

**POWER SYSTEM RELAYING
COMMITTEE**

OF THE

IEEE POWER ENGINEERING SOCIETY

MINUTES OF THE MEETING

May 23- 26, 2005

Columbus, OH

**Final
Approved**

**Power System Relaying Committee
Main Committee Meeting Agenda
May 23-26, 2005
Columbus Convention Center
Columbus, OH**

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|--------------|--|-------------------------|
| I. | Call to order / Introductions | Phil Winston |
| II. | Approval of Minutes/Financial Report | Miriam Sanders |
| III. | Reports of Interest | Phil Winston |
| | A Technical Paper Coordinator's Report | Charlie Henville |
| | B PES Report- points of interest | John McDonald |
| | C CIGRE Report | T. W. Cease |
| | D UCA Report | John Burger |
| | E EPRI Report | Joe Hughes |
| | F IEC Report | Eric Udren |
| | G Standard Coordinator's Report | Jeff Gilbert |
| | H Substation Committee Report | Jim Evans |
| | I Other Reports of Interest | |
| IV. | Awards/ Recognition | Frank Plumtre |
| V. | Subcommittee Reports | Phil Winston |
| | I - Relaying Practices | Jim Ingleson |
| | C - Systems Protection | Tony Seegers |
| | D - Line Protection | Roger Hedding |
| | K - Substation Protection | Charlie Sufana |
| | H - Relaying Communications | Ken Fodero |
| | J - Rotating Machinery | Steve Conrad |
| VI. | Old Business/ New Business/ General Announcements | Charles Henville |
| VII. | Presentations | Miriam Sanders |
| | A File Naming Convention (WG H8 -) | Amir Makki |
| | B C57.13.3 - Guide for Grounding of Instrument Transformer Secondaries (WG-I13) | Moh Sachdev |
| | C IEEE Standards – myBallot | Christina Sahr |
| VIII. | Adjourn | Phil Winston |

Call to order / introductions**Sanders**

In Phil Winston's absence, Miriam Sanders called the meeting of the IEEE/ PSRC Main Committee in Columbus, OH to order at 8:00 AM on May 26, 2005

Approval of Minutes – September meeting and misc.**Sanders**

The minutes of the San Diego, CA January 10-13, 2005 were approved.

Chairman's Report**Winston**

I indeed am sorry to be missing this, my second Main Committee meeting as your Chairman. Really the explanation is crystal clear. I was not successful in explaining to my eighteen-year-old daughter why I was able to attend the graduation of her two brothers from high school, but would not be at hers. So as you will be seeing the technical presentations later in this program, I will be madly clicking pictures of my daughter's graduation procession.

The PSRC also has one of the highest, if not the highest, percentage of utility representation among our peer committees. This fact has not gone unnoticed by our colleagues in the Substations, Power System Communication, and T&D Committees. There are discussions underway that may result in some additional merging of meetings with others and/or merging some activities into our scope.

As a result of our scheduling issues and considering possible future additions to our scope, I have asked the Long Range Planning Committee to investigate possible remedies as we go forward. Our ultimate goal is to provide a meeting environment that will maximize not only the value the PSRC can bring to the industry, but also the value that the PSRC can provide to each and every attendee. As we proceed with this effort, feel free to share your thoughts with any of the Officers or members of the Long Range Planning Committee.

Technical Paper Coordinators Report**Henville**

Charlie Henville sincerely regrets being unable to be here to present this report personally. Unfortunately his youngest child was scheduled to graduate from university on 25th May, which resulted in a conflict of personal and professional interests. The personal interest won the conflict!

The PES Summer meeting in June will have 28 papers sponsored by the PSRC. 13 will be presented in a poster session. The remaining 15 will be presented in three paper sessions of five papers each. The sessions will be chaired by Jim Ingleson, Moh Sachdev, and Gustavo Brunello.

The T&D Conference in October, had 36 papers submitted to be sponsored by the PSRC. 29 papers (including panel session summaries) were accepted. All papers except the panel session summaries will be presented at a poster session. Sincere thanks are offered to all PSRC individuals who generously stepped up and volunteered to help review so many papers in a very short time frame (sometimes only a day or two was available). Help in reviewing these papers is vitally important to assist in a balanced opinion in a timely manner. Please listen to the reading of a letter from one author who was not alone in expressing appreciation for a paper review.

There will be two panel sessions sponsored by the PSRC. One named "Phasor Measurements - Systems and Applications" was organized by, and will be chaired by Ken Martin. The other named "Wide Area Protection and Control – Today and Tomorrow" was organized by, and will be chaired by Mark Adamiak. Thanks to both of them for making significant efforts to get these panel sessions organized.

If there is anyone who would like to be the PSRC representative at one or more poster sessions at the T&D Conference in New Orleans in October, please contact Charlie Henville directly by email by 30 May. It is presently not certain how many poster sessions with PSRC sponsored papers there will be.

CIGRE Report**Cease**

The 2005 General Session will be held in Paris from August 27 to September 1, 2006. The preferential subjects for SC-B5 are as follows:

PS 1. Impact of IEC61850 on Protection and Automation

- Experiences of Utilities and Manufacturers
- Specification
- Migration strategies
- System integration and testing
- Procurement practices: Multi-vendor/ System integrator responsibilities
- Project execution: Implementation, Tools, and Commissioning
- Operation and Staff training

PS 2. Protection Systems and Substation Automation for Major disturbances

- New local protection and control approaches to minimize impact:
 - Actions to prevent cascade tripping,
 - Load shedding, islanding,
 - Autoreclosing
- Techniques for maintaining system integrity and security during large disturbances
 - Actions to maintain system stability
 - System Protection Schemes
 - Power restoration practices

The 2005 Colloquium will be held in Calgary, Canada. Details are available on the CIGRE B5 web site (www.cigre-usnc.org).

The CIGRE SC-B5 / Preferential subjects for Calgary (2005) are:

- Transformer protection, monitoring and control
- Specification & Evaluation of Substation Automation Systems
- Protection & Control of Series Compensated networks

At the CIGRE meeting in Paris last year several new working groups were formed. Anyone looking to become involved in CIGRE activities let me know. I am looking for someone to be a member of these working groups (either regular or corresponding). Anyone interested please contact me.

Following is the scope and mission statement of SC B5.

CIGRE SC-B5 / Scope:

- Principles, design, application and management of power system protection, substation control, automation, monitoring and recording – including associated internal and external communications, substation metering systems and interfacing for remote control and monitoring

CIGRE SC-B5 / Mission:

- Promotion of continued development and exchange of experience for safer and more effective operation of power systems
- To be first international reference for power system protection and substation automation issues, synthesizing state-of-the-art practices and developing recommendations

Following is a listing of papers recommended by the USNC for the Paris session.

USNC Quota Recommended Papers

Daniel Kremer SC A2 "Onsite Induced Testing of Large Power Transformers Using Variable Frequency Power Supply Technology,"

Walter Zenger	SC B1 "Thermomechanical Design of XLPE Insulated HV and EHV Cables Installed in Duct and Pipe Systems,"
Eric A. Udren	SC B3 "Optimal Strategies for System-Wide Protection and Control Replacement Programs,"
Abdel-Aty Edris	SC B4 "A Novel Operator Training Simulator for System Dispatch of Multi-Functional FACTS Controllers,"
Benton Vandiver III	SC B5 "Testing of IEC 61850 Sampled Analog Values Based Functions,"
Lubo Kojovic	SC B5 "Traveling Wave Based Relay Protection Schemes for Protecting Power Transformers,"
Jinxiang Zhu	SC C1 "Economic Assessment for Transmission Upgrades in a Deregulated Market,"
Michael Vaiman	SC C2 "Identifying Optimal Remedial Actions for Mitigating Violations and Increasing Available Transfer Capability in Planning and Operations Environments,"
Ram Adapa	SC C2 "Applying Dynamic Thermal Ratings in System Operations,"
Medhat M. Morcos	SC C4 "Inclusion of Sensitive Equipment Immunity in the Study of Overcurrent Protection for Transmission and Sub-Transmission Systems,"

International Recommended Papers

Abdel-Aty Edris	SC A3 "Impact of High Frequency Voltages on Insulation Systems,"
Herve Deve	SC B2 "Field Testing of ACCR Conductor,"
Khosrow Moslehi	SC C2 "IT Infrastructure for a Self-Healing Grid - Design and Implementation Aspects"

Following is a listing of the Study Committees.

- A1 Machines électriques tournantes/Rotating Electrical Machines
- A2 Transformateurs/Transformers
- A3 Equipement à haute tension/High Voltage Equipment
- B1 Câbles isolés/Insulated Cables
- B2 Lignes aériennes/Overhead Lines
- B3 Postes/Substations
- B4 CCHT et électronique de puissance/HVDC and Power Electronics
- B5 Protection et automatisme/Protections and Automations
- C1 Développement et économie des réseaux/System Development and Economics
- C2 Conduite et exploitation des réseaux/System Control and Operation
- C3 Réseaux et environnement/System Environmental Performance
- C4 Performances techniques des réseaux/System Technical Performance
- C5 Marché de l'électricité et régulation/Electricity Markets and Regulation
- C6 Réseaux de distribution et production décentralisée/Distribution Systems and Dispersed Generation
- D1 Matériaux et technologies émergentes/Materials and Emerging Technologies
- D2 Systèmes d'information et télécommunications/Information Systems and Telecommunications

PES Report

John McDonald

The IEEE PES Executive Committee met on Thursday, April 21, 2005 in Panama City, Panama. This report will summarize the highlights of the meeting.

PES Contested Elections

Later this year the voting membership of the IEEE PES will have the opportunity to elect our future leadership. The offices of President-Elect, Secretary and Treasurer for the period 2006-2007 will be decided. Two candidates, nominated by the PES Nominations and Appointments Committee and approved by the Governing Board, are contesting the President-Elect office (Saifur Rahman and Wanda Reder). The successful candidate for the office of President-Elect will subsequently serve as PES President for the period 2008-2009.

In the case of the Secretary and Treasurer, where an incumbent Secretary (Noel Schulz) or Treasurer (Al Rotz) has an excellent performance record in the position and it is judged that PES would benefit from service continuation to avoid the generally long learning time of a newly elected Secretary or Treasurer, the Nominations and Appointments Committee recommended, and the Governing Board concurred, the presentation of a single candidate (the incumbent) for both offices for a second two-year term.

Individual voting members of PES may, by petition, propose names to be added to the ballot for these offices in accordance with IEEE and PES Bylaws. Nominating petitions for qualified candidates must be received at the PES Executive Office by Noon on June 10, 2005. For details, contact the PES Executive Office. To be eligible for nomination to the office of PES President-Elect, the nominee must have served as a member of the Governing Board in some capacity for at least two years.

In addition we also have two PES members (Peter Lips, Teddy Puttgen) to consider for the IEEE Division VII Director position.

Power System Basics for Non-Engineering Professionals Short Course

The course material is now available for use by PES Chapters and other organizations (e.g., utilities, suppliers, etc.) worldwide, according to a policy document and budget template spreadsheet available from Bob Dent, PES Executive Director, at the PES Executive Office. Please contact Bob if you are interested in hosting this course. Interested groups can use the budget template and example budgets to prepare a budget for their course offering, and submit to the PES Executive Office for review and approval. IEEE PES and IEEE-USA are offering a three-hour short form version of the course in Washington, D.C. on May 23.

Conversion of Legacy Technical Articles

A contract was signed to scan and tag past Transactions papers, which will add papers from 1970–1987 in Phase I and 1950-1969 in Phase II into IEEE Xplore.

PES Pins

IEEE PES lapel pins will be sold at the San Francisco General Meeting paper sales room to members at a discounted price of \$12 (normally \$14). Individuals who join IEEE PES at the meeting will receive a free PES pin.

Upcoming Governing Board Meeting

The IEEE PES Governing Board will meet on Sunday, June 12, 2005 in conjunction with the IEEE PES General Meeting in San Francisco, California.

PES Meetings Activities

The 2005 IEEE PES General Meeting will be held in San Francisco on June 12-16.

The 2005 PowerTech Conference and Exposition will be held in St. Petersburg, Russia on June 27-30.

The Inaugural IEEE PES Africa Conference and Exposition will be held in Durban, South Africa on July 11-15, 2005.

The 2005 IEEE PES T&D Asia Pacific Conference and Exposition will be held in Dalian, China on August 14-18.

The 2005 Joint IEEE PES/CIGRE Symposium will be held in New Orleans on October 5-7.

The 2005 IEEE PES T and D Conference and Exposition will be held in New Orleans on October 9-14.

The 2006 IEEE PES General Meeting will be held in Montreal, Quebec, Canada on June 18-22.

The 2006 IEEE PES T&D Latin America Conference and Exposition will be held in Caracas, Venezuela on August 14-18.

The 2006 ESMO Conference will be held in Albuquerque, New Mexico on October 15-20.

The 2006 IEEE PES Power System Conference and Exposition (PSCE) will be held in Atlanta, Georgia on October 29 - November 1.

The 2007 IEEE PES T and D Conference and Exposition will be held in Chicago on October 7-12.

