CIGRE Study Committee B5 (Protection and Automation)
Report to CIGRE UK 2010

Chairman	- Javier Amantegui (Spain)
Secretary	- Iony Patriota de Siqueira (Brazil)
UK regular member	- Richard Adams

Mission

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of protection and automation. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

Scope

Study Committee B5 covers principles, design, applications, co-ordination, performance and asset management of:

- System protection
- Substation control and automation
- Remote control systems and equipment
- Metering systems and equipment

All technical, organisational and economical aspects are considered including staff education and training. Emphasis is placed on design and application of digital technology and modern integrated system approach including hardware and software for the acquisition of system state information, local and remote data communication, and execution of control commands.

Paris Session 2010

There was a joint SC D2/B5 session on Wednesday 25th August (8.45 – 12.00) with the following preferential subject:

- PS1 – Practical Implementation of IEC 61850 in Electric Power Systems
    - 16 + 1 papers (1 UK paper – D2/B5-110 Architecture of wide area monitoring systems and their communication requirements, V Terzija, D Cai, A Vaccaro, J Fitch) UK Paper B5-106 (see below) was also included in the special report due to its relevance.
    - Special reporter – Rodolfo PELLIZZONI (AR)

The SC B5 technical session was held on Thursday 26th August and there were 2 preferential subjects

- PS1 – Protection, Control & Monitoring for the Next Decade
    - 17 papers (1 UK paper – B5-106 Current differential protection over ethernet, G Baber, P Beaumont, F Kawano)
    - Special reporter – Luc HOSSENLOPP (FR)

- PS2 – Impact of Renewable Generation and Cogeneration on Substation Automation and Protection
    - 9 papers (1 UK paper – B5-209 Islanding detection using an accumulated phase angle drift measurement, RM Tumilty, HT Yip, A Dykso, GM Burt)
    - Special reporter – Adam DYŚKO (UK)

The sessions were well attended with a good number of contributions.

Committee Meeting 2010

The committee meeting was held on Friday 27th August and attended by around 40 regular members, observers, convenors and guests. SC B5 has 25 members and 16 observers.

At the request of Central Office, the advisory groups will be reorganised from the current four to two (Strategic Advisory Group and Tutorial Advisory Group)

Javier Amantegui announced that he will not seek a further two year extension to his position as chairman from 2012 and will step down due to increased pressures of workload from his company. The process will begin to select a new chairman.

Invitations to host the 2013 colloquium were received from China (Nanjing) and Brazil. After discussion and voting Brazil was selected. The city is to be decided, but is likely to be Curitaba, Recife or Florianopolis.

The two preferential subjects for Paris 2012 were chosen and will be:

- PS1 - Impact of Future Network Components on coordination of Protection and Automation Systems
- PS2 - Requirements, specification and organisation of secure cyber access

SC B5 is still trying to reduce the number of working groups to 15 ultimately, but since 7 have completed their work in the last year or are about to complete, a decision was made to form 4 new working groups as follows:

WG B5.42 - Experience concerning availability and reliability of (DSAS)
(Convenor – Massimo Petrini (IT))

WG B5.43 - Co-ordination of Protection and Control for Future Networks
(Convenor – tba (possibly UK))

WG B5.44 - Protection Schemes for Special Transformers
(Convenor – Zoran Gajic (SE))

WG B5.45 - Acceptance, Commissioning and Field Testing Techniques for Protection and Automation Systems
(Convenor – Eric Cahuet (FR))

Nominations for UK members for all of the above have been sought and put forward.

Interest in becoming involved in SC B5 WG's within UK has increased in recent years. Central office would prefer only one WG member from each country, but recognises the need to involve younger/less experienced engineers and so suggests one regular member and a 'younger' (NGN) member to assist them. For each of the new WG's above, there are at least 3 UK persons interested, with 15 persons wanting to join WG B5.43. In order to involve those interested to participate in WG's it is likely that at a mirror WG will be formed for at least B5.43 and possibly other new WG's to support the regular member and NGN member.

Colloquium 2011

The 2011 colloquium will be held 12 – 17th September in Lausanne, Switzerland. Unfortunately this is the same week as the CIGRE Symposium in Bologna and an IEEE PSRC meeting, but Switzerland cannot change the timetable. The programme format will be similar to that in Jeju and the technical tour will feature a visit to CERN. Registration cost is expected to be around 270 Euros. There will be three preferential subjects as follows:

- IEC 61850: Which Tools for Whom
    - Special Reporter – Anders Johnsson (SE)
- Protection of Hybrid Line/Cable Circuits
    - Special Reporter – Luc Uyttersprot (BE)
- Performance of Protection Systems under Stressed Conditions
    - Special Reporter – Raul Sollero (BR)

The tutorial subject will be Maintenance of IEC 61850 Systems.

Working Group Activities

WG B5.04 Modern Techniques for Protecting and Monitoring of Generating Plant
Convenor - G Benmouyal (CA)
UK member - A Yip (regular)
Work complete and final draft circulated to SC for comment.

WG B5.05 Modern techniques for P&C of power transformers
Convenor - M Sachdev (CA)
UK member - RK Aggarwal (corresponding)
Documents sent to Paris for publication. Group closed.

WG B5.06 - Maintenance Strategies for Digital Substation Automation Systems
Convenor – V Leitloff (FR)
UK member – J Wright (regular)
Work complete and final draft circulated to SC for comment.

WG B5.07 Techniques for Protecting and Monitoring Transmission Lines
Convenor - S Chano (CA)
UK member - G Baber (regular)
Work complete and final draft circulated to SC for comment.

