Study Committee A3

CIGRE A3- High Voltage Equipment

- CIGRE Study Committee A3 covers High Voltage Equipment:
  - Switchgear (HV, MV)
  - Capacitors
  - Surge Arresters
  - Instrument Transformers

Study Committee A3

A3.24

- A3.24 – **Tools for Simulating Internal Arc and Current Withstand Testing**, chair- N. Uzelac, US, TOR available upon request
- US members:
  - Nenad Uzelac, G&W
  - Mietek Glinkowski, ABB Inc.
- Last meeting Jan 2011, Zurich, CH,
- Next meeting – May 23-25 Montreal
- TB to be published early 2012.

A3.25

- A3.25 - **Metal Oxide varistors and surge arresters for emerging system conditions**, chair- B. Richter, CH, TOR available upon request
- US members:
  - none so far, sent message to SPD Chair frank.waterer@us.schneider-electric.com
  - Corresponding members:
    - Jon Woodworth - Arresterworks
    - Mike Pouber - Hubbell

Study Committee A3

A3.26

- A3.26 – **Influence of shunt capacitor banks on circuit breaker fault interruption duties**, Chair: Anne Bosma, SE, TOR available upon request
- US members:
  - Roy Alexander, PPL
  - Luke Collette, Mitsubishi
- Corresponding members:
  - Mark McVey, Dominion
  - Jeff Nelson, TVA
  - Nicolas Toquet, Areva

Study Committee A3

A3.27

- A3.27 – **The impact of the application of vacuum switchgear at transmission voltages,** chair: Rene Smeets, NL, TOR available upon request
- US members:
  - Kirk Smith, Eaton
  - Mietek Glinkowski, ABB Inc.
  - Pete Meyer, S&C
  - Dave Johnson, consultant
- Corresponding member:
  - Ben Bufi, HVB
  - Ken Edwards, BPA
- Last meeting – April 2011, Darmstadt, DE
- global survey completed with 113 responses
- Next meeting – Pittsburgh PA/Horseheards, NY- October 4-5, 2011

A3.28

- **Switching phenomena and testing requirements for UHV & EHV equipment,** chair: **Hiroki Ito** (Japan)
  TOR available upon request
- Field experience and switching behavior during and after commission
- Benchmark study of interrupting requirements of GCB based on model UHV/EHV networks
- Benchmark study of switching requirements of DS, HSGS and ES based on model UHV/EHV substations
- US members: Ben Shperling, NYPA

A3.29 - new

NEW!

- **DETERIORATION OF AGEING SUBSTATION EQUIPMENT AND POSSIBLE MITIGATION TECHNIQUES**
- Proposed Convenor: Ankur MAHESHWARI (AU)
- **Scope:**
  - Material and equipment deterioration/degradation
  - Lifetime (residual life) assessment techniques
  - Life extension:
  - Life management for new equipment
- **TOR** posted on our Webpage
- US Interested in participating: Jon Woodworth (Arresterworks), Ken Edwards (BPA)

A3.30 - new

NEW!

IMPACT OF OVERSTRESSING OF SUBSTATION EQUIPMENT

Proposed Convenor: Antonio Carvalho (BR)

- Review key network parameters and anticipated stresses affecting equipment capabilities
- Review of methods already in use to assess the risk of operating beyond the performance limits
- Identification of potential failure modes of overstressed equipment and their impacts (safety, reliability, availability)
- Determination of the capabilities of the equipment involved (Standards, Test Protocols, manufacturer's information, re-testing)
- Mitigation techniques
- Impact of overstressing on residual life (where immediate failure is avoided)
- Usefulness of information supplied at type and endurance testing & proposals for enhancements
- Interaction with age and/or condition information

TOR posted on our Webpage

US interested in participating: Ken Edwards (BPA)

A3.xx - proposal NEW!

Instrument Transformers with digital output

Proposed Convenor: TBD

- ***Specific Actions:***
- For digital output of NCITs or by using a SAMU connected to classical ITs and/or EITs, a procedure should be proposed on how to calibrate the whole measuring chain in the factory and on site.
- Practical applications using flexible EITs should be described for on-site calibration without disconnection and without de-energization.
- Considering the migration of the digitalisation process from low voltage equipments (protective relays, meters, …) to the high voltage equipments, table of accuracy for protective and measuring classes for the SAMU should be proposed to be standardized by IEC.
- Considering future HVDC application, DC accuracy class and calibration method should be investigated.
- EMC test methods considering various earthing and shielding techniques should be discussed for specific application of EITs and SAMU up to 1100 kV. A test procedure should be described taking into account the requirements of the IEC 60044-8.
- Redundancy requirements for EITs and SAMU versus protective schemes should be discussed

Older WGs and US participation

- **A3.21 - Application of non-ceramic insulators to HV and MV apparatus**
  - Gorur, Ravi, USA, Arizona State University
  - Phillips, Andrew, cM, USA
- **A3.22 - Technical Requirements for Substation Equipment exceeding 800 kV**
  - Brunke, John H., cM, USA, Consultant
  - Keri, Albert, USA, AEP
  - Rashkes, Victor S., cM, USA, Consultant
  - Shperling, Ben, USA, New York Power Authority
  - Yeckley, Russ, cM, USA, Mitsubishi Electric
- **A3.23 - Application and feasibility of fault current limiters in power systems**
  - Folts, USA, AMSC
  - Lambert, USA, NEETRAC
  - Steurer, Michael, USA, CAPS
  - Sundaram, USA, EPRI
  - Weber, USA, SuperPower Inc.

Next CIGRE A3 meeting

- Next meeting of Study Committee A3
  - Sept 7, 2011, Vienna, AT
    - Tutorial of **WG A3-23 "Fault Current Limiters"** by *Heino Schmidt*
    - Tutorial of **WG A3-06 "Reliability of High Voltage Equipment"** by *Magne Runde*
    - Tutorial of **WG A3-17 "Surge Arresters"** by *Bernhard Richter*
    - Tutorial of **WG A3-27 "High Voltage Vacuum Switchgear"** by *Rene Smeets*
  - Sept 8 – Colloquium (paper presentations)
  - Sept 9 - Main Committee meeting

Summary

- Due to our collective efforts in CIGRE US National Committee, we are now the leading contributor to CIGRE international working bodies across all other countries. Our relative performance - over 250 US experts are engaged.

- For more details see: http://www.cigre-a3.org/ http://www.cigre-a3.org/Site/WG/Ru_wg.asp http://cigre-usnc.tamu.edu/

Contributions of countries to the Working Groups : > 10 experts