



CONFERENCE PROGRAM

GCC POWER 05

The 2nd GCC Cigre International Conference and Exhibition for
Electric Power Generation, Transmission and Distribution

27 - 29 November 2005

Ritz-Carlton Hotel, Doha-Qatar

Under the Patronage of
His Excellency Abdullah Bin Hamad Al-Atiyya
Minister of Energy and Industry, State of Qatar

Event Managers:



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WORD OF WELCOME

To whom it may concern in the electricity and power sectors

Ladies and Gentlemen,

The Ministry of Energy and Industry and Qatar General Electricity and Water Corporation (Kahramaa) are proud to welcome you in the region's most important event related to electric power generation, transmission and distribution, the GCC Cigre 2nd Conference and Exhibition "**GCC Power 2005**" to be held on 27-29 November, 2005 at Ritz-Carlton Hotel in Doha.

GCC countries' demand for electricity power is growing faster than previously forecasted, with an annual average of 9% or three folds the world average. In addition, the GCC countries will have to invest a total of \$150 billion over the next 15 years in order to provide the 100,000 megawatts needed. All of this will make the event the best opportunity for decision makers, experts and specialist to discuss the latest developments in the industry and for the national and international electricity companies to showcase the latest technologies and services. This event is also a great opportunity for the power official's in the public sector to highlight their sector's current projects and future requirements.

I am all confidence that this event will be a valuable contribution to the development of the power sector which is of great importance to our region.

We are very pleased that our country is hosting this important event. We wish you all a successful and a fruitful participation at GCC Cigre 2nd Conference and Exhibition "**GCC Power 2005**".

Welcome to Doha.

Abdullah Bin Hamad Al-Attiyah

**Second Deputy Prime Minister and Minister of Energy & Industry
Chairman, Board of Directors (Kahramaa)**

INVITATION LETTER

Dear Colleagues,

On behalf of the GCC Regional Committee for Large Electric Systems (GCC Cigre), I am delighted to invite you to the 2nd GCC Cigre International Conference and Exhibition "**GCC Power 2005**", which will be held in Doha - Qatar under the patronage of H.E Mr. Abdulla bin Hamad Al-Attiya, Second Deputy Prime Minister, Minister of Energy & Industry and Chairman of Qatar General Electricity & Water Corporation (Kahramaa).

"**GCC Power 2005**" 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.

We, at GCC Cigre, look forward to welcoming you at "**GCC Power 2005**" Conference and Exhibition, and sincerely hope that you will join us at what promises to be an extremely rewarding and enjoyable event.

Yours Sincerely,

Prof. Anwar Hassan Mufti

Chairman, Board of Directors of GCC Cigre



GCC Power 2005 Conference Program

SATURDAY November 26, 2005

Full day Tutorial on Major Blackouts

17:00 – 21:00 Early Registration

SUNDAY November 27, 2005

7:30 – 8:30 Registration

8:30 – 9:30 Conference Opening Ceremony

8:30 – 8:35 Opening Statement

8:35 – 8:40 Holy Quran

8:40 – 8:50 H.E Minister of Energy & Industry Address

8:50 – 9:00 H.E GCC CIGRE's General Secretary Address

9:00 – 9:10 H.E Chairman of GCC CIGRE

Board of Directors Address

9:10 – 9:15 Honoring H.E the Minister

9:15 – 9:20 Honoring H.E CIGRE's General Secretary

9:20 – 9:30 Honoring Keynote Speakers

9:30 – 10:30 Exhibition Inauguration

10:30 – 10:45 Coffee Break

10:45 – 13:00 Session 1: Interconnections

Keynote Speaker: **Sture Larsson**
Chairman, Cigre Study Committee C2
(System Operation and Control)

**Electricity Network Connectivity
between the GCC Countries**

Adnan Ibrahim Al-Mohaisn
GCC Interconnection Corp. (GCCIA) –
Kingdom of Saudi Arabia

**The Evaluation of Automatic Primary
Control of Egypt - Jordan - Syria
Interconnected Grid**

**Amin Zaghal, Mamoun Shehadeh,
Reyaf Yousef**
National Electricity Power Co. (NEPCO) – Jordan

**Electromagnetism:
A Comprehensive Review**

Ibrahim Y. Al-Hamoudi
Saudi Electricity Company –
Kingdom of Saudi Arabia

**Energy Cost Optimization through
the Implementation of Cogeneration
and Grid Interconnection**

Mohamed Dashesash, Refaat Mahfoudhi
Saudi Aramco Company –
Kingdom of Saudi Arabia