WG B5.08 Refurbishment strategies based on Life Cycle Cost, Operational Risks and Technical Constraints
Convenor - P Leushuis (NL)
UK member - J Wright (regular)
Work complete and documents sent to Paris for publication. Group closed.

WG B5.10 Protection of series compensated lines and capacitor banks
Convenor - J Zakonjsek (SE)
UK member - R Aggarwal (regular)
Work complete, group closed. TB 411 published April 2010.

WG B5.12 - Engineering Guidelines for IEC 61850 Based Digital Substation Automation Systems
Convenor – J Castellanos (ES)
UK members - P Beaumont (regular), D Webb & C McTaggart (both corresponding)
Work complete and final draft circulated to SC for comment.

WG B5.14 - Wide Area Protection & Control Technologies
Convenor – V Terzija (UK)
UK members – J Fitch & H Kang (both regular) & RJ Adams (corresponding)
First draft expected 2010 with completion in 2011.

WG B5.16 Modern Techniques for Protecting Busbars in HV Networks
Convenor - Z Gajic (SE)
UK member - P Beaumont (regular)
Work complete, group closed. TB 431 published October 2010.

WG B5.19 Protection Relay Co-ordination
Convenor - H Kameda (JP)
UK member - T Kase (regular)
Work complete, group closed. TB 432 published October 2010.

WG B5.20 New Trends for Automated Fault & Disturbance Analysis
Convenor - M Kezunovic (US)
UK member - T Cumming (corresponding)
Work complete, group closed. TB 424 published August 2010.

WG B5.21 New Local Protection & Control Approaches to Minimise the Impact of System Disturbances
Convenor - AH Abu Bakar (MY)
UK member – none (was A Edwards)
Work stalled and group disbanded without report.

WG B5.23 - Short circuit protection of circuits with mixed conductor technologies in transmission networks
Convenor – Luc Uyttersprot (BE)
UK member – Glenn Elworthy (corresponding)
Second draft is under preparation. No examples of GIL received so far.

WG B5.24 - Protection Requirements on Transient Response of Voltage and Current Digital Acquisition Chain
Convenor – Janez Zakonjsek (RU)
UK members – Ray Zhang (regular) & Daniel Otto & Vladimir Terzija (both corresponding)
First draft expected June 2011, with final report early 2012.

WG B5/B4.25 - Impact of HVDC Stations on Protection of AC Systems
This is a joint WG with SC B4 (HVDC and Power Electronics), but led by SC B5.
Convenor – Xi-cai Zhao (CH)
UK Members – Ryan Tumilty & Paul Bancroft (both corresponding)
VSC/light HVDC will not be included. Work is on programme.

WG B5.27 - Implications and Benefits of Standardised Protection Schemes
Convenor – Alex Apostolov (US)
UK members - Ray Zhang (regular) & Campbell Booth, Craig McTaggart & Richard Hibberts-Caswell (all corresponding)
A big WG with good participation from utilies.

WG B5/D2.30 Communications for HV Substation Protection & Wide Area Applications (synchronised phasors)
Convener – Carlos Samitier (SP)
UK members – John Wright (regular) & David Meadows (corresponding)
UK Mirror WG members - John Newbury, Wen An, Vladimir Terzija, Steve Potts, Alastair Adamson, & Mark Stockton
Mirror groups in UK and Brazil working effectively. Convenor is to change as Carlos Samitier has taken the role of chairman for SC D2.

WG B5.31 Management of Protection Relay Settings
Convenor – Peter Crossley (UK)
UK members – John Fitch (regular)

Report is almost complete and anticipated to complete by the end of the year.

WG B5.32 Functional Testing of IEC 61850 Based Systems
Convenor – IPdeSiqueira (BR)
UK members – S Thompson & D Botting (both regular) & G Baber (corresponding)
Work complete, group closed. TB 401 published December 2009.

WG B5.33 Acceptable Functional Integration in HV Substations
Convenor - A Apostolov (US)
UK member - J Stokoe (regular)
Work complete, group closed. TB 404 published February 2010.

WG B5.34 Impact of Renewable Energy Sources & Distributed Generation on Substation Protection & Automation
Convenor – J Gonzalez (ES)
UK members – A Dysko & D Botting (both regular) & L Lei Lai & G Lloyd (both corresponding)
Work complete, group closed. TB 421 published August 2010.

WG B5.36 Applications for Protection Schemes based on IEC 61850
Convenor – D Tholomier (FR)
UK members – R Tumilty & A Darby (both regular)
Draft report prepared. Final draft expected early 2011.

WG B5.37 Protection, Control & Monitoring of Shunt Reactors
Convenor – S Roxenborg (?)
UK member – L Lei Lai (corresponding)
A new convenor has been appointed. Work is about 85% complete. Expect to complete late 2011.

WG B5.38 - The Impact of Implementing Security Using IEC 61850
Convenor – Dennis Holstein (US)
UK members – S Thompson and H Li (both regular) and A Middleton & D Webb (both corresponding)
Work complete, group closed. TB 427 published August 2010.

WG B5.94 High Impedance Faults
Convenor – I Ojanguren (ES)
Work complete, group closed. TB 402 published December 2009.

UK Liaison Meeting

A UK liaison meeting was held on 29th June at Parsons Brinckerhoff's offices in Newcastle and was attended by 11 people. The date of the next meeting is to be decided (first half of 2011).

If you are interested in the activities of Study Committee B5 and would like to be kept informed or participate in a working group, where possible then please either visit the website www.cigre-b5.org or contact:

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