

**CALL FOR PAPERS**  
**CIGRE OMAN NOVEMBER 2012**

**Dear Invitee,**

It is my pleasure to invite you and your partner to “GCC Power 2012 Conference & Exhibition”, which will be held in Sultanate of Oman during November.2012.

This event 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.

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:

- System Operation and Control
- System Planning, Development and technical Studies
- Substations
- Power Transformers & Reactors.
- High Voltage Equipment.
- Transmission Lines and Cables
- HVDC and Power Electronics
- Renewable Energy and Nuclear Energy for the Gulf States
- Smart Grids

- Asset Management for Power Systems

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 2012, and sincerely hope that you will join us at what promises to be an extremely rewarding and enjoyable event.

## **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 GCC Countries 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 2012 Exhibition will take place alongside the conference, featuring regional and international companies involved in all aspects of the electrical power industry.

## **Objectives:**

The conference offers a wide opportunity for interaction and exchange of technical ideas among participating experts; aiming to achieve development, integration and assessing the technological progress relating to the production, transmission and distribution of electric energy as well as in the manufacture of electric equipment.

### **Key topics will include:**

- System Operation and Control
- System Planning, Development and technical Studies
- Substations
- Power Transformers & Reactors.
- High Voltage Equipment.
- Transmission Lines and Cables
- HVDC and Power Electronics
- Renewable Energy and Nuclear Energy for the Gulf States
- Smart Grids
- Asset Management for Power Systems

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

-

#### **Theme One: System Operation and Control**

- Decision making tools and methods, system visualization techniques. Common format and quality of data for wide area modeling and assessment.
- Challenges in operations of interconnected power systems
- 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.

- Implications of climate change on the electric power system.
- Specification, assessment and improvement of System Technical Performance.
- Coordination, lightning protection, power quality and power system security.
- Influence of environmental stresses (such as lightning & pollution) on power system reliability.
- The interaction of electrical equipment and customer installations with the power system.
- Experiences and developments in GCC interconnected systems operations.

## **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.
- Strategic environmental assessment methodologies in the planning of system expansion.
- Adequacy and security in Generation and Transmission in the context of the future generation mix and location.
- Planning approaches to mitigate technical limits and constraints imposed by rapid expansion of GCC power systems.

### **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.

- Harmonization of grid codes and transmission tariffs structures for trading between Interconnected systems

### **Distribution Systems**

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

## **Theme Three: Substations**

### **Substation Asset Management**

- Asset management challenges/strategies (replacement, refurbishment and maintenance).
- Substation lifecycle cost optimization.
- Experiences and development of condition monitoring systems and techniques for decision support.
- Use of on-line monitoring and diagnostics for risk mitigation - costs and benefits of their implementation.
- Impacts of future network concept, e.g. “smart grids”, on substation design.
- Designs for least environmental impact.
- Risk analysis techniques for evaluating costs associated with increasing maintenance, failure rates and repairs, due to deferred capital expenditures.

### **Substation Protection and Automation**

- New requirements and concepts for Substation Automation and Protection
- Impact of Process-Bus (IEC61850-9-2) on protection and substation automation Systems (system reliability / system architecture / experiences so far).
- Protection coordination and special protection systems for interconnected power systems

- Life cycle management of protection and control systems.
- Innovative testing techniques for protection and substation automation systems.

## **Theme Four: Power Transformers & Reactors**

### **Transformer and Reactor incidents in service**

- Fire and explosion prevention: new oils, new bushing technologies, avoidance of tank rupture, effectiveness of existing test standards (for equipment and material) in failure prevention, design factors and improvements.
- Fire mitigation: use of fluids with high fire point, fire wall, distances, sprinklers, risk assessment, modeling of internal overpressures by 3D methods
- Experiences of power transformers monitoring, incidents, failures and repairs

### **Transformer and Reactor Performance**

- Thermal, electrical and environmental performances.
- Reliability and economic aspects.
- Effects of transients on performances.
- maintenance practice, diagnostic, new technologies, life assessment, use of online monitoring system and expert system
- Loading, switching operations, experiences in service, system aspects, new applications and designs.