EPRI Report

Hughes

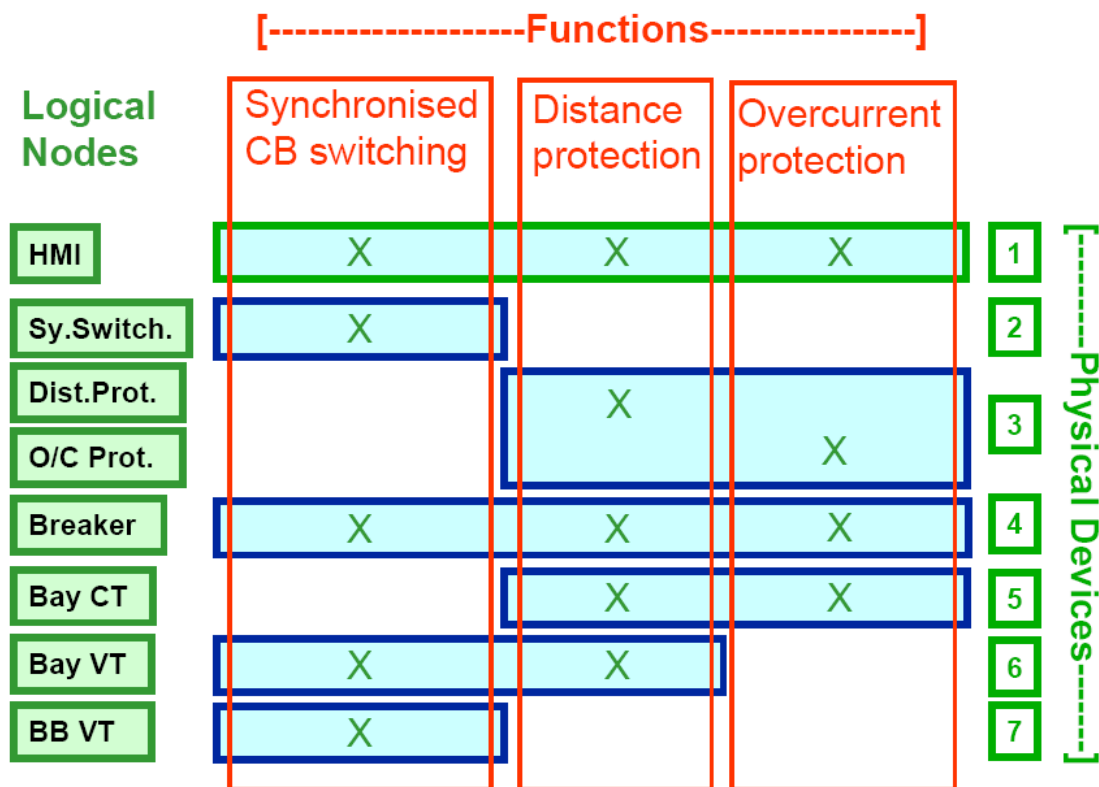
No written report at this meeting

IEC Report

Udren

1. IEC TC 95 Program of Work

- New Ad Hoc Working Group AHWG1 has begun looking at needs and opportunities for *functional* standards. This gets closer to PSRC activity than the product design standards of which we have seen a lot over the last decade. Dr. Murty Yalla is the US representative to this WG. Other participating nations are Switzerland, Sweden, Italy, China, Japan, and France. Results of the February 2005 kickoff meeting in Geneva:
 - ◊ Agreed that IEC needs to work on functional standards.
 - ◊ Work should conform to structure of 61850-5, figure on P. 29 of that Standard, and coordinate with TC 57.



- ◊ TC 95 wants to develop a standard on CT application, with saturation focus.
- ◊ Two task forces were formed, on single-function standards and network protection standards.
- ◊ A task force led by Murty Yalla will look at creating an overall functional standard, developed on the model of 61850-7, that may replace 60255-6, which is up for revision anyway. This will provide the overarching structure for detailed functional standards. IEC and CIGRE documents will be considered, as well as IEE/PSRC 1344 Synchrophasor and C37.2 Device Number Standards.

- ◇ A second task force will look at set of sub product standards written around the general part, based on IEC Guide 111, and may include parts for Transmission Grid; Distribution; Transformer Protection; Generator Protection; Power Plant (generation & substation); Distributed Generation. Documents assigned for study are C37.91, C37.102, and C37.113.
- ◇ The WG will meet in Malmö, Sweden on June 20-26, and in Tokyo in October.
- 60255-3 inverse time curve equations – only 3 nations were willing to appoint experts including US, and USNC failed to post our offering of convenor. Approaches for now:
 - ◇ Submit another New Work Item Proposal – try again. Would have to contact NC's to line up enough support. This is the first time that our USNC activity has faced the need to lobby the national committees of other nations to get acceptance of a proposal.
 - ◇ Revise C37.112 at PSRC, and then propose to IEC as joint logo document.
- Comments released on CDV of 60255-27, Product safety requirements for measuring relays and protection equipment.
 - ◇ A couple of US manufacturers reported that they did not see a major problem; US voted in favor. No specific comments received.
 - ◇ Japan had 12 comments; Germany had 108 comments.
 - ◇ Comments to be circulated to US member companies to stimulate thinking on contents [copy sent to WG and TAG members with these minutes. Others contact E. A. Udren at eric.udren@kema.com for further information.].
 - ◇ Next revision issued will be FDIS, with little opportunity for substantial technical change.
 - ◇ We are obtaining "Roja Document" that describes approach for eliminating lead content in solder – a serious manufacturing concern.
- New - TC 95 needs to revise 60255-6, general relay standard, last updated in 1988, and is looking for members of a maintenance team.
- New - TC 95 needs to revise 60255-22-3 *Electrical disturbance tests for measuring relays and protection equipment - Radiated electromagnetic field disturbance tests*, last updated in 2000, and seeks WG members. The PSRC just finished updating C37.90.2 to get closer to IEC.

2. IEC TC 57 – Teleprotection and Control

- IEC 61850, Communication Networks and Systems in Substations
 - ◇ Part 10 - Conformance Testing – FDIS approved. This is last section from original project.
 - ◇ UCA International Users' Group has adopted companion test procedures document to completely define how to do a conformance test.
 - ◇ First conformance certificate issued for Siemens relay. Other products in test including GE, ABB, ZIV, others.
 - ◇ Users interested in development status and conformance testing should see KEMA/AEP test lab tour at AEP Dolan Labs in Columbus, May 26-27 after PSRC.
 - ◇ Power Quality Models update to 7-4 amendment 1 (Basic Communications Structure – Compatible Logical Node Classes and Data Classes – Power Quality Additions) – CD issued for comments.
 - ◇ Extension of common data classes for statistical and historical information – 7-3 Amendment 1, CD in development.
- Technical issues (Tissues) and amendments to all parts are under discussion as real implementations are developed by vendors. WG 10 Chair Christoph Brunner reports that power quality, and historical/statistical additions, are getting a lot of attention now.
- WG 17 on DR and 18 on Hydro applications – development of new logical nodes (LNs) via additional amendments to 7-4. The working group is making a new, more readable Revision 2.
- WG 15 (Security – Frances Cleveland) is looking at security of GOOSE and sampled value packet transmissions. CDs are in preparation.

Standard Coordinators Report

Gilbert

The Standards Coordinator, Jeffrey Gilbert, met with the Chairs of the Working Groups writing and revising standards documents at sessions beginning at 8:00 AM on May 24, 2005, in room D230 of

the Columbus Convention Center. Christina Sahr, gave An informative presentation on myBallot and answered questions.

The status of several PARs, Standards and Guides, were reviewed at the meeting. The status of the PARs is summarized below. The actions to be taken for keeping up-to-date the approval of the PARs and for keeping live the Standards and Guides are identified. A summary of the specific approvals received, since the January 2005 meeting of the PSRC, are identified as well.

Information concerning the Standards Association (SA), Board of Governors, Committees of SA, the Development of standards, Recommended Practices and Guides and related issues is available on the following web site. <http://standards.ieee.org/>

Some of the other web sites for obtaining useful information are as follows.

Information on	Web site address
Update your information with SA	http://standards.ieee.org/resources/development/
PAR application, extension and other forms	http://www.standards.ieee.org/guides/par/
Submitting a PAR	http://standards.ieee.org/guides/par/ePARform.html
PAR Extension	http://standards.ieee.org/guides/par/extension.rtf
Style manual	http://www.standards.ieee.org/guides/style/2000Style.pdf
Template	http://www.standards.ieee.org/resources/spasystem/index.html
Pre-balloting editorial review	http://standards.ieee.org/resources/development/ Follow: Balloting the Draft → Ballot Invitation → Submitting the Draft for Mandatory Editorial Coordination
Up-load drafts for balloting	http://standards.ieee.org/eprocess/upload_balloting_file/
Request for invitation to ballot	http://standards.ieee.org/resources/development/ Follow: Balloting the Draft → Ballot Invitation → Requesting a Ballot Invitation
Join a balloting pool	http://standards.ieee.org/resources/development/ Follow: Balloting the Draft → Join and Existing Balloting Pool
Submit request for initiating balloting	http://standards.ieee.org/resources/development/ Follow: Balloting the Draft → Sponsor Ballot → Requesting Initiation of a Ballot
Submit request for recirculation ballot	http://standards.ieee.org/resources/development/ Follow: Balloting the Draft → Sponsor Ballot → Requesting Initiation of a Ballot → Recirculation ballot
Status of standards etc	Http://www.standards.ieee.org/db/status/status.txt
NesCom activities	http://www.standards.ieee.org/board/nes/
RevCom activities	http://www.standards.ieee.org/board/rev/
SA Operations	http://standards.ieee.org/sa/sa-om-toc.htm

Manual

SA Bylaws <http://standards.ieee.org/guides/bylaws/index.htm>

SB Operations Manual <http://standards.ieee.org/guides/opman/index.html>

SB Bylaws <http://standards.ieee.org/guides/bylaws/index.html>

Important Changes

1. Continuous processing of PAR's, to allow the New Standards Committee to review and approve standards outside of the quarterly Standards Board meetings was approved late last year. Use of email and the Web and reduces the time needed to process a standards project from approximately 90 days to 30 days. The PAR for C37.94a was handled using continuous processing.
2. On March 7, 2005, IEEE-SA's new web-based balloting system and service replaced the e-balloting system the IEEE-SA had in place. Working group chairs manage their own Invitation Pool participation through their IEEE Web Account. We are working to resolve problems experienced.
3. The IEEE Standards Association now includes draft standards in its IEEE Standards Online Subscription packages

Standards Coordination Effort

PARs applied for by all Committees of the Power Engineering Society (PES) are being circulated among the Standards Coordinators of the PES Committees. The number and title of each new PAR approved by the Standards Board is posted on the PSRC Web site at the following address.

<http://www.pes-psrc.org/Standards/NewPars2005MM.html>

where MM is the month approval was granted.

The copy of each PAR can be viewed by clicking at the number of the PAR in the list. All members of the PSRC are requested to review the newly approved PARs. If you are interested in the development work planned in a PAR, contact the Chair of the Working Group that is developing the document and sign up for participating in the activity of that Working Group.

STANDARDS ACTIVITIES SINCE THE January 2005 MEETING OF THE PSRC

The status of the standards approval activities, which have taken place since the January, 2005, meeting of the PSRC, is as follows.

1. Standards Published

None

2. Standards waiting to be Published

C37.92 Standard for Analog Inputs to Protective Relays From Electronic Voltage and Current Transducers

PC37.114 Guide for Determining Fault Location on AC Transmission and Distribution Lines

3. Standards reaffirmed

None

4. Standards withdrawn

None

5. Standards approved

C37.92 Standard for Analog Inputs to Protective Relays From Electronic Voltage and Current Transducers

6. Standards submitted for approval

PC37.90 Standard for Relays and Relay Systems Associated with Electric Power Apparatus

7. Standards to be submitted for approval

None

8. Standards Balloted

PC37.102 Guide for AC Generator Protection
PC37.109 Guide for the Protection of Shunt Reactors
PC37.118 Standard for Synchrophasors for Power Systems
PC37.119 Guide for Breaker Failure Protection
PPC57.13 Guide for Field Testing of Relaying Current Transformers
1

9. Standards submitted for balloting

PC37.102 Guide for AC Generator Protection
PC37.109 Guide for the Protection of Shunt Reactors
PC37.118 Standard for Synchrophasors for Power Systems
PC37.119 Guide for Breaker Failure Protection
PPC57.13 Guide for Field Testing of Relaying Current Transformers
1

10. Standards Recirculated

PC37.119 Guide for Breaker Failure Protection

11. Standards to be re-circulated

PC57.13.3 Guide for Grounding of Instrument Transformer Secondary Circuits and Cases (after resolving negative ballots)

12. Standards to be submitted for Re-affirmation

C37.96 Guide for AC Motor Protection
C37.99 Guide for Protection of Shunt Capacitor Banks

The PARs approved since January,, 2005, submitted, and the PARs for which extension has been applied are as follows. The PARs, which will expire in the near future, are also listed. Applications for extending the lives of these PARs should be filed soon.

