IEEE Joint Chapter Meeting

 IEEE PES German Chapter

 Competence  Cooperation  Communication

 Lausanne, Switzerland
 June 1-4, 2005
IEEE-PES German Chapter Board

effective January 1, 2005-2007

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Dr.-Ing. Dirk Rittinghaus, Membership Support
energyconsult, Odenthal

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Development of Power Consumption

- Isolated Small Grids
- Higher Voltage Levels
- High Investments
- Long Distance Transmission
- Transmission Bottlenecks
- Demand for Clean Power & High Quality
- Least Cost Planning
- New Technologies
- Energy Imports

Power Consumption per Capita

Developing Countries
Emerging Countries
Industrialised Countries

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Slide 3
Trends in Power Systems

- Markets: Dynamic Market Developments, Involvement of Global Players, Increasing Power Demand
- Publics & Politics: Growing Population, Limitation of Resources, Environmental Constraints
- Technologies: Improvements in Generation, Increase of Transmission Efficiency, Power System Interconnections
Power Transmission - Connecting Generation to the Users

Power Transmission - It looks so simple - but it is much more than Lines

It needs ...

Intelligent Solutions
Hydropower system Jin-Sha-Jiang Stage I
DC Solutions

Back-to-Back Station

50 Hz

60 Hz

Long Submarine Transmission

DC cable

Long Distance Transmission

DC line

HVDC

Light Triggered Thyristor

IGBT
Testing Facilities at Siemens Transformer Factory

Capabilities

The laboratory is equipped to test Transformers and Reactors i.e.:

- Rated power (Transformers / Reactors): 1500 MVA / 150 MVAr
- 50 Hz test rating: Compensation power: 30 MVA 270 MVAr
- Lightning / switching impulse test voltage: 4800 kV / 2500 kV
- DC voltage: ± 2000 kV
- Power-frequency test voltage (source): 600 kV
- DC current: 4000 A

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Slide 10
UHVDC Smoothing Reactors

250 - 300 mH smoothing reactors for UHVDC applications up to 800 kV are available. Both oil-immersed or air core types are feasible.
DC Filter and Power Line Carrier/Radio Interference Filter Capacitor

- DC Filter Capacitor: Modular design, voltage control by internal grading resistors
- PLC /RI Filter Capacitor:
  - Modular design and control of voltage distribution
  - UHVDC Product can be designed and manufactured based on today’s technology
Load interchange in distribution networks
System Configuration of the Power Link 0.4...7.2 kV

Optimized Energy Exchange = controlled load flow

Network 1

IGBT-Converters pulse frequency 3kHz

SIPLINK

Q₁

Q₂

P

Network 2
Load interchange connecting a Hydro Power Plant

Network 1
$U_1, f_1$

Network 2
$U_1, f_1$

$Q_1$

$Q_2$

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High Voltage Switchgear and Controlgear

Gasinsulated Switchgear

Air Insulated Switchgear

GIS

Highly Integrated Switchgear HIS®

AIS Switchgear Modules

Moveable Circuit Breaker

Dead Tank Circuit Breaker

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**Excursion** of University Munich Institute of High Voltage Technology and Systems to the Inter-Society Meeting in Berlin

**Inter-Society Meeting IEEE and VDE IAS/PELS/IES and PES GER (‘MEGA-Meeting’)**
2004/05/12...14
featuring Lectures, Presentations, Factory- and University- Tours at 3 days in Berlin,
more than 100 participants, at Siemens Power Transmission and Distribution, Alstom Conversion and Technical University Berlin (Power Electronics Institute);

**Werner-von-Siemens IEEE Best Diploma Thesis Award 2004, (Systems) sponsored by Siemens PTD (2500,- €)**
2004/05/12
awarded to **Dipl.-Ing. Philipp Walter**, Technical University of Aachen (RWTH), Institute for High Voltage Technology, Prof. A. Schnettler;
Title: ‘Development of Automated Analysis Tools for Ultrasonic Investigations of Elastomeric Insulating Materials’
IEEE-PES German Chapter
PES Activity Report 2004/2005

- Foundation of the IEEE PES Student Sub-Branch at Techn. Universitiy of Munich 2004/04/27
  Integration within existing IEEE-Student Branch Munich to be defined.

- High Voltage Seminar at Techn. University of Munich 2004/05/27- 2004/07/15
  Dr.-Ing. H. Knobloch (Siemens AG): ‘Economic Considerations at Development of Power Technology Devices’
  Dr.-Ing. A. Luxa (Siemens AG): ‘Today’s Engineering-Business Requirements’
  Prof. nadzw Dr hab. Inz. A. Rakowska (University Poznan): ‘State of the Art DC-Power cables Design...’
  Dr.-Ing. D. Borneburg (RWE Eurotest GmbH): ‘Visualition of Corona-Discharges at Daylight conditions...’
  Prof. Dr.-Ing. C. Neumann (RWE Net Transportnetz): ‘Gasinsulated Switchgear – Operation...’

- IEEE PES GER Newsletter 2004/07/30
- PES GER Elections for a new Board 2004/09..10/31

- PES GER Constitutional Bord-Meeting, University Essen-Duisburg 2004/11/29

- Inter-Society Meeting EPFL, CERN, IEEE IAS/PELS/IES &PES, Lausanne 2005/06/1..4

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Highvoltage Switchgear Factory Berlin
1st day of the Mega Meeting May 2004

- Administration and Engineering
- Production
- Power Laboratory
- Mechanical and Temperature Rise Laboratory
- Highvoltage Laboratory
Impressions of the 1st day of the Mega Meeting May 2004

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Impressions of the 1st day of the Mega Meeting May 2004
Celebration of „Best Diploma Thesis Award 2004“ 2004/05/12 at IAS/PELS/IES & PES Joint Meeting Berlin, Prof. Dr.-Ing. A. Schnettler, Prof. Dr.-Ing. J. Kindersberger, Dipl.-Ing. P. Walter, Dr.-Ing. A. Luxa, Prof Dr.-Ing. E. Handschin, (f.l.t.r).

*) 2500.-EUR sponsored by SIEMENS PTD
Celebration of "Best Diploma Thesis Award 2004"

2004/05/12 at IAS/PELS/IES & PES Joint Meeting
Berlin, Prof. Dr.-Ing. A. Schnettler, Prof. Dr.-Ing. J. Kindersberger, Dipl.-Ing. P. Walter, Dr.-Ing. A. Luxa, Prof. Dr.-Ing. E. Handschin, (f.l.t.r).

News Letter Juli 2004

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