### **Transformer and Reactor Life**

- Reinvestment policy options: Purchasing 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.

- Corrosive Oils & mitigation technique, re-inhibiting and metal passivators experiences.
- Reliability, condition assessment, end of life evaluation.

## **Theme Five: Switchgear and HV Equipment**

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

- End of life assessment (age, capability, reliability, technical risks, and expertise).
- Refurbishment and replacement strategies.
- Application of monitoring and condition assessment techniques.
- Operation of equipment beyond design life.
- 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: Transmission Lines and Cables**

**Overhead Lines.**

- Techniques, new innovative solutions, diagnostic tools and methods for line up rating and optimized 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, wind vibration issues, etc...
- Solutions for a quick recovery: emergency structures, details of fault and emergency recovery plans; construction of temporary lines,

## **Insulated Cables**

- Design, installations & in - experiences service.
- Maintenance policies
- Diagnostic methods applied to Cable Systems.
- Remaining Life Assessment Methods.

## **Theme Seven: HVDC and Power Electronics**

### **HVDC and FACTS technology**

- HVDC and FACTS as a means to improve System Capacity, Performance and Efficiency.
- Embedding of HVDC and FACTS in AC Networks.

### **HVDC and FACTs Schemes**

- Operational Performance of existing HVDC interconnections, Upgrading / replacement of older projects.
- Feasibility studies of new HVDC projects.
- Planning, Design and Reliability criteria and characteristics of new HVDC projects, 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.
- Operational performance and system impact of existing FACTs.

## **Theme Eight: Renewable Energy and Nuclear Energy for the Gulf States**

- Policy & regulation requirements
- Development of renewable energy sources and storage systems
- Designs and methods to improve control grid stability, voltage dip survival, stabilization after grid faults, and provide reactive power control and energy storage.
- Drivers and opportunities for nuclear energy in the Gulf States
- Innovative nuclear technologies to meet GCC growing power demands
- Nuclear Fuel cycles and disposing methodologies for the GCC countries

## **Theme Nine: Smart Grids**

- Policy & regulation
- Growing complexities in Modern Grids leading to the drivers and opportunities for smart grids
- Design and development of smart grids to address capabilities required for managing future grids.
- Innovative Technologies to enable smart grid implementation
- Standards for communication and data management

## **Theme Ten: Asset Management for Power Systems**

- Asset management challenges/strategies (replacement, refurbishment and maintenance)
- Considerations for a low carbon energy future.
- Future integration of large scale renewable and implications on asset management practices
- Enhanced information needed
- Dealing with flatter load profiles, active distribution networks, uncertain generation, integration of new technology

## 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.

## Conference 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) Visit the website [www.cigre-gcc.org](http://www.cigre-gcc.org) and fill in the submission form and upload your abstract of not more than 3 pages OR send it directly to: [gsgccc@cigre-gcc.org](mailto:gsgccc@cigre-gcc.org).**

**2) After receiving notification of abstract acceptance proceed directly with writing your paper, as final evaluation will be based on the full paper.**

**3)** Upload your full paper as the instructions you will receive with the notification of your abstract acceptance.

## **DEADLINES**

For Receiving Abstracts	25 <sup>th</sup> February 2012
For Notification of Abstract Acceptance	25 <sup>th</sup> March 2012
For receiving Full Papers	25 <sup>th</sup> April 2012
For Notification of paper Acceptance	25 <sup>th</sup> June 2012
For receiving Presentations	20 <sup>th</sup> October 2012

**All interested parties are invited to submit their abstracts before 25<sup>th</sup> February 2012.**

**For any more information, please don't hastate to call us:**

Email: [gsgccc@cigre-gcc.org](mailto:gsgccc@cigre-gcc.org).

Website: [www.cigre-gcc.org](http://www.cigre-gcc.org)