**Interconnecting the Electricity Grids
of the Gulf Region Countries: Beyond
Technical Considerations**

François Boisseleau, Jacco Jansen
KEMA International B.V. and KEMA
Regional Office – Dubai

**Improved Controllability by
Use of HVDC**

Goran Isacson
ABB Power Technologies A B – Sweden

13:00 – 14:15 Lunch & Prayer Break

14:15 – 16:15 Session 2 A: Transmission Lines
(Al Wosail Hall)

**Assessment and Mitigation of Qatar
LV Network Problems**

**Abdulla Turki Al-Subaie,
AbdulAziz Al-Khalifa**
Kahramaa – Qatar

**Safety Assessment for Electric Utility
Workers Exposed to ELF-EMF:**

Literature Review

Tarek K. Abdel-Galil,

Ibrahim O. Habiballah

KFUPM – Kingdom of Saudi Arabia

**Various Methods to Improve the
Transmission Insulators Performance**

Mahamoud Saad Zaher

Abu Dhabi Co. for Onshore Oil

Operations – UAE

**The Application of Composite
Insulation in the Electric Networks of
Arab Countries**

M.H. Abderrazzaq*, H.S.B. Elayyan

*Yarmouk University, Irbid – Jordan

**Preventive Measures against Ingress
of Aqueous Ionic Impurities in MV-
XLPE Cables**

***M.I. Qureshi, A.A. Al-Arainy,**

N.H. Malik and **N. Al-Saati

*King Saud University and **Riyadh

Cables Group of Companies –
Kingdom of Saudi Arabia

**Application of Artificial Neural
Networks for Failure Prediction of
Underground Transmission Cable
Networks**

**Salem M. Al-Shibani*, Anthony Pipe,
Hassan Nouri**

*Ministry of Energy – Kuwait and
University of the West of England – UK

14:15 – 16:15

**Session 2 B: Protection and
Substation Automation
(Fateh Al-Khair Hall)**

**Practical Considerations in Applying
IEC 61850 for Protection and
Substation Automation Systems**

**Ivan De Mesmaeker, Peter Rietmann,
Klaus-Peter Brand, Petra Reinhardt**
ABB Switzerland Ltd – Switzerland

**First Operating Substation with IEC
61850 in the World**

**F. Koschanin, Gordon Wong,
Clemens Hoga**

SIEMENS AG – Germany

**Operational Experience of Numerical
Protective Relays**

Saleh M. Bamasak, Fahmi M. Al-Khatib

Saudi Electricity Company –
Kingdom of Saudi Arabia

**Distance Protection Performance
Analysis Using Dynamic Modeling
Method**

Abdelsalam Omar Ahmed Omar

General Electric Co. of Libya – Libya

**Evaluation of Two New Approaches
for the Directional O/C and E/F Pre-
Qualification Time**

Ahmad Abdul Hamied Yanbawi

Saudi Electricity Company –
Kingdom of Saudi Arabia

**Application of Fiber Optic Links
between Substations in Qatar and
Oman Electric Power Communication
System**

Radoslav Rakovic, Radojica Graovac

Energoprojekt Entel Ltd, Belgrade –
Serbia and Montenegro

MONDAY November 28, 2005

7:30 - 8:00

Registration

Workshop: System Major Disturbances and Restoration Plans

8:00 – 10:00

Workshop1

Keynote Speaker:

Ivan de Mesmaeker

Chairman, Cigre Study Committee B5
(Protection and Automation)

Experience of System Problems and
Disturbances in Eastern Province –
Kingdom of Saudi Arabia

Representative of Kingdom of Saudi Arabia

Experience of System Problems and
Disturbances in Bahrain

Representative of Bahrain

Experience of System Problems and
Disturbances in Western Province –
Kingdom of Saudi Arabia

Representative of Kingdom of Saudi Arabia

Experience of System Problems and
Disturbances in Qatar

Representative of Qatar

Experience of System Problems and
Disturbances in Southern Province –
Kingdom of Saudi Arabia