13. New PARs applied for

- PC37.94a Standard for N Times 64 Kilobit Per Second Optical Fiber Interfaces Between Teleprotection and Multiplexer Equipment - Amendment 1: Addition of Alternate Interface Using Single-mode Fiber (Processed under NesCom's Continuous Processing Program)
- PC37.113 Guide for Protective Relay Applications of Transmission Lines
- PC37.233 Guide For Power System Protection Testing
- PC37.111 Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems

14. New PAR approved

- C37.94a Standard for N Times 64 Kilobit Per Second Optical Fiber Interfaces Between Teleprotection and Multiplexer Equipment - Amendment 1: Addition of Alternate Interface Using Single-mode Fiber (Processed under NesCom's Continuous Processing Program)

15. PAR Extensions applied for

None

16. PAR Extensions approved

None

17. Modified PAR approved

None

18. Modified PAR submitted

- PC37.92 Standard for Analog Inputs to Protective Relays From Electronic Voltage and Current Transducers

19. PARs expiring in 2005

- PC37.10 Standard for Qualifying Class 1E Protective Relays and Auxiliaries for
5 Nuclear Power Generating Stations
- PC37.10 Guide for the Protection of Shunt Reactors
9
- PC37.11 Guide for Protective Relay Application to Transmission-Line Series
6 Capacitor Banks
- PC37.11 Guide for Breaker Failure Protection of Power Circuit Breakers
9
- PC57.13. Guide for Field Testing of Relaying Current Transformers
- PC57.13. Guide for Grounding of Instrument Transformer Secondary Circuits and
3 Cases (after resolving negative ballots)

SUBMITTAL DEADLINES & STANDARDS BOARD MEETING SCHEDULE

PAR/Std Submittal Deadline	Standards Board Meeting
February 4, 2005	March 20, 2005
April 29 , 2005	June 9, 2005
August 12, 2005	September 22, 2005
October 17, 2005	December 7, 2005

Substation Committee Report

Evans

Subcommittee C0 sponsored a tutorial ""Drop-in" Substation Control Centers - Will They Work For Your Utility?" The tutorial was very well attended and well received by the attendees. They certainly got their monies worth.

The C0 Floyd W. Greenway Award was presented to long time member and participant, Wayne Block. Wayne's roots go back further in the subcommittee than hardly anyone still alive remembers 1972. Wayne was recognized for his many contributions to the subcommittee work.

The C0 Subcommittee meeting schedule has shortened from years past as the result of decommissioning of task forces C2TF4 and C2TF2. The task force to prepare a recommended practice for substations networks, C3TF1, is making steady progress and held a productive meeting in Tampa. The re-write of C37.1 continues with measured progress. The body of text has been assembled into a single document and the sections are getting editing.

Working Group C1 met and revisited the projects that have been started over the past several years with the intent of determining their progress and future. The work started in C2TF2 is being assimilated back into the working group. C1 also entertained an interesting presentation on Frame Relay communication technology with focus on messaging security.

Working Group C2 met briefly, as they have no active business at the time. The process of bringing a tutorial or panel session to IEEE was discussed. The consensus is that IEEE has made the process difficult and therefore unattractive to potential participants. Other venues were also discussed.

Working Group C3 held a short business meeting and used their remaining time to work on C37.1. The editing process is time consuming.

The Subcommittee C0 also met at Tampa. The process of obtaining membership status in WGs and TF was discussed as well as that for becoming a member of the C0 and the Main Committee. Lee Smith gave us a presentation on the PG&E "Drop-in" Control Center project that has some interesting concepts. It triggered an interesting discussion on maintaining software-based systems and the life span of computer technology for substation.

C0 has begun looking at its organization and opened the point for discussion. Several proposals have been made and they will be accumulated and discussed at the General Meeting in San Francisco in June.

OLD BUSINESS

None

NEW BUSINESS

None

FUTURE MEETINGS

May 23-25, 2005	Columbus, OH	Drury Hotels/Convention Center
September 8-16, 2005	Calgary, AB	The Westin Calgary (Joint with CIGRE SC B5)
January 9-12, 2006	New Orleans, LA	Hotel Monteleone
May 15-18, 2006	Albany, NY	Desmond Hotel
September 18-21, 2006	Atlanta, GA	Renaissance Hotel

B: ADVISORY COMMITTEE

Chair: P.B. Winston

Vice Chair: C. Henville

B1: Awards and Technical Paper Recognition

Chair: F. Plumptre

Vice Chair: T. Sldhu

B2: Fellows Awards

Chair: J.S. Thorp

B3: Membership Committee

Chair: M.J. Swanson

Attendance during the PSRC meeting in Columbus was near 170, which is considered just about average.

12 new attendees were in our Newcomers Orientation meeting on Tuesday, which is considered a bit below normal. I took an active role in the conduct of the meeting.

One management support letter was written during the past 4 months.

We arranged for Dan Recker's AEP protection group to attend our meeting. At least 3 protection engineers and one coop student attended. Bill Kennedy will be the focal point for local attendance to attend our Calgary meeting.

We are coordinating with Frank Plumptre's Award Committee to generate some secondary awards. We need new ideas for these awards.

I will track retention of our most recent meetings as soon as we receive the attendance report.

I am working with Charlie Henville on an "About PSRC" page on our website.

B4: O/P Manual & W.G. Training

Chair: J.C. Appleyard

No activity to report

B5: Bibliography and Publicity

Chair: T.S. Sidhu
Vice Chair: M. Nagpal

The B5 WG met during the May 2005 meeting. 2003 Bibliography paper has been accepted and will be published in the IEEE Trans. on Power Delivery. 2004 Bibliography paper is almost ready and will be sent to the WG members for their approval during June 2005. Mel Swanson will contact the PSRC Chairman and provide a publicity report as per his needs.

B8: Long Range Planning
Chair: George Nail
No activity to report

B9: PSRC Web Site
Chair: Bill Lowe

C: SYSTEM PROTECTION SUBCOMMITTEE

Chair: T. Seegers
Vice Chair: R. Hunt

The System Protection Subcommittee met on May 26th, 2005 at 1:15 PM in Columbus, OH. 49 people attended the meeting, including 15 members.

11 WGs met at this meeting. Task Force TF13 Guide for Undervoltage Load Shedding will convert to WG C13. C13 will produce a report on Undervoltage Load Shedding. Art Buanno is appointed as chair and Shinichi Imai as vice-chair.

Art Buanno has joined the C Subcommittee as a member.

The C Subcommittee is urging all Working Groups to restate the Working Group assignment at the start of each meeting, and to place the assignment on the Working Group meeting agenda. In addition, the C Subcommittee plans to place the Working Group assignment, Working Group Chair and Vice-Chair information, and the status of the Working Group, on the PSRC website.

WG Reports:

C1: Cyber Security Issues for Relaying

The C1 working group met on May 24, 2005 with 6 members, 2 new members and 18 guests in attendance.

There was a discussion on NERC guidelines for security issues. The guidelines are being updated. The new guidelines will not be available until they are adopted. Stan Klein will keep us updated as the guidelines are adopted.

There was discussion of other documents, standards, etc. on Cyber Security. They will be referenced in the paper or the Annex.

The outline of Draft 1.2 of the paper was discussed and it was decided some sections needed to be combined and some mention of pilot relay channels should be added. Draft 1.3 with the changes made thus far will be sent to the members and attendees soon after the meeting. Writing assignments were made for sections of the paper and they are due to the chair by August 15, 2005.

C2: Power Quality Issues in Protective Devices

C2 met Tuesday May 24, 2005 in Columbus, OH with 4 members and 6 guests present. The total number of members is 26.

Final draft of the report was sent out for working group ballot. No comments were received and only positive votes. The working group at this meeting has approved the final draft of the document and recommends submitting to the C sub-committee. The final draft will be submitted to the sub-committee for approval and then will be published on the IEEE website.

Working Group members section needs to be updated and then paper will be complete.

Working group discussed means of presenting the paper at various venues. The working group will consider a summary paper and power point for presentation at regional conferences. Tony Seegers will discuss with PSRC secretary for January general meeting presentation.

Action Items:

1. T.W. to inform the C subcommittee the paper is ready to advise and consent for final approval (comments/approval are due by 1-July-2005).
2. Tony to discuss with Miriam on the presentation of the summary at the January.

C3: Processes, Issues, Trends and Quality Control of Relay Settings

Working Group C3 met Wednesday, May 25, 2005 in Columbus, OH in a single session with 12 members and 10 guests participating.

The group reviewed the open assignments from the last meeting. The below actions remain open:

- Section 3.3: The specific issue of configuration management and change control will be clarified (Arif Cubucku).
- Section 4.2.2: Verifying the system model (Alex Apostolov), WECC requirements for verifying the system model (Jon Sykes)
- Section 4.3:
 - The use of tools to simplify the relay setting process (e.g., autocalculation of taps in bank diffs, relay setting rules in short circuit/relay database programs), with suggestions to vendors (Alex Apostolov)
 - Any legal requirements for retaining superseded relay settings/calculations (Art Buanno)
 - Any BC Hydro guidelines for retaining superseded relay settings/calculations (Frank Plumptre)
- Sections 1.0 Introduction, 2.0 Definitions, and 10.0 Conclusions and Recommendations will be developed (Steve Kunsman and Gary Kobet)

An editorial team made up of Ken Birt, Steven Kell, Don Lukach, Hyder DoCarmo and Gary Kobet will review the draft.

Timeline and milestones for completion:

Open contributions complete by June 15

Editorial work complete by June 30

Intro & Summary/conclusion by July 15

Final draft report sent to WG and sub-committee members by August 1

Review & comments from WG by August 30

September Calgary WG meeting focus on comment resolution

WG member Ballot for approval by October 2005

Summary/transaction paper and presentation target 2006

The WG requests that the revised draft 3.1 be posted to the PSRC website. Gary Kobet will send this draft to Rich Hunt, vice-chair of C-SC by June 1st.

C4: Industry Experiences With Power System Protection Schemes (PSPS)

WG C-4 met in single session with 10 members and 4 guests. The WG attendees presented writing assignments and discussed the following:

Updated Assignment

Conduct a survey of power systems professionals worldwide to accumulate experiences with the System Integrity Protection Schemes (SIPS). This survey will complement and expand on the previously published IEEE/CIGRE paper "Industry Experience with Special Protection Schemes" by P.M. Anderson and B.K. LeReverend (IEEE Transaction on Power Systems, Vol. II, No. 3, August 1996). The survey will be conducted via an internet-based questionnaire with the assistance of, and be available to, other interested parties; (e.g. IEEE, CIGRE, PES, EPRI, etc.). The survey will be concluded by September 2007 and will be presented in a report to the "C" Subcommittee and a Summary Transactions paper.

Assignments discussed:

- A brief overview of the alternatives for the implementation of the survey – The preferred method, as expressed by the WG members at previous meetings is a web based survey. However, the WG members agreed that the actual mechanics may be decided along side with the questioner.
- Communication methods to inform people of the survey was discussed
 - EPRI, NERC Monthly Newsletter
 - WG members / Manufacturers have volunteered to help broadcast
 - Have discussed with CIGRE TF 38.02.24 (Defense Plans Against Extreme Contingencies)
- Survey questions
 - A draft spreadsheet summary of the RAS
 - Members volunteered for assignments recommended by the WG
 - Reliability indices
 - Performance indices
 - Application indices (UF or UV load shedding and success factors)

Writing assignments received will be distributed electronically to the members before the May 2005 meeting

C5: Deployment and use of Disturbance Recorders

Meeting was held May 25 with 7 members and 9 guests in attendance.

Since our last meeting, Draft 10 was circulated among the members and comments received. These few comments were discussed in during our session with un-expected discussion resulting. These additional comments will be incorporated into Draft 11 which will be circulated in mid June. If anyone outside of the working group would like to obtain a copy of this revision, it will be posted on the C5 web page associated with the PES-PSRC site.

We expect to be able to circulate draft 11, receive and incorporate comments, and then have draft 12 in circulation prior to the next meeting. Hopefully, we will then be able to include the subcommittee in the following draft circulation for comments of substance.

C6: Relay Engineering in Power Engineering Curricula

The Working Group C-6 met with 14 members and guests present. The meeting was conducted by J. De La Ree, W-G Vice-Chair. The minutes and attendance list of the previous meeting held in San Diego, were distributed and accepted. A brief review of the completed sections of the first draft of the paper took place. The following writing assignments are still due from Working Group members.

Description	Assigned
Importance of Protection for Industry	Damir Novosel & Ronald Levorin
Utilities Training Programs and Adequacies	Tom Wiedman & Mike

<ul style="list-style-type: none"> ➤ Industry needs ➤ Industry Training ➤ Importance of Mentoring 	Bloder
Background Materials and/or Pre-requisites	Tony Napikoski & Ashok Gopalkrishnan

Much discussion occurred on the if the Working Group should actually develop course modules and course content. Jaime De La Ree and Juan Gers agreed to develop one course module for the next meeting, so the Working Group can discuss the effort involved.

C8: Phasor-Based Models for Analyzing Relay Performance

The working group did not meet in Columbus. The Working Group paper has been accepted for publication as an IEEE Transactions Paper. The working group has completed its assignment, and can be dissolved.

C9: Under Frequency Load Shedding and Restoration

The working group met on Wednesday, May 25th, with 8 members and 7 guests present. Draft 4 of the proposed PC37.117 guide was submitted to the IEEE Editor for pre-ballot review. Comments have been received from the editor that will require editorial document modifications. The working group will be asked if they are aware of any copyrighted materials, patented devices, and trademarked terms that are used in the document. Other boilerplate disclaimers and statements will be added as required. Rich Hunt volunteered to make the editorial changes to the document per the IEEE editor's comments.

The resulting Draft 5 document will be submitted for balloting in pdf format. The final document will be submitted for publication as a Word document, with figures submitted separately in TIFF format. Benton Vandiver volunteered to convert figures to the required TIFF format.

The working group discussed writing a paper to present at a technical conference. Five working group members (Alex Apostolov, Rich Young, Vahid Madani, Pratap Mysore, and Mukesh Nagpal) previously volunteered to write the paper and prepare an associated presentation. Stan Horowitz also volunteered to help with the paper preparation.

