstracts.

#### Distinguished Applied Research Award

A prize will be awarded to the author(s) of the Three most distinguished papers of the conference. Overall evaluation of the respective papers will take into consideration the preparation, contents and style of presentation of the contesting research papers.

#### Instructions for Papers Preparation

Authors of accepted abstracts will be provided with complete instructions for the preparation of papers for this conference together with the relevant forms.

#### Submission of Papers

To submit a paper, please proceed as follows:

- 1) Fill in the attached notification form and send it to the GCC Cigre Secretariat on the address shown below along with your abstract of not more than 3 pages.
- 2) After receiving notification of abstract acceptance proceed directly with writing your paper, as final evaluation will be based on the full paper.
- 3) Send the full paper to the GCC Cigre Secretariat.

#### Deadlines

For Receiving Abstracts 20th February 2009  
For Notification of Abstract Acceptance 20th March 2009  
For receiving Full Papers 20th April 2009  
For Notification of paper Acceptance 30th May 2009  
For receiving Presentations 10th September 2009

**All interested parties are invited to submit their abstracts before 21st February 2009 by courier, fax or email to the following address:**

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C A L L F O R P A P E R S

# GCC POWER 09

GCC CIGRE'S LEADING ELECTRIC POWER CONFERENCE & EXHIBITION IN THE GULF REGION

## NOVEMBER 2009

Event Manager:



Event Organizer:



The GCC Regional Committee for Large Electric Systems (GCC Cigre) is pleased to announce its 5th International Conference "GCC Power 2009 Conference & Exhibition", and invites specialized personnel and experts in the electricity field from local and international institutions, companies, organizations and universities to submit their papers for presentation.

**Dear Invitee,**

It is my pleasure to invite you and your partner to the 5th GCC Cigre International Conference and Exhibition (GCC POWER 2009) which will be held in Nov.2009.

GCC Power 2009 Conference and Exhibition will offer the ideal forum for all those concerned with the power sector to develop business relations and discuss the issues and challenges facing the power sector in the region. Delegates shall listen to conference speakers present their papers on an array of topics, discuss new products with equipment suppliers and service providers at the trade exhibition and will be given opportunities to join with colleagues during the conference and the conference dinner.

We now seek expressions of interest from participants from all areas of the Electricity Power Industry to present suitable papers at the Conference, for the exchange of experiences and knowledge through meeting with experts and researchers, who are expected to participate of all the countries round the world.

A broad range of topics will be addressed at the conference, with particular interest in papers on new developments, technologies and techniques in the following areas:

1. System Operation and Control
2. System Planning, Development and technical Studies
3. Substations
4. Reactive Equipment.
5. High Voltage Equipment.
6. Power Transmission Lines
7. HVDC and Power Electronics
8. Rotating Electrical Machines

Awards will be presented for the best three paper presented; these awards include the opportunity to present your paper at the GCC Cigre Annual Magazine "Al-Khaleej Electricity".

We, at GCC Cigre, look forward to welcoming you at GCC Power 2009 Conference and Exhibition, and sincerely hope that you will join us at what promises to be an extremely rewarding and enjoyable event.

Yours sincerely,



**Professor Anwar Hassan Mufti**

Chairman, Board of Directors

GCC Cigre



**Introduction**

This conference will combine keynote presentations from the region's policy makers and investors regarding the future of electricity generation, transmission and distribution in the Gulf region with a series of detailed scientific and technical papers on the major areas of innovation in the electricity field presented by senior academics and experts.

Discussion and exchange of ideas are expected to arrive at useful and constructive recommendations that will enhance the progress and development of large electric systems in GCC Countries.

The conference program will include oral presentations, round table discussions and audio-visual presentations. At the same time, and integrated with these activities, the GCC Power 2009 Exhibition will take place alongside the conference, featuring regional and international companies involved in all aspects of the electrical power industry

**Aims of the Conference**

The main objectives of the conference are:

- To share experiences, debate current issues, get up-to-date on the latest scientific developments and exchange ideas.
- To promote competitiveness and efficiency in the electricity industry across the GCC Countries and enhance cooperation and collaboration throughout the region.

**Key topics will include:**

- System Operation and Control
- System Planning, Development and technical Studies
- Substations
- Reactive Equipment.
- High Voltage Equipment.
- Power Transmission Lines
- HVDC and Power Electronics
- Rotating Electrical Machines



**GCC Cigre welcomes papers to be considered for the technical program in any of the following areas:**

**THEME ONE:**

**System Operation and Control**

- New applications in system operation and control for detection and mitigation of system conditions.
- 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 system operation and control of the integration of rental generation.
- System Environmental Performance
- Implications of climate change on the electric power system.
- Strategic environmental assessment methodologies in the planning of system expansion.
- How Can System Technical Performance be Specified, Evaluated, and Improved.
- Coordination, lightning protection, power quality and power system security.
- The influence of environmental stresses (such as lightning & pollution).
- The interaction of electrical equipment and customer installations with the power system.

**THEME TWO:**

**System Planning, Development and technical Studies**

**System Development & Economics**

- Planning of long term network developments, economic vs non-economic, probability, risk, impact.
- Development of a capital expenditure plan, business organization, performance indicators.
- Planning and investing for effective supply restoration plans.
- 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?

**Electricity Markets and Regulation**

- 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.
- Interactions between system security rules and market rules.

**Distribution Systems and Dispersed Generation**

- Development and operation of power systems incorporating Dispersed and Renewable Energy Resources.

- Integration issues at the planning and operation stage, experience: impact of large scale integration, constraints.
- Concepts and technologies for active distribution networks.

**Status of Emerging Technologies for Power Systems**

- Development of renewable energy sources and storage systems.
- Diagnostic of material properties in power equipment: Development and practical experiences.
- Challenges for materials in future power systems (Low / high temperatures / overloading operating conditions / High electric field stress).

**THEME THREE:**

**Substations**

**Lessons Learned on Substation Asset Use Optimization**

- Substation lifecycle cost reduction.
- Benefits of condition monitoring for decision support.
- Impacts of future network concept, e.g. "smart grids", on substation design,
- Designs for least environmental impact.

**Substation Protection and Automation**

- Impact of Process-Bus (IEC61850-9-2) on protection and substation automation systems (system reliability / system architecture / experiences so far).
- Life cycle management of protection and control systems.
- Testing of protection and substation automation systems.

**THEME FOUR:**

**Reactive Equipment**

**Power Transformers**

- Thermal, electrical and environmental performances, fire safety.
- Transformers reliability, technical, economical & strategical aspects.
- Power transformer monitoring, failures and repair.
- Effects of transients on transformer performances.
- Purchasing new transformers vs "refurbishment to new" (technical economical 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 & mitigation technique, re-inhibiting, metal passivators.
- New aspects in Operation & Maintenance requirements.