Representative of Kingdom of Saudi Arabia

10:00 – 10:30

Coffee Break

10:30 – 12:30

Workshop 2

Keynote Speaker:

Sture Larsson

Chairman, Cigre Study Committee C2
(System Operation and Control)

Experience of System Problems and
Disturbances in Kuwait

Representative of Kuwait

Experience of System Problems and
Disturbances in Central Province –
Kingdom of Saudi Arabia

Representative of Kingdom of Saudi Arabia

Experience of System Problems and
Disturbances in United Arab Emirates

Representative of UAE

Experience of System Problems and
Disturbances in Oman

Representative of Oman

Substation Maintenance
Departments Activities during
Blackouts / Major Disturbances in
Saudi Arabia

Representative of Kingdom of Saudi Arabia

Summary and Panel Discussion

12:30 – 14:00

Lunch & Prayer Break

14:00 – 16:15

Session 3 A: System Planning I
(Al Wosail Hall)

Privatization of Power Generation in
Qatar: System Planning and
Operation Issues

Ali J. Al-Najjar

Mohamed Sid Ahmed Mannan

Saad Ahmed Al Mohannadi

Kahramaa – Qatar

Generation Management Interface
Requirements to Support Energy
Trading

Joerg Rohde, Hassan El-Kerdi,

Roland Eichler

SIEMENS, Germany and United Arab Emirates

Importance of Lightning Thunderstorms
Mapping for the Gulf Area Case Study:
Kingdom of Saudi Arabia

Mohamed H. Shwehdi,

Jamil M. Bakhshwain

KFUPM – Kingdom of Saudi Arabia

Power Transmission System
Performance Indices

Sedqi Bu-Khamsin

Saudi Electricity Company –
Kingdom of Saudi Arabia

Switching Transient Analysis of Non-
Transposed Six-Phase Transmission
Systems Using Fast Fourier Transform
(FFT) and Modal Techniques

Abdullah Y. Al-Sada

Graduate Student from Qatar,

King Abdul Aziz University –

Kingdom of Saudi Arabia

Engineering and Aesthetic Design of
Transmission Substations for Modern
Cities with High Load Density

Ahmad Al Abdulla*, David Hackwell

*Kahramaa- Qatar and PB Power, UK

14:00 – 16:15

Session 3 B: Substations
(Fateh Al-Khair Hall)

Keynote Speaker:

Auke J. Wiersma

Chairman, CIGRE Study Committee B3
(Substation)

Innovative Partial Discharge
Measurement and Analysis Technique
for the Evaluation of the Reliability
of Insulation Systems

*Francesco Sciocchetti, A. Caprara,

F. Puletti, G. C. Montanari**,

A. Cavallini

*TechImp – Italy and **University of
Bologna, Italy

Gas Insulated Switchgear
Maintenance and Optimal
Assessment

Mahmoud M. Al-Hwaiti,

Raafat A. Dawoud

Saudi Electricity Company –

Kingdom of Saudi Arabia

The Current Use of SF6 Gas by
Electric Power Industry in Saudi
Arabia and its Possible Replacement
by Diluted SF6 Gas Mixtures

Nezr Hussain Malik

Mohamed I. Qureshi

Abdul-Rahman Al-Arainy

King Saud University and Riyadh College

of Engineering – Kingdom of Saudi Arabia

Natural Ester (Vegetable Oil)

Dielectric Fluid Application in
Transformers

J. Voukelatos, Kostas Argiropoulos,

Peter Stenborg, John Lukich

Cooper Power Systems – Greece and the
United States of America

Increase of Transformer Life Up to
50+ Years by Monitoring & Repairs

Navin D. Joshi

National Methanol Company –

Kingdom of Saudi Arabia

Power Transformer Sensible
Maintenance Planning Based on Field
Testing and Failure Analysis