A new guest asked if it was too late to submit new material for the guide. It was suggested that the new material could be addressed in the summary paper, but it was too late to include new material in the draft guide.

Tony Seegers, Subcommittee Chairman, suggested previously that work on the paper may proceed while the guide is in the balloting process, but the working group should wait until the guide is approved before submitting the paper for conference presentation.

C11: Guide for Protection System Testing

WG C-11 met on May 24 in single session with total 29 in attendance (14 M, 15 G, 4 attendees signed up to become members). A brief background on the formation of C-11 was provided to the WG members and guests.

The attendees reviewed the PAR and approved the Scope and the various sections of the PAR

The WG members then continued with the review of contributions from the TF meetings, and several sections were review and commented.

- Test setup configuration and equipment for end-to end testing of transmission line protection scheme
- Affects of inaccuracies of synchronization
- Methods of generating test modules, CT saturation, DC offset, fault impedance, and varying inception angles were amongst some of the discussion

- Portions of RAS and SPS testing section was also reviewed and commented

New topics were assigned to volunteers and some new members volunteered to review and critique the Guide for improvements.

Below is a copy of the Assignment, Scope, Purpose and reason for the Guide as approved by WG members for the PAR:

Assignment: The working group will develop a guide for system application test requirements, scope and level of tests, and benefits for overall protective schemes. This assignment includes SPSs, end-to-end testing, data collection requirements, and the test procedure definitions.

Scope, Purpose, and Reason:

This guide is intended for power system protection professionals. It will include a reference listing of type tests for protective devices as well as overall protection scheme performance tests for various types of protection schemes. The Guide will describe the methods, extent, and types of protection scheme tests. Interlocking and control functions inherent to the protective schemes are included. This assignment encompasses overall system testing procedures, data collection requirements, as well as the test procedure definitions.

Reason:

This document will aid academic, manufacturing, application engineers and industry protection professionals with the overall benefits for protection scheme performance testing. The document will discuss benefits and challenges associated with verification of overall protection performance and will include information such as: a) Listing of type / production tests, b) Product performance tests from user view, c) Commissioning test - d) Relay settings are properly selected and calibrated e) Verify connections and calibration of settings, f) Trip/no trip and troubleshooting test

C12: Performance of Relaying During Stressed Conditions

The WG met with 10 members and 18 guests present. This was the second meeting of the WG. The vice chairman, George Bartok, chaired the meeting in the absence of the WG chairman.

Tom Wiedman gave a presentation on the current and future activities of NERC to mitigate cascading outages in response to the August 14, 2003 Northeast Blackout. He covered the response to date to existing NERC recommendations relative to Zone 3 relay settings. He also presented NERC recommendations relative to undervoltage load shedding, and assessment of the adequacy of underfrequency load shedding. Tom also covered the status of NERC recommendations on adequacy and coordination of generator protection, transmission line rating methodology and event monitoring.

The WG reviewed the progress made to date in developing the first draft of the WG report. Approximately 40% of the initial writing assignments for the body of the WG report have been completed. The outline of the report was reviewed and outstanding writing assignments noted. Those who volunteered to write sections of the initial draft were asked to submit their writing assignments by August 1st. The goal is to have a first draft of the report circulated to the WG members before the September meeting in Calgary.

C13: Undervoltage Load Shed

The C Subcommittee accepted the CTF13 Task Force as a new Working Group. The C13 Working Group will produce a report on Undervoltage Load Shed practices, and will hold the first meeting at the September meeting, with Art Buanno as Chair, and Shinichi Imai as Vice-Chair.

Power System Analysis, Computing & Economics Committee Liaison by Malcolm Swanson

No activities to report

NERC by Phil Winston

The NERC Beyond Zone 3 Document has been finalized. This document addresses all other over-reaching protection elements, such as overcurrent protection on lines 230kV or above. The document will be released in August, with utilities to complete their review by the end of 2006.

Liaison Report of the IEEE PES Power System Stability Controls SC to the PSRC by Gary Michel

No activities to report

D: LINE PROTECTION SUBCOMMITTEE

Chair: Roger Hedding

Vice Chair: Mike McDonald

The meeting was called to order by Chairman Roger Hedding on Wednesday May 25, 2005 at 3:45 p.m. There were 17 members and 35 guests in attendance.

After introductions, the Minutes of the January meeting in San Diego were Approved.

Advisory Committee items of interest:

It was noted that the September meeting in Calgary will be from Sunday through Wednesday (11th-14th) rather than the usual Monday through Thursday. In addition, there will be a tutorial on Wednesday (Sept. 14th) afternoon examining recent major power outages around the world.

There is a new version of the O&P Manual available.

Working Group reports: (see attached document)

During the WG reports Moh Sachdev reported that a presentation on the Intellectual Policy of the IEEE Standards Association outlining the IEEE-SA policy on intellectual property, such as copyright, patents and trademarks took almost 50 minutes to complete which left little time for actual WG business. It was suggested that this presentation be made once at the Main Committee meeting and then require all new attendees to see it at the Orientation meetings. This was taken under advisement.

New Business:

Fred Friend requested a Task Force be formed to look at the effects of automation on distribution protection and to determine if a WG should be formed. This was approved and will be DTF11. Fred will chair the Task force.

Rick Taylor and George Nail, having completed their Officer appointments, returned as D SC members.

Gary Kobet also is welcomed as a new D SC member.

High Impedance Fault activity:

None reported.

The meeting was adjourned at 3:55 p.m.

D1: Cold Load Pickup Issues and Protection

Chair: Tony Napikoski

Vice Chair: Dean Miller

Expected Completion Date: May 2006
Output: Report to the PSRC

The WG met on Tuesday afternoon, May 24, with 11 members and 8 guests present. Tony was unable to attend the meeting so Dean the Vice Chair lead the meeting. The schedule for the working group was reviewed. Two writing contributions were reviewed and minor modifications were made. Contributions for two other writing assignments were distributed without discussion. A Detroit Edison document describing how they predict the magnitude and duration for cold load pickup on their feeders was distributed. A couple of graphs from a paper on theoretical values for cold load pickup were viewed and discussed. The writing assignments are due by August 1.

Sept. meeting: single session, 25 people, computer projector.

D4: Application of Overreaching Distance Relays
Chair: Russ Patterson
Vice Chair: Walter McCannon
Output: Report to the PSRC

The working group met with 40 attendees (18 members and 22 guests). This was 3rd meeting of the WG.

Meeting minutes from January were briefly reviewed. It was reiterated from previous meeting minutes that the output of the WG would initially be a report tot eh PSRC with a paper produced for placement on the PSRC website and for a presentation at various relay conferences.

Eric Udren gave a presentation on his work to put together definitions that will be used in the paper.

The latest draft of the outline and paper will be put on the D4 website with a link e-mailed to the attendance roster.

Sept. meeting: single session, 50 people, computer projector.

D5: Guide for Protective Relay Applications to Distribution Lines
Chair: Phil Waudby
Vice Chair: Randy Crellin
Output: IEEE Guide PC37.230

The Working Group met in a double session with 29 attendees (20 members and 9 guests).

After introduction and approval of the January minutes, we had a 20 minute presentation by Christina Sahr (Manager balloting IEEE Standards) covering the new 'myBallot' system.

We continued to review and discuss the review comments for Draft 2.0 of the document. Since the January meeting, we received additional review comments from Dean Miller, Gustavo Brunello and Mike McDonald. Copies of these comments were distributed.

We hope to complete the review comment discussions during the September meeting and have recruited Ken Birt and Karl Zimmerman to help consolidate the remaining review comments.

Sept. meeting: double session, 40 people, no A/V.

D6: Power Swing and Out-of-Step Considerations on Transmission Lines
Chair: Mike McDonald
Vice Chair: Demetrios Tziouvaras
Output: Report to the PSRC

The WG met on May 24 in a single session with 7 members and 7 guests.

The results of the WG and Subcommittee ballot were discussed. All comments that were supplied during the ballot were discussed and resolved, including the one negative ballot received.

Frank Plumptre agreed to provide one reference for section 5.5.13 by May 31.

Sam Sambasivan agreed to provide further information on one scheme by May 31.

Al Darlington agreed to improve one drawing – completed on May 24.

One drawing (Fig. B1) will be resized by May 31.

We consider this Report to be final when the above minor details are completed and request permission to forward this report, once updated, to the PSRC Officers for their approval to post on the PSRC website.

Sept. meeting: no WG meeting is planned.

D7: Loss of AC Voltage Considerations

Chair: Elmo Price

Vice Chair: Russ Patterson

Output: Report to the PSRC

Working Group D7 met with 10 members and 6 guests. Draft 3.2 of the report on LOV Considerations was reviewed for content purpose and completeness. There are still some sections that require additional work.

The following contribution assignments were made with a completion date of June 30. Elmo will consolidate assignments by July 31 for further editorial review and comments by members before next meeting.

Art Buanno	Edit section 7.1.7 to discuss effects of transformer and auxiliary transformer problems with the open corner delta connection (problems other than fuse failure).
Rich Young Jack Soehren	Coordinate Section 8.1 text and Figures. Expand on Section 8.2(Jack).
Walter McCannon	Work with Rich and Jack and finish pictures for Sections 8.1 and 8.2 Redraw [bus] figures with heavy lines for busses and lines and lighter lines for secondary and control lines.
Arvin Chaudhary	Section 9. Add section about voltage input transfer for LOV (61850)
Don Lukach	Review Section 6 and offer suggestions to make intent clearer
Ken Behrendt	Add section on Bus potential transfer (8.4) and reclosing.
Elmo Price	Revise Section 6.5 for clarity Revise Section 9.2 for clarity Remove ' from plural acronyms Add discussion on breaker position with logic Add discussion on resetting LOV logic Improve AND/OR gates in logic diagrams Send assignment due reminders 2 weeks, one week and 3 days before due date

Sept. meeting: Single session, 20 persons, no A/V.

D8: Justifying Pilot Protection on Transmission Lines

Chair: Gary Kobet

Vice Chair: Bogdan Kasztenny

Output: Report to the PSRC

The WG met on May 25, 2005 in Columbus with 24 in attendance: 13 guests and 11 members.

Representatives of several utilities have made brief presentations on their pilot protection practices. NERC regional requirements for several regions have been briefly presented. This included criteria for determining the

need and number of pilot protection schemes, and fallback strategies when channels become unavailable or degraded.

Writing assignments have been distributed for all major sections of the initial outline.

Sept. meeting: single session, 30 people, computer projector.

D9 – Transmission line Protection Guide, Moh Sachdev, Chairman

Chair: Mohindar Sachdev

Vice-Chair: Simon Chano

Established: 2005

Output: Revision of IEEE C37.113-1999 (R2004)

Expected Completion Date: 2009

The Working Group D09, Revision of C37.113 - Guide for Protective Relay Applications to Transmission Lines, met in Room 231, Columbus Convention Center, Columbus, OH at 9:30 AM on May 24, 2005. Sixteen members and twenty-one guests were present. Five guests joined the Working Group. One member has withdrawn from the Working Group and one member has been removed for lack of response.

Mohindar reported that he prepared the PAR after the January 2005 meeting and circulated the Scope, Purpose of the Project and Reasons for the Proposed Project among the members. No changes were suggested by the members. The PAR was then submitted to NesCom (New Standards Committee of the IEEE Standards Association). NesCom will be meeting next month when the PAR will be considered for approval.

The Chair also reported that he had received a copy of C37.113. He will send this to the members of the Working Group. As per IEEE instructions, the members are allowed to use it for the revision of the guide and not allowed to make copies available to others.

The Chair then made a presentation on the Intellectual Policy of the IEEE Standards Association. The presentation outlined the IEEE-SA policy on intellectual property, such as copyright, patents and trademarks. The presentation was followed by assigning sections of the guide to Working Group members for determining the nature of revisions needed for updating the guide. The reviews are due back by July 31, 2005.

At the conclusion of this business, the meeting was adjourned.

Sept. meeting: single session, room for 40 persons and a computer projector.

DTF11: Effect of Distribution Automation on Relaying.

Chair: Fred Friend

Assignment: Determine if a special report on the Effect of Distribution Automation on Relaying is needed. If so, make a recommendation to the Sub Committee for the formation of a Working Group to create such a report.

Single session, 30 people. (avoid conflict with D1 and D5).

H: RELAY COMMUNICATIONS SUBCOMMITTEE

Chair: K. J. Fodero

Vice Chair: A. P. Apostolov

H2: PROTECTION USING SPREAD SPECTRUM COMMUNICATIONS

Chairman: Ken Behrendt

Vice Chair: Bill Lowe

Output:

Established: 2001

Expected Completion Date: 2003

The H2 working group met in a single session on Wednesday, May 25th, 2005 with 5 members and 4 guests in attendance.

After introductions the chairman distributed the final draft document, and a copy of changes based on comments received from the H subcommittee. The chairman will add the list of working group members to the document, and Murty Yalla will provide updated information for a reference that is now published.

The final document will be submitted to the Main Committee officers for approval. Once approved, the document will be placed on the PSRC web site as a Web Report.

The working group will prepare a presentation for the Main Committee. Mark Simon volunteered to prepare and present the path engineering portion of the presentation.

A discussion ensued about increasing the visibility of the published document. John Tengdin volunteered to write an article about the document for possible publication in IEEE Power & Energy and the UTC Journal.

The next meeting will consist of a single session. A room for 25 is needed.

