

**POWER SYSTEM RELAYING COMMITTEE
OF THE
IEEE POWER ENGINEERING SOCIETY**

MINUTES OF THE MEETING

**MAY 8-11, 2000
GRAND RAPIDS, MI**

**POWER SYSTEM RELAYING COMMITTEE
MAIN COMMITTEE MEETING**

**Grand Rapids, MI
May 11, 00**

I. CALL TO ORDER

Arun Phadke, Chairman

II. APPROVAL OF MINUTES

Rick Taylor, Secretary

The minutes of the Louisville meeting were approved.

III. FINANCIAL REPORT

Rick Taylor, Secretary

The financial report is available upon request from Rick Taylor.

IV. REPORTS OF INTEREST

A. Technical Paper Coordinator's Report

George Nail

PSRC will sponsor twenty papers at the 2000 Summer Power Meeting in Seattle. We will have three sessions, which will not overlap. They are scheduled for Tuesday morning with John Tengdin as Chair, Tuesday afternoon with Dennis Holstein as Chair, and Wednesday morning with Mladen Kezunovic as Chair. We really appreciate the volunteers for chairing these sessions. We will again need people to chair sessions at the 2001 Winter Power Meeting in Columbus, Ohio. If you plan to attend and would be willing to chair a session, please let Rick or me know at the September meeting.

B. Power Engineering Society Report

Gary Michel

The PES Governing Board met for the first time in the Far East at the PES 2000 Winter Power Meeting in Singapore. New elected members were introduced.

PES reorganization was a major topic of discussion. The Technical Council has proposed a PES structure to parallel the restructured utility industry with generation, transmission, distribution, power marketing, and ISO components. Comments from technical committees and the PES membership regarding this change are solicited. Results will be reviewed at the PES 2000 Summer Power Meeting in Seattle. Restructuring the major PES meetings is also being considered to reflect any organizational changes.

A NERC/PES partnership for standards development is under discussion. NERC is interested in publishing Operations and Planning Policies as IEEE Standards. The partnership is being tried with formation of a joint working group on operator training.

C. CIGRE

T.W. Cease-Chuck Mozina

Next meeting of SC34 will be in Paris, France, August 28-31, 2000. Three Colloquium sessions will be held by SC34 on the following subjects:

- Use of Communication in Protection and Substation Control: Current and Future Practice
- Joint SC34/35 Teleprotection Workshops
- Replacement of Conventional CT's and VT's by Novel Current and Voltage Sensors: Impact on Substation Design—Joint with SC12/23
- Registration information for the Paris meeting will be available on the CIGRE Website—<http://www.CIGRE.org>, or you can directly link through the PSRC Website.

The year 2001 meeting of SC34 will be held in Sibiu, Romania, September 10-15, 2001. Paper Abstracts are due by December 31, 2000 with final papers due by March 31, 2001. Paper length is limited to 6 pages in CIGRE format. A formal "call for papers" will be issued later this year with further details. Papers must address the following Preferential Subjects listed below. If you intend to submit a paper for this conference, please contact Chuck Mozina at 727-545-7627 or e-mail: cmozina@beckwithelectric.com.

Please send a copy of your proposed paper to TW Cease, our new representative to CIGRE SC 34.

Preferential Subject #1	Optimization of protection performance during system disturbances
Preferential Subject #2	Numerical relay setting procedures and tools
Preferential Subject #3	Coordination of digital relays and conventional instrument transformers

D. EPRI

John Burger

No written report.

E. IEC REPORT

Eric Udren

TC 95 RELAY STANDARDS

Our US Technical Advisory Group is developing a vote for only one document at this time:

95/92/FDIS (Draft International Standard):

60255-22-3 - Radiated Electromagnetic Field Disturbance Tests

This standard covers immunity to radiated fields from 80 MHz to 1 GHz. We opposed this standard in earlier CD and CDV drafts were discussed in several previous voting cycles. Our negative comments and votes have been based on the IEC's insistence on a test field strength of 10 Volts per meter, as compared to 35 V/m in IEEE C37.90.2. US participants feel that 10 V/m is not adequate.

The TAG agreed to vote no on this final draft Standard voting cycle. The document will likely become an IEC standard anyway because of support from the European member nations.

It was mentioned that the reaffirmation ballot for C37.90.2 in the PSRC had received four negative ballots from voters who were concerned about lack of coordination with the IEC. We would propose that the voters be informed of known gap between IEC and IEEE levels, and our resolution not to reduce the severity of the C37.90.2 test. We would like to know from them of any technical reasons why it should be reduced to the IEC level.