Waleed Abdullah Al-Saadi, Mukhtar

Ahmed Fazal Karim

Saudi Electricity Company –

Kingdom of Saudi Arabia



TUESDAY November 29, 2005

8:00 – 9:45

Session 4: Power System Operations and Analysis

Digital Projection Revolutionize Control Room's Map-Boards

Abdulmajeed A. Abdulhadi
Saudi Aramco Company – Kingdom of Saudi Arabia

Latest Developments in Power System Digital Simulation

Rick Kuffel, Trevor Maguire, Yi Zhang
RTDS Technologies Inc. – Canada

Protection Strategies to Mitigate Major Power System Breakdowns

Mohamed Najeeb Omara
Kahramaa – Qatar

Concepts of Dynamic System Monitoring (DSM) Used in the Analysis of Actual Disturbances in the SEC – WR

Amin A. Al-Khateeb, Bander A. Allaf
Saudi Electricity Company – Kingdom of Saudi Arabia

Design and Application of a Special Protection System in Saudi Electricity Company

Mohammed Yahya Al-Zahrani, M. Owayedh, O. El-Said, M. Ashiq
Saudi Electricity Company – Kingdom of Saudi Arabia

9:45 – 10:15

Coffee Break

10:15 – 12:00

Session 5: System Planning II

A Novel Setting-Free Power Swing Detector

Gerhard Koch
SIEMENS AG, Nuremberg – Germany

Asset Management – New Maintenance Strategies and Concepts for the Preservation of Operational Equipment.

Werner Fleischmann
Maschinenfabrik Reinhausen GmbH – Germany

Spare Transformer: Factors to be taken into Account for Decision on Procurement of Spare Transformer.

Nahar Al-Mutuawa, Navin Reghu
Kahramaa – Qatar

Using of Packaging Contracting Vs. EPC Contracting in the Implementing of 220/66KV of Transmission Network Projects in Kingdom of Bahrain

Hend Rejab
Ministry of Electricity and Water – Bahrain

Calculation of Lightning Flashovers & Backflash Level on 230KV Transmission Lines

Bander J. Al-Qahtani, Mohamed H. Shwehdi
Saudi Aramco Company and KFUPM – Kingdom of Saudi Arabia

The Use of Geographical Information Systems (GIS) in Power Systems

Ahamed Al-Zoubi, Nahid Al-Bargouthy
NEPCO – Jordan

12:00 – 12:30

Coffee Break

12:30 – 13:30

Closing Session

12:30 - 12:40

Conference's Chairman Closing Statement

12:40 – 12:55

Discussion of Conference's Recommendations

12:55 - 13:10

Awarding the Conference's Best Paper Prizes

13:10 - 13:20

Honoring Members of SC1

13:20 – 13:30

Announcing GCC CIGRE future activities

General Information



The venue

The events will be held at Ritz-Carlton Hotel, one of the most luxurious hotels in Doha. Situated on its own exclusive island resort overlooking the crystal blue waters of the Arabian Gulf. Over 3,000 square meters of magnificent meeting and exhibition space make The Ritz-Carlton, Doha an ideal place for conferences and special events. From beautifully appointed boardrooms to natural outdoor areas, the hotel offers supremely comfortable facilities for every occasion. Doha, the capital of the state of Qatar and the fastest growing city in the region, offers a wide range of international standard hotels and accommodation. Doha International Airport is well connected daily with most world capitals. Please contact the official travel agent or the organizers for your travel and accommodation requirements.

The organizers

The GCC Regional Committee for Large Electric Systems "GCC Cigre" is a nonprofit organization that was established upon the recommendation of their Excellency the GCC Ministers of Electricity and Water in 1985. GCC Cigre is mainly devoted to encourage and exchange information and expertise in the field of Electricity Systems through conferences, seminars and researches.

Riyadh Exhibitions Company Ltd. and IFP Qatar Ltd. are members of IFP Group. The Group have organized over 300 international trade shows over the last 26 years. IFP Qatar Ltd. offers full international and local logistical support, on-site stand builders, signs, lettering, and graphics. All services are executed to the highest international standards.

Travel and accommodation

Doha is well connected by its international airport to major world capitals. The city has a wide selection of international hotels. In order to reserve your hotel stay, please fill the attached form and fax it back to the addresses indicated in the forms.

How to register

In order to register in GCC Power 2005 conference, kindly fill the enclosed form and fax it back to the following number: +974 4432891. Alternately, you can reserve via email to: gccpower@ifpqatar.com or by visiting our website: www.gcc-cigre-power.com.

For further information, please contact the organizers:

IFP Qatar Ltd.

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