H3: PROJECT PC37.94A - STANDARD FOR N TIMES 64 KILOBIT PER SECOND OPTICAL FIBER INTERFACES BETWEEN TELEPROTECTION AND MULTIPLEXER EQUIPMENT - AMENDMENT 1: ADDITION OF ALTERNATE INTERFACE USING SINGLE-MODE FIBER

Chairman: Tom Dahlin

Vice Chair: Ken Behrendt

Output:

Established: 2005

Expected Completion Date: 2007

Working Group H3 met in a single session on Tuesday, May 24th with 5 members and 8 guests, including new members Mark Simon, Ken Fodero, and Dac-Phuoc Bui.

After introductions, the attendees discussed the status of the PAR for this amendment, which was approved on May 10th by NESCOM. The working group then discussed the amendment items needed to address the use of single-mode fiber as an alternative to the multi-mode fiber specified in the existing standard C37.94. The group discussed optical transmitter output level, wavelength, optical receiver sensitivity, connectors, fiber type, and optical budget. Several members volunteered to write sections addressing these amendment items, as listed below:

7.1 Optical Transmitter Output Level – accepted as per Tom Dahlin's suggestion, with Chris Huntley's clarification, as documented in the meeting agenda.

7.2 Wavelength – accepted as per Tom Dahlin's suggestion, as documented in the meeting agenda. Mark Simon will provide a sentence or two about why 1550 nm is not included in the amendment. The working group agreed that 1300 nm wavelength was sufficient to meet the short haul requirements set forth in the original standard at minimum expense, with single-mode fiber.

A-1 Connectors – the working group agreed not to include any other connectors than the ST connectors already specified in the existing standard. The general consensus was that the existing standard will be up for revision in 2007, at which time the standard can be revised, as necessary, to include additional connectors.

A-2 Fiber Type – Ken Fodero will prepare a writeup and table for single-mode fiber characteristics, similar to Annex A-2 for multi-mode fiber in the existing standard.

A-3 Optical Budget – Roger Ray will prepare a writeup and table for single-mode fiber similar to section Annex A-3 for multi-mode fiber in the existing standard.

H4: COMTRADE Issues

Chair: Ratan Das
Vice Chair: Amir Makki
Output: Recommended Practice
Expected Completion Date: 2005

The Working Group H4, met on May 23, 2005 in their second meeting. Thirteen members and nine guests were present.

Chair informed the members and guests about the status of the PAR which has been submitted to IEEE for approval. This PAR will be submitted to NesCom for their June (2005) meeting.

Discussions were held about the main issues that have been identified by the previous working group H5d for addressing in the COMTRADE standard.

Two assignments were issued which will guide the revision of the standard. Assignments are due by July 29, 2005. Also, Eric Udren and Christoph Brunner will advise the proper procedure for coordinating with the IEC community during/before the next PSRC meeting in September 2005 -C37.111-1999 was adopted by IEC.

We will meet at the September 2005 meeting. We need a room for 40 people with a computer projector.

At the conclusion of this business, the meeting was adjourned.

H5: Common Data Format for IEDs

Chair: L. Smith
Vice Chair: C. Brunner
Output: Recommended Practice
Expected Completion Date: 2005

See reports from working groups H5-A, B and C below.

H5-A: Common Format for IED Configuration Data

Chair: D. Weinbach
Vice Chair: Dac-Phuoc Bui, Hydro Quebec TransEnergie
Output: Recommended Practice
Expected Completion Date: 2005

Met on Wednesday, May 25, 2005 at 8:00AM with 10 members and 9 guests

Summary:

Ashok Gopalakrishnan presented additional parameters for defining distance elements, beyond what was presented in January.

This generated some discussion about the following items, which will be addressed at the next meeting:

- How are multiple settings groups handled?
- If elements are disabled on loss of an input (for example, PT loss disabling distance elements), how/where is that handled?
- How are complete logical nodes enabled/disabled?
- Are any of the parameters we are adding (angles for example) already part of the common data classes?
- What security features will insure data integrity and prevent spoofing?
- What version information will allow revision control and tracking?

For the next meeting, we will be distributing a list of logical node names, and asking members to identify any missing logical nodes that would be required by their application.

The following assignment is carried over from the previous meeting:

Assignments:

Note: The website will be used to distribute and share the following information.

Alex-	will do the assignment for AREVA relays.
Christophe-	will do the assignment for ABB relays.
Veselin-	will do the assignment for SEL relays.
Shigeki-	will do the assignment for TMT&D relays.
David (not present)	will be asked to do the assignment for Basler relays.
Mark (not present)	will be asked to do the assignment for GE relays.

All relay vendor not present is welcome to do this assignment.

All Utilities is welcome to participate to assignment.

Next meeting requirements: Room for 30, Computer Projector Required

H5-B: Common Format for IED Event Data

Chair: M. Adamiak

Vice Chair: K. Narendra

Output: Recommended Practice

Expected Completion Date: 2005

WG H5-b met on Wednesday 17 attendees. The meeting started with a review of the scope and purpose of the group and the identified data items that make up an event record.

In reviewing the data items, it was recognized that the data source description was insufficient to guarantee uniqueness in a multi-utility environment. To address this issue, a Utility name field was added to the event identification field as well as a Utility Unique Identification Code (UUIC). Details on the creation of the UUIC were discussed but no solid solution was identified.

In addition to the event identification code, a discussion ensued as to how to record events such as a settings file upgrade or a relay firmware upgrade. It was identified that one mechanism was to use the file name of the data source in the event record. The issue with this implementation is that the file name is not always readily available in the upgraded relay. What was identified was that in 61850, if the firmware was updated, a "datachange" report could be made on the Version number data item in the device nameplate data (in the 61850 Logical Node 0). In relation to this, it was identified that a new data item, that of the setting file version number, needs to be added to the LNO name plate data. This should be entered as a TISSUE to TC57 – WG 10 (the chairman will undertake this task).

Sample mappings of event data into XML were presented by Ashish Kulshrestha and Pierre Martin. Both mappings captured the intent of the document to date but differed in the organization of the data. The difference between EntryTime and TimeStamp in the 61850 document were noticed and Christoph Brunner was going to examine the log structure in more detail to look for simplifications and clarifications.

For the next meeting, Pierre and Ashish are to compare mappings and to see if there is a common ground.

H5-C: Common Format for IED Sampled Data

Chair: Benton Vandiver

Vice Chair: Bob McFetridge

Output: Recommended Practice

Expected Completion Date: 2005

The working group met on Wednesday, May 25, 2005, with 6 members and 4 guests present following concurrent sessions with H5-a and H5-b. The meeting minutes from the January meeting in San Diego were reviewed and approved by the group. Bob McFetridge volunteer to fill the Vice-chairperson opening, we welcome Bob as a member.

A discussion on the proposed report outline from the January meeting resulted in adding three additional subsections to the outline in order to explain the applications for sampled data and data conversion relationships between IEC61850 and COMTRADE (1999). Volunteers were solicited for writing assignments and seven subsections were claimed leaving only three open. The draft of the report was started with previous presentation material (from Erich Gunther) of PQDIF and COMTRADE data conversion being the majority of the contribution. The working group agreed to the focus of the report and progress to date. All updates will be distributed to members & guests for comment and writing assignments are due by August 30th for inclusion in the next draft.

The H5-c working group expects to meet again in concurrent sessions with H5-a and H5-b in a combined meeting requiring a room for 20 with PC projector and screen as part of the ongoing triple session.

H6: APPLICATION OF SUBSTATION ETHERNET LAN COMMUNICATION FOR PROTECTION AND CONTROL

Chairman: John Burger

Vice Chairman: Charlie Sufana

Output: Special Report

Established: 1999

Expected Completion Date: 2003

The H6 Working Group met May 24, 2005, in Columbus, OH with 6 members and 17 guests in a double session. Chairman John Burger presided in this joint session with Substation Committee C C3TF1 chaired by Mike Thesing. The minutes of the January 2005 meeting were approved as printed.

John Burger indicated that the paper will be put on the PSRC website as it is almost complete.

Christoph Brunner gave a short update on IEC 61850. He said part 10 became FDIS at the start of 2005 and that all other parts were either approved or published. There will be revisions on all parts. There are additional object models being developed for metering. He also indicated that Working Groups 17 (distributed generation) and 18 (hydro plants) have started to use IEC61850. Also TC88 (windpower) is starting to use IEC61850.

Stan Klein indicated that 62351 parts 1 to 5 are now as committee drafts. Security issues are being addressed.

Mark Adamiak then explained his recommendations for changes to the document in the GOOSE section. Several sections were re-arranged to give better flow to the section.

The second session was led by Mike Thesing on "Recommended Practice for Network Communication in Electric Power Substations". He requested input for P1615. The working group discussed with Mike redundancy and network architecture, cable and cable installation, the use of fiber. Joe Gould suggested that the different types of fiber be presented. Eric Udren suggested adding a section discussing when to use fiber versus copper wire. Stan Klein suggested that the IEEE has a new fiber standard that may be of some help.

For the next meeting, single session with a computer projector for 25 people.

H8: FILE NAME CONVENTION

Chair: A. Makki

Vice Chair: E. Gunther

Established: 2003

Expected Completion Date:

The group met on time with 12 members and guests present, copies of draft 4.4 of the naming convention were distributed.

The group was briefed regarding the April 26th presentation at the Fault & Disturbance Conference. The same work was later presented at the main committee meeting on May 26th. In both occasions combined, the work was presented to an audience well over 200 professionals and the presentations were very well received and there were many comments all of which were positive and/or constructive.

The group was then polled for their acceptance of the current naming convention "As Is" and the resulting vote was unanimous. There were no negative comments. The group then agreed that the next step is to put Draft 4.4 in standard IEEE format and then submit to the subcommittee chairman for circulation as Draft 4.5.

Accordingly, permission to poll the communications subcommittee was requested and approved during the subcommittee meeting on May 25th.

At the conclusion of business the meeting was adjourned. The group will meet again during the upcoming fall meeting. A small room/w a flip chart for up to 10 people was requested.

H11: REVISION TO THE SYNCROPHASOR STANDARD

Chairman: K. Martin

Vice-Chairman: Dan Hamai

Established: 2000

Output: Revised Standard PC37.118

Expected Completion Date: 2003

Working group H11 met at 1:30 Tuesday, May 24, 2005, in a double session. 5 members and 13 guests attended the meeting.

Minutes for the January meeting were read and approved.

Ken Martin announced that the standard had been balloted with 66 affirmative, 6 negative, and 2 abstention votes out of a balloting pool of 82 persons. This met the requirements of 75% return and 75% approval, so the standard passed. The comments, both from affirmative ballots and negative ballots have to be addressed to complete the process.

Most of the affirmative comments were editorial in nature and were edited into the current draft, 6.3. These and the remaining comments from the affirmative ballots were discussed and decided by the working group.

The issues from the negative ballots and more difficult affirmative ballot issues were discussed at length. Many of the issues were resolved as represented to the working group. Responses to the balloters who submitted comments will be sent out shortly. Several substantive changes were made as a result of these comments, and the standard as revised will be submitted with the required cover letter for re-circulation as soon as possible.

A meeting room with space for 20 persons and a computer projector are requested for September.

H14: Telecommunication Terms Used by Protection Engineers

Chairman: Roger Ray

Vice Chairman: Ray Young

Established: 2001

Output: Paper

Expected Completion Date: 2006

H14 met on Tuesday, May 24, 2005. Introductions were made.

There were 4 members and 4 guests present.

The members of the working group had completed their assignments and as a result we had a new draft 2 of the glossary to review. The group had been ask to review the definitions and mark those that they did not feel belonged in the document. At this meeting we took on the task of reviewing those that were marked to be deleted. We, of course, did not complete this task. So we will attempt to complete this task via email before the next meeting. There are also several new definitions that need to be considered to be added.

The glossary will be reassembled into one document as draft 3 and we will then begin a complete review of all definitions. We will probably need at least 3 more sessions to complete the document.

Need a room for 10 people plus a computer projector.

Task Force Reports

HTF1: Teleprotection Review

Chairmen: Marc Benou

Established: 2003

Expected Completion Date: ?

No Minutes at this time.

HTF2: Broadband Communications over Power Line Carrier

Co-Chairmen: Veselin Skendic and Mark Simon

Established: 2003

Expected Completion Date: ?

No meeting.

HTF3: Comparison of Teleprotection Standards

Chairman: Mark Simon

Established: 2005

Expected Completion Date: ?

HTF3 met with 17 members and guests on Tuesday May 24th, 2005.

The purpose of the task force is to determine the scope of work for a yet to be formed working group and determine the format of the output.

The group's title will be "Comparison of standards for Teleprotection". The standards that fall under the IEEE and IEC will be compared and presented in a working group report for the PSRC WEB site. The group discussed other related standards body work, but narrowed the scope to the IEEE and IEC so the information most useful can be compiled and reported in a reasonable time frame. Additionally, the results from this work may be used to generate some future work assignments for the sub-committee.

Next meeting we will continue as a task force with 20 people and no A/V equipment.

HTF4: UNDERSTANDING MICROPROCESSOR BASED TECHNOLOGY APPLIED TO RELAYING

Chair: Mohindar Sachdev

Vice-Chair:

Established: 2005

Output: Assignment for a Working Group

Expected Completion Date: 2006

The first meeting of the Working Group was held at 09:30 AM on May 25, 2005 in Room D230, Columbus Convention Center, Columbus, OH. Six engineers were present; four joined the task force as members and two attended as guests.

After introductions, the Chair expressed his views concerning the need for forming a Working Group for developing a PSRC report that would help protection engineers in understanding the Communications technology. The Chair then invited comments from those present. There was unanimous view that such a document was needed.