The TA/WG Chairman has now obtained access to the protected area of the IEC web site, where we can obtain the following for TC 95:

- Program of TC developments
- Status of standards
- Status of new or revision projects
- Voting records
- Catalog information
- For new voting documents, electronic document (.pdf and sometimes MS Word).

From now on, all IEC draft and voting document handling will be handled electronically. We do not yet know if IEC will leave voting documents on the site long or indefinitely after voting. We believe that we can access information and programs for any Technical Committee.

TC 57 SUBSTATION CONTROL AND COMMUNICATIONS STANDARDS

These WGs are developing IEC 61850, Communication Networks and Systems in Substations, which defines a standard protocol for substation control and protection, including alternate communications stacks to be used with a standard substation-defined object-oriented user layer.

The last meeting took place in Orlando the week of March 7. The WGs 10 and 11 reviewed national committee comments on recent drafts of subparts of Part 7. They did not finish, even at a special continuation meeting in Chicago April 24-26. Nonetheless, new editions of these subparts have been circulated to the WG members as proposed CDVs (late-stage voting draft to be sent to national committees). Similarly new documents have also been proposed as CDVs for some other parts of 61850.

The consistency and stability of these drafts is debated at this time. However, the WG Convenors are pushing to keep the project from falling too far behind schedule.

At the WG 12 meeting in Orlando, the WG agreed to proceed with national committee circulation of a committee draft (CD) for the Serial Unidirectional Process Bus profile described in 61850-9-1, including the status information transmission requested by the US. The WG also agreed to proceed with Part 9-2 on general substation process bus using Ethernet LAN. The WG will meet again in Arnheim, Netherlands on May 22.

Joint Task Force 3 developed an outline and development plan for Part 10 on Conformance Testing, to be continued at a meeting in Arnheim.

Joint Task Force 2 met to review Part 6, which had been scoped to produce a substation description language which would serve as a dynamic, on-line network management tool for substation control systems, integral to the overall IEC scheme. The Convenor of the JTF reduced the scope to that of only a manufacturer configuration tool in a unique European description language. The US participants feel this creates a gap in the IEC standard, and are proposing an IEEE WG at the Substations Committee to create a standard for a suitable substation configuration and management language. The PSRC will participate in this project.

F. Standard Coordinator's Report

Moh Sachdev

At the May -2000 meeting of the PSRC, Mohindar Sachdev took over as Standards Coordinator. He hopes and requests that members assist him with the same kind of patience that they previously showed to Miriam Sanders.

Important policy issue

The new policy in standards developments requires that the implementation of the following metric policy.

After 1 January 2000, proposed new standards and revised standards submitted for approval shall use metric units exclusively in the normative portions of the standard. Inch-pound data may be included, if necessary, in footnotes or annexes that are informative only.

For more information visit:

<http://www.standards.ieee.org/announcements/metricpolicy.html>

Updated Documents

RevCom has updated the following documents recently.

1. IEEE-SA Standards Board Working Guide for the Submittal of Proposed Standards is posted as two files. The html file containing the guide is posted on

<http://standards.ieee.org/guides/revguide.html>

The pdf file of the guide is posted on

<http://standards.ieee.org/guides/revguide.pdf>

2. IEEE-SA Standards Board Form for Submittal of Proposed Standards is posted as two files. The html file containing the guide is posted on

<http://standards.ieee.org/board/rev/submitform.doc>

The pdf file of the submittal form is posted on

<http://standards.ieee.org/board/rev/submitform.pdf>

3. IEEE-SA Standards Board RevCom Conventions is posted as two files as well. The html file is posted on

<http://standards.ieee.org/board/rev/revconventions.doc>

The pdf file of the conventions is posted on

<http://standards.ieee.org/board/rev/revconventions.pdf>

These documents can be downloaded and used in developing new standards and revising old standards. More information is available on the IEEE Standards Web page

<Http://standards.ieee.org/>

Standards Activity

1. Standards in need of review

- 1344 IEEE Standard for Synchrophasors for Power Systems
- C37.90.2 IEEE Standard for Withstand Capability of Relay Systems to Radiated electromagnetic Interference from Transceivers
- C37.98 Standard for Seismic Testing of Relays
- C37.102 IEEE Guide for AC Generator Protection

2. Standards Reaffirmation Applied

- C37.90.2 IEEE Standard for Withstand Capability of Relay Systems to Radiated electromagnetic Interference from Transceivers