To develop a feel for what topics should be included in such a document, it was agreed that some presentations be arranged. Three volunteers agreed to make 20-minute presentations each at the next meeting. One presentation will be on the need of communication in protection, the second presentation will be on the state of the communication technology and the third presentations will be on a communication application in protection.

At the conclusion of this discussion, the Chair thanked the participants and adjourned the meeting.

Liaison Reports

1. Power System Communications Committee - E. A. Udren

The PSCC met in January in San Diego. Going forward, the PSCC will meet with the PSRC every January, and at each PES meeting in the summer.

The PLC Subcommittee will begin work on a new revision of C93.4, to be titled *Standard for Power-Line Carrier Line-Tuning Equipment (30-500 kHz) Associated With Power Transmission Lines*.

The Wire-Line Subcommittee is revising IEEE 820-1984 (R1999) *IEEE Standard Telephone Loop Performance Characteristics*; and IEEE 487-2000 *IEEE Recommended Practice for the Protection of Wire-Line Communication Facilities Serving Electric Supply Locations*.

The Broadband Powerline Carrier (BPL) Standards WG met to discuss status of the standards project with large participation and many sections in preparation. The WG is taking a cross-disciplinary look at application issues, including standard data link layers, plug-and-play interface, and Ethernet or direct parallel connection. It was reported that Motorola has introduced a new BPL equipment with low interference, that is accepted by the Amateur Radio community. A subgroup has been formed to develop an interconnection standard for safe connection of BPL to MV circuits.

The Fiber Optic Subcommittee is developing a standard for methods of bringing fibers into substations.

A PSCC Subcommittee is developing recommendations for dealing with security issues for IEC 61850, Communications Networks and Systems in Substations.

2. Substation Committee - J. Tengdin

3. IEC TC57 Working Group 10, 11 and 12 Report - E. A. Udren

3. IEC 61850, Communication Networks and Systems in Substations

- Part 10 - Conformance Testing – FDIS approved. This is last section from original project.
- UCA International Users' Group has adopted companion test procedures document to completely define how to do a conformance test.
- First conformance certificate issued for Siemens relay. Other products in test including GE, ABB, ZIV, others.
- Users interested in IEC 61850 progress should see test lab and conformance testing status at AEP Dolan Labs in Columbus, May 26-27, after PSRC.

- Power Quality Models update to 7-4 amendment 1 (Basic Communications Structure – Compatible Logical Node Classes and Data Classes – Power Quality Additions) – CD issued for comments.
 - Extension of common data classes for statistical and historical information – 7-3 Amendment 1, CD in development.
4. Technical issues (Tissues) and amendments to all parts are under discussion as real implementations are developed by vendors. WG 10 Chair Christoph Brunner reports that power quality, and historical/statistical additions, are getting a lot of attention now.
 5. WG 17 on DR and 18 on Hydro applications – development of new logical nodes (LNs) via additional amendments to 7-4. The working group is making a new, more readable Revision 2.
 6. WG 15 (Security – Frances Cleveland) is looking at security of GOOSE and sampled value packet transmissions. CDs are in preparation.

Coordination Reports

Old Business:

New Business:

I: RELAYING PRACTICES SUBCOMMITTEE

Chair: J. W. Ingleson

Vice-Chair: T. S. Sidhu

Webmasters: T. S. Sidhu and M. Tamije Selvy

Past Chair: J.G. Gilbert

1. Introduction: The Relaying Practices Subcommittee (SC) met on May 25, 2005 in Columbus, Ohio. Introductions were made, and an attendance list was circulated. The recorded meeting attendance was 26 Subcommittee Members and 17 guests.

The following Subcommittee Members were present at this meeting: B. Anderson, M. Bajpai, R. Beresh, J. Boyle, P. Drum, W. Elmore, F. Friend, J. Gilbert, I. Hasenwinkle, J. Ingelson, L. Kojovic, M. Meisinger, B. Mugalian, M. Nemier, B. Pettigrew, B. Pickett, M. Ranieri, M. Sachdev, D. Sevcik, T.S. Sidhu, M. Simon, V. Skendzic, M. Swanson, E. Udren, D. Weers, D. Weinbach

Guests were present at this meeting were as follows: O. Bolada, J. Garcia, B. Kennedy, J. Ziobco, T. Tennille, P. Waudby, S. Saygin, P. Millward, T. Kase, G. Johnson, J. Hackett, D. Tholomier, L. Wright, S. Thakur, R. Young, A. Makki, T. Guliente

2. Approval of minutes of the previous meeting: The minutes of the previous meeting were approved with no changes.

3. Reports from the Working Group Meetings: Updated information and a current report from each working group has been placed on each working group's web page, and will be updated whenever necessary. Formatting problems sometimes occur in copying WG reports to their website and thence to the SC minutes. We suggest that, if you perceive that there are formatting problems, you will consult the WG web page directly.

I1: Understanding Microprocessor-Based Technology Applied to Relaying

Chair: M.S. Sachdev

Vice-Chair: Ratan Das

Output: Report

The second meeting of the Working Group was held at 01:15 PM on May 24, 2005 in Room D242, Columbus Convention Center, Columbus, OH. Four members and two guests were present.

The minutes of the January 2005 meeting held in San Diego, FL were approved as circulated. The Chairman reported that three assignments had been received. Other assignments are needed to complete the revision. Dr. Alex Apostolov joined the Working Group and agreed to work on the revision of Section 6 - Database Issues. The Chair agreed to bring the first draft of the revised document at the next meeting.

At the conclusion of these considerations, the meeting was adjourned.

I2: Terminology Usage Review

Chair: M. J. Swanson

Vice-Chair: Barb Anderson

Output: Updates to IEEE 100: Standard Dictionary of Electrical and Electronic Terms

The I2 Working group met at 11:00 am on Tuesday, May 24, 2005 with six members and one guest. Mal Swanson chaired the meeting. Minutes from the last meeting were approved with corrections.

The Working Group then reviewed assignments.

1. Terms from C37.110: Mal will contact George Moskos about three terms that may need to be addressed.
2. Terms from PC37.118:
 - o "Nyquist rate" is in the IEEE dictionary. Roger Whittaker contacted Ken Martin, the working group chair, who will use the IEEE dictionary definition in the document.
 - o "Reporting rate" was approved.
 - o "Theoretical phasor" was approved.
3. Terms from C37.109: Walt Elmore stated that "coreless reactor" and "four-reactor scheme" are not in C37.100 or the IEEE dictionary. Walt consulted with Kevin Stephan about the term "disc-type reactor." Therefore, these proposed definitions are approved as written.
4. C37.92: Tabled until next meeting.
5. C37.230: Fred Friend found several terms that will need to be defined by that working group.
 - o Fred will ask Roger Hedding to define "interrupting medium."
 - o Fred will define "sympathetic tripping," "varmetric relays," and wattmetric relays" in combination with that working group.
 - o Barb Anderson will see if "adaptive relaying" has been previously defined by the I2 working group.
6. C37.98: Oscar Bolado found no new terms in this document
7. C37.105: Larry Lawhead discussed terms from this document, and will coordinate with the working group for definitions.
8. C37.91: Walt Elmore discussed three terms, which will need to be defined by the Chairman of that working group, Moh Sachdev.
9. C37.119: Tabled until next meeting.

10. C37.116: Mal Swanson will contact Frank Plumtre regarding definitions from this document.

11. C37.230: Fred Friend will work with this group to define several terms from the document.

Barb Anderson will continue looking for the C37.100 Chairman, and to find when the next revision will take place.

The meeting was adjourned at 12:10 pm.

I3: Microprocessor-based Protection Equipment Firmware Control

Chair: R. Beresh

Vice-Chair: D. Weinbach

Output: Recommended Practice

The meeting commenced with introductions. There were 10 members and guests in attendance.

Draft 6 of the document was submitted to the IEEE for pre-ballot review and Bob had incorporated some of the changes into Draft 7. Each item on the pre-ballot review was discussed by the Working Group and a final Draft 8 will be issued for balloting as soon as possible.

The members were thanked for their contribution and perseverance.

I4: IEC Standards Advisory

Chair: E. A. Udren

Vice-Chair: M. M. Ranieri

Output: IEC Standards Advisory

WG I4 is a continuing group that reviews and develops US positions and inputs for IEC TC 95 (Measuring Relays) standards projects. I4 incorporates the Technical Advisory Group (TAG) to the US National Committee of IEC for TC 95. The WG met at the May 2005 meeting.

I5: Trial-Use Standard for Low Energy Inputs to Protective Relays

Chair: E. A. Udren

Vice-Chair: P. G. McLaren

Output: New Trial Use IEEE Standard P1331

This WG has been developing C37.92, now titled Standard for Analog Inputs to Protective Relays from Electronic Voltage and Current Transducers.

Since the January meeting, IEEE Standards Board balloting and RevCom issues have been resolved in a flurry of activity, and the **Standard is approved**. Publication is scheduled for August 2005.

The WG met to review its draft for the WG paper describing the Standard. Changes were settled – copy transmitted with minutes. The chairman is to discuss with the PSRC officer in charge of papers the best venue for presentation. WG and subcommittee members with experience on Standards summary papers are welcome to make suggestions. An overview of the Standard was already given at a PSRC main committee meeting within the last year.

The WG should wrap up when the paper presentation is worked out.

I6: Revision of C37.90, Relay and Electrical Power Apparatus

Chair: M.M. Ranieri

Vice-Chair: J. Teague

Output: Revision of ANSI/IEEE C37.90-1989 (R1994)

The working group did not meet at the Columbus PSRC meeting.

PC37.90/D15 (PE/PSR) Revision "Standard for Relays and Relay Systems Associated with Electric Power Apparatus" will be reviewed by RevCom for the 21 September 2005 RevCom meeting.

I7: Revision of C37.90.3, Electrostatic Discharge Testing for Protective Relays

Chair: J. Teague

Vice-Chair: J.T. Tengdin

Output: New IEEE Standard C37.90.3

The group met on Wednesday with 18 members.

The initial Guide draft document was presented. For the next meeting in Calgary, this document will be IEEE formatted and distributed among WG members for their contribution and final completion.

PAR for this WG is in process of approval.

I8: Revision of C37.90.1, Standard Surge Withstand Capability Test

Chair: J.G. Gilbert

Vice-Chair: J. Teague

Output: Revision of IEEE Standard C37.90.1-1989(R1994)

The WG met on 5/25/05 with 14 members and 10 guests. Harley Gilleland chaired the meeting.

Harley discussed history of the task force and newly established working group.

Team Presentations were made by: TW Cease, Eric Urden, Rich Hunt, Christoph Brunner, & Jim Niemira.

All contributions to be sent to team leaders to consolidate into one file for their team and forward to Jim Ingleson for posting to the website by early June.

Bob Demsey commented that a paper rather than a guide would allow for more info.

The WG requested if possible that the WG meetings be moved back to a Tuesday meeting to accommodate travel plans.

I9: Revision of C37.105 - Standard For Qualifying Class 1E Relays And Auxiliaries For Nuclear Power Plants

Chair: S. Mazumdar

Vice-Chair: S.M. Usman

Output: Revision of C37.105

WG I9 met at the May 2005 PSRC meeting.

The meeting of the Working Group I-9 for revision of IEEE Standard C37.105 "Qualification of Class 1E Protective Relays for Nuclear Power Generating Stations" was chaired by Jim Ingleson because Sahib Usman was not able to attend. Sahib Usman has agreed to chair this group for the conclusion of this work.

Mario Ranieri will work on tabulating and classifying comments in preparation for the September meeting. The September meeting will be a double session. The group plans to resolve comments so far as is possible and to initiate re-balloting at that time.

I10: C37.98-1987 - Standard Seismic Testing of Relays

Chair: M. Nemier

Vice-Chair: M. Bajpai

Output: Revision of IEEE Standard C37.98

There were 5 members in attendance.

Members: Marie Nemier, Munnu Bajpai, Mario Ranieri, Steve Kunsman and Roy Ball

The major items discussed are as follows:

- E-mail harmonization annex appendix to members to provide comments.
Action Item: Marie Nemier
- Add to the harmonization annex appendix the graph made by Roy Ball showing the differences in the standard response spectrum of Figure 1 from C37.98 and Figure 1 from IEC 60255-21-3 to illustrate for. Develop comments between IEC Table 2 severity class and C37.98 for the harmonization annex appendix. A cautionary note shall be included stating that a relay tested to the requirements of the IEC standard does not meet C37.98, however a relay tested to C37.98 does meet the IEC standard.
Action Item: Marie Nemier
- Review Table 1 of C37.98 for correct terminology and develop a footnote to Table 1 for multifunction relays.
Action Item: Roy Ball and Steve Kunsman
- An effort shall be made by working group members to increase the membership of the working group. Invitations shall be made to ask for corresponding members.
- Verify that IEC 60255-21-3 is not currently under revision. Send an e-mail to Eric Udren.
Action Item: Roy Ball
- Review IEEE Standard 693.
Action Item: Roy Ball and Marie Nemier

I12: Revision of C57.13.1, IEEE Guide for Field Testing of Relaying Current Transformers

Chair: M. Meisinger

Vice-Chair: D.R. Sevcik

Output: Revision of ANSI/IEEE C57.13.1-1981 (R1992)

Subsequent to the January 2005 meeting Draft 7 of the guide was submitted to the IEEE Standard Association for balloting. The ballot period was from 04/10/05 to 05/10/05. We were successful in achieving the requisite 75% response and affirmative ballots.

Working Group I12 met on the afternoon of May 24th with 6 members and 3 guests. At the May 24th meeting comments received in the balloting process were reviewed, discussed and changes were incorporated. The chair and vice-chair will complete the discussed changes and email the revised document to the working group members for review. The chair will contact the document Sponsor and discuss the results of the ballot and decide if a recirculation ballot or RevCom Submittal is in order.

I13: C57.13.3 IEEE Guide for Grounding of Instrument Transformer Secondary Circuits and Cases

Chair: M.S. Sachdev

Vice-Chair: B. Mugalian

Output: Guide

The Working Group I13, Revision of C57.13.3 - Guide for Grounding of Instrument Transformer Secondary Circuits and Cases, met in Room D242, Columbus Convention Center, Columbus OH on May 25, 2005. Five members were present.

The working group discussed changes and corrections to two figures in the guide to better conform with the text and the ANSI symbols. Inclusion of a reference to Article 90.2 of the National Electricity Code was reviewed

and agreed upon. This clause of the Code confirms that the Code does not cover regulated electric power utilities. V. Rebbapragada will provide the ANSI symbols document and a copy of pages from the latest version of the Code.

An updated Overview provided in Version 9 was reviewed and agreed upon. It was also agreed that the minimum ground wire size mentioned in the guide be listed in AWG size and the conductor diameter be indicated in millimeter as well.

The summary paper was reviewed and it was agreed to revise it to four pages and a few figures be included as well. It was also agreed that the paper be submitted for publication in Power and Energy. The paper will be submitted later for presentation at various protection conferences.

At the conclusion of this business, the meeting was adjourned.

I15: Revision of C37.110, IEEE Guide for the Applications of Current Transformers Used for Protective Relaying Purposes

Chair: G.P. Moskos

Vice-Chair: B. Jackson

Output: Revision of IEEE C37.110-1996

The I-15 working group did not meet at the May meeting. The chair and vice-chair were unable to make the meeting and the chair cancelled the meeting. Since the January meeting, revisions were made to draft 5 and the chair has to review and release draft 6 for final comments.

I17: Trends in Relay Performance

Chair: W.M. Carpenter

Vice-Chair: J.D. Wardlow

Output: Special Report

The working group met on wednesday, May 25, with 1 member and 3 guests.

Rich Young filled in for chair Mark Carpenter, who could not attend.

The working group continues to collect relay performance data to add to the report presented at the January, 2004 main committee meeting. Not sure if we need to meet until we have collected all of 2004 data.

I18: Harmonization of IEEE C37.90.2

Chair: J. Burnworth

Vice-Chair: W. Higinbotham

Output: Revision of C37.90.2

The Summary Paper has been completed and approved by the IEEE officers. The paper has been submitted, with the assistance of John Tengdin, to the PES magazine Power and Energy for publication. We are presently waiting for a response on the submittal.

No other activities or Working Group meetings planned at present.

It is recommended to retain the I18 Working Group, until the end of the year (January 2006 meeting), in order to address any issues if they arise with the revised standard or summary paper.

4. Task Force Reports:

ITF1: Relay Service Letter Database

Chair: J.W. Ingleson

The database was last updated on November 14, 2002, and is available on the ITF1 area of the SC web site.

ITF2: Event Reconstruction Using Data from Protection and Disturbance Recording IEDs

Chair: J. W. Ingleson

The initial meeting took place at the May 2005 PSRC meeting.

A draft outline was distributed and was discussed.

The group decided to take this effort in the direction of a discussion of supporting event reconstruction, that is, supporting compilation of sequence of events (SOE), using data from relay and recording IEDs. This is actually broader than the original assignment statement. One issue identified was that internal delays in these devices are not widely understood, and are have not been quantified. Bill Dickerson and Jim Hackett agreed to work in this area and report to the next meeting. Jim Ingleson will prepare an overall report on the discussion.

No decision was made on the output to be expected from the effort.

4. Liaison Reports:

Instrument Transformers Subcommittee

As reported earlier, C57.15.5-2003 *Trial-Use Test Requirements for High Voltage Instrument Transformers 115-kV Nominal System Voltage and Above* was approved as a Test Guide with an expiration date of 2008. The W.G. has prepared an Annex (Annex H) related to unbalance current transformers for use as unbalance current protection on capacitor banks, along with a clause dealing with the temperature rise of the power terminals of instrument transformers under test. They opine that these items are mature and should be surveyed by the W.G. and Subcommittee for insertion in the Guide. They also note that there has been no activity in which a manufacturer has used this Guide to build equipment. Until there is enough activity to validate this Guide, the opinion is that it should be renewed as a Test Guide.

PAR P1601 Optical Current and Volyage Sensing Systems

This is a joint W.G. of PSIM/Transformers co-chaired by Harley Gilleland and Farnoosh Rahmatian. They have an ambitious schedule to complete this project by December, 2005.

5. Coordination Reports:

P384 - NPEC - Standard Criteria for Independency of Class 1E Equipment and Circuits

Nothing new to report. Group is still working and will extend due date to 2006. Issues related to Fibre-optic cable, temperature effects due to cable trays are being resolved.

W.G. PC57.13 (Revision of the C57.13 Standard) - General Requirements for Instrument Transformers

Chair: Tom Nelson

This document was re-affirmed in 2004. The W.G. is working industriously to complete the revision and submit it to RevCom for approval. The graphic work is the biggest obstacle; once it is finished, they will submit for balloting.

W.G. PC57.13.6 - Standard for High-Accuracy Instrument Transformers

Chair: Ten-Haagen

The title for this document was changed, document balloted, and re-circulated to resolve negative comments. The re-circulation ballot was successful (82 returns): 97% affirmative and still 3% negative. It is expected to be submitted since a strong effort was made to resolve the negatives.

See the [Transformers Committee web page](#) for further details.

J: ROTATING MACHINERY PROTECTION SUBCOMMITTEE

Chair: S. P. Conrad

Vice Chair: W. G. Hartmann

The Subcommittee met with 18 members and 23 guests in attendance on May 25, 2005, in Columbus, Ohio. The meeting started with introductions, sign-ins, and approval of the previous meeting's minutes. The Chair reported on the Advisory Committee meeting highlights.

J3: Protection of Generators Interconnected with Distribution System

Chair: E. Fennell

Vice Chair: R. Pettigrew

Output: Transaction Paper

The Working Group (WG) met in single session with 6 members and 9 guests in attendance.

The WG reviewed ballot comments, identified and recommended changes, and suggested corrections

As a result of no negative ballots cast on the transaction paper and the completion of the review and ballot comments, we will ballot the Committee Officers before the next meeting.

J4: Revision of C37.102 AC Generator Protection Guide

WG J4

M. Yalla, Chair

K. Stephan, Vice-Chair

Established 2000

Output: Guide

Expected Completion Date: 2005

Status: 16th meeting

This meeting of Working Group J4, C37.102 IEEE Guide for AC Generator Protection was held on Tuesday, May 24, 2005, with 18 members and 14 guests in a triple session.

Draft 6 of the guide was balloted. The balloted guide met all IEEE ballot requirements and had 97% affirmative votes with four negative votes. It is noted here that none of the multiple comments supplied with the negative ballots indicated which comments were the basis of the negative ballot. Also, many of these comments did not supply verbiage to correct the balloter's concerns. Both of these are requirements of negative ballots and are included on IEEE-provided comment forms that were not used in these cases. Draft 6.1, which incorporated interpreted proposed changes from the ballot comments, was handed out at this meeting. All of the comments resulting from the four negative ballots were reviewed and addressed as well as some non-negative ballot comments. It is hoped that the negative ballot issues will be resolved with the next draft for recirculation.

Discussion points included status of latest revision of C50.12 and C50.13 which are under revision, use of the term "distribution" applied to the transformer that is usually used in high-impedance grounding of a generator, excitation system terminology, winding temperature monitoring, frequency protection requirements, coordination needs between generator and system protection, reliability in terms of dependability and security, and "hybrid grounding."

J5: Generator Protection Setting Criteria

Chair: C.J. Mozina

Vice Chair: M. Reichard

Output: Paper

The WG met with 10 members and 16 guests.

The meeting was spent reviewing the results of the WG/Subcommittee ballot. Of the 34 ballots sent, only 7 returns were received. One negative ballot was received and the bulk of the WG session was spent discussing the suggested changes to the paper resulting from the negative ballot. The basic concern of the negative ballot was the paper was "too prescriptive" and conflicts in one area with the setting margins used by the negative balloting utility that are based on their experience of many years. The WG accepted most of the suggested changes, but two key items on the appropriate margins and the need for computer simulations were not accepted.

NERC has recently issued, for comment, PRC-019-1 (Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection) that is the exact subject of our paper. This document requests generator owners to provide their regions with information that ensures that AVR controls coordinate with generator capability and protective relays.

The Chair will communicate the results of the resolution of the negative ballot with the utility that cast it in hopes of resolving their issues. No new balloting is planned. Those who have not yet returned their ballots have until July 1, 2005. The Chair will incorporate the changes to the paper resulting from the ballot. A final paper review will be conducted at the September PSRC Meeting and the paper will then be submitted to the PSRC Officers for approval.

J7: Revision of C37.101, Generator Ground Protection Guide

Chair: J.T. Uchiyama

Vice Chair: R. Das

Co-Vice Chair: Mike Reichard

Output: Revised Guide

The Working Group J7, met on May 24, 2005 in two sessions. 9 members and 6 guests were present in the first session, while 10 members and 7 guests were present in the second session. The minutes of the January 2004 meeting held in San Diego, CA, was approved.

Draft 7 was balloted among WG and Subcommittee members before the May 2005 Meeting. 18 ballots were received out of a possible 32 ballots, and five other members informally provided their comments.

All the comments received so far have been incorporated in Draft 8, and this draft was discussed during the two sessions at this meeting. Draft 8 will be circulated among WG members on May 27, 2005, for the final review. Any comments on Draft 8 must be provided by June 17, 2005. The final draft will be submitted to IEEE for the general balloting by June 30, 2005.

The Chair will contact IEEE balloting organizers so that they can get ready between now and June 30, 2005. The Chair will coordinate with IEEE to complete the generally balloting process by August 15, 2005.

Comments on the IEEE ballots will be circulated to the WG members before the next meeting, and will be resolved before the next meeting. If any items are not resolved, they will be discussed at the next meeting.

JTF1: Protection Issues Related to Motors Connected to Variable Speed (Frequency) Drives Task Force

Chair: J. Gardell

Vice Chair: Prem Kumar

Output: Task Force Report

The Task Force met for a double session with 11 members and 10 guests on May 25, 2005. The Chair reviewed the activities to date for the group including a reminder of the writing and other assignments given during the January meeting.

For the balance of the session Mr. Ed Owen of GE gave a presentation to the group to further the understanding of drives and drives motors and the associated protection.

The presentation consisted of the following subject matter:

- A. Variable Frequency Drive Technology Overview
- B. AC Motor Characteristics and Issues when Connected to VFDs
- C. Motor, Drive and Power Distribution System Protection
- D. Significant Issues to Address in the Motor Protection Guide

In general a significant amount of information was given during Ed Owen's presentation. The Chair will distribute copies of the PowerPoint presentation to all members and attendees for the reference and use.

The Chair requested that all assignments be sent to him ASAP so that they can be compiled for the next meeting. A single session will be held at the September PSRC Meeting to discuss the writing assignment drafts and future work towards completion of the assignment.

JTF2: Protection Issues Related to Starting Combustion Turbines via Inverter Drives Task Force
Chair: M. Reichard
Vice Chair: E. Fennell
Output: Task Force Report

The task force did not meet in Columbus. The TF's first meeting will take place in September 2005.

Liaison Reports

Electric Machinery Committee

C.J. Mozina

The Electric Machinery Committee will hold its annual meeting during the June 2005 PES General Meeting in San Francisco. Both C50.12 and C50.13, standard we cited in many of our documents, have not yet been approved.

IAS I&CP Committee

C.J. Mozina

Color Book Series

As previously reported, the update of the Buff Book is delayed due to the creation of the new "Mother Book" which is to contain material thought to be common to a number of the Color Book series. Currently, individual Color Book chapter Chair are to review and identify areas where changes need to be made.

Hybrid Grounding WG

The WG met at the I&CPS Meeting in Saratoga Springs, NY. The results of the first set of EMTP studies were reviewed as well as the outline for the planned WG transaction paper. There will be yet another article in the IAS magazine this Fall on hybrid grounding.

Coordination Reports

P408-NPEC, Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations

R.V. Rebbapragada

No report.

Old Business

No report

New Business

The SC Chair discussed with the SC that the Moor Guide (C37.96) is up for reaffirmation and we are seeking a Chair to see this effort through.

Bill Kennedy suggested that the SC might want to examine large interconnected windfarm protection. After a

discussion of the issues, including inverter protection, collector bus protection and utility transmission and subtransmission connection, the SC passed on investigating protection of the wind machines used for the this purpose. It was suggested that the Substation or Line SCs might want to look into this matter from their areas of expertise.

George Nail and Phil Winston strongly suggested that TF1, which is investigating the protection of VSDs, be made a WG as the TF has met 7 sessions and plans to produce a report for the WG that undertakes the revision of the Motor Protection Guide (C37.96). Jon Gardell, the TF Chair, read the scope to the SC, and the SC overwhelmingly voted to make this effort a WG that is now designated J1.

Rick Taylor suggested that WGs place their scope statement on the WG minutes circulated at each meeting, and read the scope aloud at the beginning of WG meetings so new members and guests will be informed. The SC Chair agreed with this suggestion and the WG Chairs should implement.

K: SUBSTATION PROTECTION SUBCOMMITTEE

Chair: C. R. Sufana

Vice Chair: F. P. Plumptre

The Subcommittee met Wednesday May 25, 2005, at Columbus, Ohio with 15 members and 21 guests attending. The minutes of the previous meeting in San Diego were approved.

ITEMS OF INTEREST FROM THE ADVISORY COMMITTEE MEETING:

Charlie Sufana reported:

1. Miriam Sanders would like the matrix sheet (reporting on all WG activities) to be filled out by vice chairs (last two columns on room requirements) before next meeting
2. Charlie would like 'K' subcommittee members to keep in mind ideas for future surveys.
3. Charlie reported on the "My Ballot" electronic balloting system
4. At the September meeting K2 will make a presentation on Breaker Failure Protection
5. In the September meeting there will be a joint meeting between K and Advisory Group #2 from CIGRE
6. For minutes from all WG's, please restate assignments as part of the written text for the minutes. This is for the benefit of K members and guests who are members of the particular WG.

Reports from the WG Chairs

K1: GUIDE FOR THE PROTECTION OF TRANSFORMERS AGAINST FAULTS AND ABNORMAL CONDITIONS

Chair: M. S. Sachdev

Vice-Chair: P. G. Mysore

Established: 2003

Output: Subcommittee Report

Expected Completion Date: 2008

The Working Group K01, Protection of Transformers against Faults and Abnormal Conditions, met in two back-to-back sessions in Room D234, Columbus Convention Center, Columbus, OH at 03:00 PM on May 24, 2005. Fifteen members and twenty-five guests were present.

The minutes of the January 2005 meeting of the Working Group were distributed and approved at the meeting. The Chair briefly outlined the progress made since the January 2005 meeting of the Working Group and outlined the submissions that had been incorporated in Draft 3.

The contribution on Relay setting included as Annex C, Transformer Protection Setting Guide was reviewed and it was agreed that this annex be updated. The revision of Annex C was assigned to Simon Chano, Bill Kennedy, and Michael Thompson. Simon Chano briefly discussed the contribution on Thermal Overload that he had provided for Annex D. Michael Thompson then discussed his contribution on Internal Phase Shift and Zero Sequence compensation that has been included in the guide as Annex E. The issue of selecting papers for including in the Bibliography was then discussed. Jalal Gohari, Vittal Rebbapragada and Demetrios Tziouvaras accepted the assignment of selecting the papers from a Master list to be provided by the Chair. All assignments are due by June 30, 2005.

At the conclusion of this business the meeting was adjourned.

K2: BREAKER FAILURE PROTECTION

Chair: R. A. Hedding

Vice Chair: A. Chaudhary

Established, 2001

Output: ANSI C37.119

Expected Completion Date: 2006

Draft 3

K2 met Tuesday morning with 17 members and 11 guests. The results of the first recirculation ballot were discussed and the resolution to the negative ballot by Mr. Miller that was developed by the resolution committee (Mssrs. Behrendt, Nail, Madhani, Miller, and Hedding) were reviewed . Some slight wording changes were made to paragraphs in clause 9.0 Just in the Nick of Time we were able to interrupt the 2nd recirculation ballot, thanks to the presence of Ms. Sahr, and substitute the revised draft 7. The recirculation will restart today or tomorrow.

Since last meeting members and honorary members of the working group : Jerry Johnson, Don Sevcik, Eric Udren, and I presented a pre conference Tutorial on Breaker Failure Protection at Texas A & M . A presentation is also planned for this fall's Minnesota Power System Conference, and a future PSRC Thursday morning Main Committee Meeting.

Pending 100% approval on this recirculation, we should be sending the Guide to RevCom before the next PSRC meeting. We might just be finished with this assignment, but based on Karl Z's experience, we won't hold our breath !

K3: REDUCING OUTAGES THROUGH IMPROVED PROTECTION AND AUTORESTORATION IN DISTRIBUTION SUBSTATIONS

Chair: B. Pickett

Vice Chair: T. Sidhu

Established, 2002

Output: Paper

Draft 7.3

9 members and 11 guests attending.

Minutes from previous meeting reviewed and approved.

Draft 7.3 was discussed and reviewed.

New assignments for Patrick Carroll, Simon Chano, Mark Simon, Charlie Sufana

Everyone to review document.

K5: APPLICATION OF COMMON PROTECTIVE FUNCTIONS IN MULTI-FUNCTION RELAYS

Chair: S. R. Chano

Vice Chair: D. H. Miller

Established, 2004

Output: Paper

Expected Completion date: 20xx

Status: Outline rev. 0

The WG met on Tuesday morning, May 24 with 14 members and 10 guests present. A presentation on the use of functions in multi-function microprocessor based relays was given by Larry Henriksen. This presentation lead to further discussion on the use of breaker failure functions in line protection relays. The outline for the report was reviewed and some modifications were made. Writing assignments were also made. These writing assignments are due on July 1. Two additional presentations on the subject are planned for the September meeting.

KTF6: SUDDEN PRESSURE RELAYING

Chair: R. Crellin

Vice Chair: W. Gordon

Established, 2005

Output: Survey

Expected Completion date: 20xx

Status: Initial meeting

The WG met for the first time this morning in a single session with 15 individuals. Ten people indicated they would like to become members of the working group.

We discussed sudden pressure relaying application and decided to proceed with a document/utility survey. Assignments for the group were made (due in four weeks (end of June)).

William Gordon volunteered to be the co-chair.

K7: GUIDE FOR THE PROTECTION OF SHUNT REACTORS.

Chair: K. A. Stephan

Vice Chair: P. G. Mysore

Established, 1999

Output: Revision of ANSI/IEEE C37.109

Expected Completion date: 2004

Status: Reviewing Draft 10

The Working Group met on Tuesday, May 24, 2005, in one session with 3 members and 4 guests. Draft 11 of the guide was balloted. The balloted guide met all IEEE requirements and had 96% affirmative votes with three negative votes. It is noted here that none of the multiple comments supplied with the negative ballots indicated which comments were the basis of the negative ballot. Also, a few of these comments did not supply verbiage to correct the balloter's concerns. Both of these are requirements of negative ballots and are included on IEEE-provided comment forms that were not used in these cases. Draft 12, which incorporated interpreted proposed changes from the ballot comments, was handed out at this meeting. All of the comments resulting from the three negative ballots were reviewed and addressed. It is hoped that the negative ballot issues will be resolved with the next draft for recirculation.

Discussion points included noting that air-core reactors are used up to 138 kV now, the need for equilateral-triangular placement of reactors in a three-phase bank, percentage-restrained low-impedance differential applications, ground differential applications, and the need for shielding for magnetic field control.

KTF9 Arc Flash Task Force

Chair: K. Zimmerman

Vice Chair: R. A. Hedding

Established, 2005

Output: Technical report

Expected Completion date: 20xx

Status: Initial meeting

Task Force KTF9 met with 28 attendees.

After introductions, Roger Hedding showed an impressive video presentation on the hazards of Arc Flash and Karl Zimmerman delivered a PowerPoint presentation on the protection approaches to mitigating the effects of arc-flash.

There was lively discussion on the possibility of forming a working group on this topic.

Issues that were raised:

- The effect of insufficient cts for application of overcurrent elements and the possible need for coordination with the IEEE Switchgear committee
- Arc flash standard P1584 is based on three-phase faults, without addressing arc flash calculations for other fault types
- To make sure the working group focuses on protection aspects of addressing this problem within the scope of the PSRC

Write a technical report to the Substation Subcommittee on protection tools that mitigate the effects of arc-flash and how arc-flash impacts protection.

13 individuals signed up as working group members. Karl Zimmerman has accepted the role as Chairman and Roger Hedding as Vice Chair. Others are invited to join the WG.

Respectfully submitted,
Karl Zimmerman
Chair, Task Force KTF9

K10 (Ex KTF1): SCC21 Distributed Resources Standard Coordination

Chair: G. F. Johnson

Vice Chair: TBA

Established, 1999

Expected Completion Date: 200x

Output: Standard through the SCC 21

K10--SCC21 Distributed Resources Standard Coordination working group met on May 24, 2005, with 9-members and 5-guests. Members and guests had a brief discussion about connecting DG resources to spot networks; practices, experience, problems, and concerns. I reported that a section on spot networks has been

submitted by Martin Baer and Bill Ferro to be included as an appendix to P1547.2 which is the Application Guide for 1547. As soon as I can, I will distribute a copy to members and guests.

Don Hornak of Basler Electric provided an update on Small Generation Coalition group regarding the FERC RM02-12-000 Commission Order/Opinion, the final rule making issued for the Small Interconnection proceedings giving it a signature Order Number 2006. Don tells us this is related to rates and schedules, not technical. I will include Don's email and phone number in case anyone has questions.

Dave Costyk of Detroit Edison was our guest speaker and provided a detailed overview with handouts of the SCC21 P1547 working groups including the PAR, chair, vice chair, assignment, and status of each. P1547.1, testing has been submitted to the standards board and is awaiting publication pending approval at the June '05 meeting.

Dave also covered several practical DG installation cases and the protection challenges encountered when the DG is applied at different points on a typical radial distribution feeder. There was excellent feedback from the group and the presentation was well received by all. I will attach a copy of Dave's power point presentation to the minutes.

We plan to continue the presentation process covering local requirements and case studies, but as yet, I have no presenter for the next meeting. If anyone is interested in providing a short presentation on your DG experiences please let me know.

K13 (PC 37.116): GUIDE FOR PROTECTIVE RELAY APPLICATION OF TRANSMISSION-LINE SERIES CAPACITOR BANKS.

Chair: F. P. Plumptre

Vice Chair: D. Hamai

Established, 1999

Output: Guide for the application of protection on transmission series capacitor banks

Expected Completion Date: 2005

Draft 8

Working Group K13 met at 3:00PM on Tuesday May 24.

Seven members and five guests were present.

Final draft 8.3 was distributed prior to the meeting. The working group discussed the "platform-to-ground" and the current unbalance spreadsheets that are planned for the PSRC website.

After incorporating final text changes in the next week, the Final draft will be submitted for IEEE Mandatory Editorial Coordination and the balloting process standard.

KTF14 Bus Protection Task Force

Chair: B. Kasztenny

Vice Chair: S. P. Conrad

Established, 2005

Output: Guide

Expected Completion date: 20xx

Status: Initial meeting

The Task Force met in Columbus on May 24, 2005 with 19 in attendance. After a brief overview of history of the K4 WG and the C37.97 PAR, and short discussion on the merit and need for a Bus Protection Guide, the Task Force recommended to proceed with a new Working Group, with the mission to develop a guide.

The TF proposes the following WG assignment:

Write a “Guide for Protective Relay Applications to Power System Buses” to present practical bus protection schemes; discuss their adequacy, complexity, strengths and limitations with respect to variety of bus arrangements, while providing specific application guidelines.

Twenty PSRC attendees declared as Members. Bogdan Kasztenny agreed to chair the Working Group. Steve Conrad volunteered to be the vice-Chairman.

The Task Force proposes the following title, scope, purpose and reason for the PAR application:

Title	Guide for Protective Relay Applications to Power System Buses
Scope	Concepts of power bus protection are discussed in this guide. Consideration is given to availability and location of breakers, current transformers and disconnectors as well as bus switching scenarios, and their impact on selection and application of bus protection. A number of bus protection schemes are presented; their adequacy, complexity, strengths and limitations with respect to variety of bus arrangements are discussed; specific application guidelines are provided. Breaker failure protection is discussed as pertaining to bus protection. Means of securing bus protection schemes against corrupted relay input signals are also included.
Purpose	The purpose of the guide is to assist utility, industrial and commercial plant engineers in selecting and engineering proper bus protection.
Reason	Bus faults may have catastrophic consequences on substation equipment by releasing fault energy within the substation perimeter, and as such, should be cleared as fast as possible. On the other hand inadvertent operation of a fast bus protection scheme could drastically change topology of the power system jeopardizing system stability and/or causing large-scale interruptions in power delivery. Proper application of bus protection requires high level of expertise, proportional to the complexity of the bus arrangement. Power system upgrades and new bus designs make the busbar arrangements more complex calling for more sophisticated protection schemes. Electrical engineers and technologists working with electric power utilities or industrial and commercial plants and facilities, consultants and manufacturers in general and those working in designing, selecting and ensuring a reliable, dependable, and safe protection systems would benefit from the information provided in this guide.

Reading assignments have been distributed to critically review the last draft of the K4 WG, in preparation for the new table of contents, and writing assignments. The prospective members of the proposed WG agreed to try teleconferences as means to review the existing material and progress toward the new outline.

Liaison Reports:

Tabled until next meeting

Old Business

None to report

New Business

Presentation by Venkat Mynam on Non Conventional Fault Current Limiters

Presentations:

Presentations of interest are always welcomed at the main committee. This meeting we had the pleasure of three such presentation.

Christina Sahr from the IEEE Standards Association gave a summary on the myBallot process that IEEE has now put in place to facilitate balloting.

Dr. Mohidar Sachdev presented the latest revision for C57.13.3 Guide for Grounding of Instrument Transformer Secondaries (WG-I13)

Mr. Amir Makki presented the h* working group output on File Naming Convention.

All three presentations were well received and interesting. Thank you Christina, Moh and Amir for making our Main Committee meeting interesting.