3. Standards Reaffirmation granted

- C37.98 Standard for Seismic Testing of Relays
- C37.101 Guide for Generator Ground Protection
- C37.105 Standard for Qualifying Class 1E Protective Relays and Auxiliaries for Power Generating Stations
- C37.109 Guide for the Protection of Shunt Reactors
- C57.13.1 Guide for Field Testing of Relaying Current Transformers

4. Standards Withdrawn

- None

5. PAR to be submitted:

- PC37.98 Standard Seismic Testing of Relays

6. PAR Submitted

- PC37.101 Guide for Generator Ground Protection

7. PAR Approved

- PC37.117 Guide for the Application of Protective Relays Used for Abnormal Frequency Load Shedding and Restoration

8. PAR Withdrawn

- None

9. PAR Expirations coming up

- PC37.104 Guide for Automatic Reclosing of Line Circuit Breakers for AC Distribution and Transmission Lines.

10. PAR Extensions requested

- None

11. PAR Extended

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

12. Balloting Bodies requested

- PC37.90.1 Draft Standard Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus
- PC37.92 Trial Use Standard for Low Energy Analog Signal Inputs to Protective Relaying

13. Standards in Balloting Process

- C37.90.2 IEEE Standard for Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers (Reaffirmation)
- PC37.95 Revision to Guide for Protective Relaying of Utility-Consumer Interties
- C37.102 IEEE Guide for AC Generator Protection (Reaffirmation)
- PC37.104 Guide for Automatic Reclosing of Line Circuit Breakers for AC Distribution and Transmission Lines.
- PC37.108 Revision to Guide for the Protection of Network Transformers
- C57.13.3 Guide for Grounding of Instrument Transformer Secondary (Reaffirmation)

14. Standards Submitted to Standards Board

- PC37.99 Revision to Guide for Protection of Shunt Capacitor Protection

15. Standards Approved

- PC37.91 Transformer Protection Guide
- PC37.96 Revision to Guide for AC Motor Protection

16. Standards Published

- PC37.111 Revision to Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems
- C37.113 Guide for Protective Relay Applications of Transmission Lines

Standards Board Meeting Schedule

The Standards Board would be meeting at the following dates. The meeting dates for the year 2001 are tentative at this time.

2000 June 21	2000 December 07
2000 August 11	2001 March 22
2000 September 21	2001 June 14
2000 October 27	2001 September 13

The spreadsheet containing the status of all PSRC Standards, guides and recommended practices will be posted on the PSRC Website.

G. Substation Committee Report

John Tengdin

The PES Substations Committee has formed an ad hoc group, chaired by Larry Barto - Georgia Power, to examine the need for an IEEE standard for Substation Configuration Management. This standard would include the connectivity of the power system devices, the connection of IEDs to the power system, and the substation communication system connected to the IEDs. It would also be dynamic, reflecting changes if an IED went off line. IEC 61850-6 Substation Configuration Language has a much narrower scope. It was learned at the TC57 WG11-12 meeting in March that the IEC document will primarily be an engineering tool used by manufacturers to configure IEDs, and thus will not satisfy a utility's needs for configuration management. The ad hoc group will make its report - whether or not to proceed with a PAR - at the PES Summer Meeting in Seattle. If the word is "Go", then the first meeting of the working group will be at the joint meeting with PSRC in September. The intent would be to establish strong liaison with PSRC to ensure that the needs of relay engineers are met.

The Substations Committee is also looking at C37.2-1996 Device Function Numbers. The question is: Can the document be re-affirmed as is, or should it be updated? If we need to do an update, the work should start soon. A small task force of Substations C-3 members is looking at the question from a substations perspective. A TF will make recommendations at the Summer Power Meeting in July. A PSRC perspective is also needed. Teams of three experts from "I" Subcommittee (Moh Sachdev, Munnu Bajpai, and Mike McDonald) have volunteered to provide that input.

Substations WG C3 is at work revising the SCADA standard C37.1-1994. The present version references C37.90 for environmental, voltage ratings, hipot, >etc. We were surprised when we realized that C37.90 does not explicitly cover voltage ratings and operating ranges of dc as a power supply input voltage. This matter is now covered by PSRC WG I-6 in their latest draft of PC37.90 (draft 9 R1) in Clause 4.4.2.1. Second, we had also deferred to C37.90 for auxiliary contact ratings, frankly without realizing that the standard specifies nothing. It leaves it up to the manufacturer to define what is the rating of his contacts. We feel that the update should specify some very modest dc resistive make and break contact rating (such as 10 VA) for auxiliary contacts of IEDs. These auxiliary contacts are being interconnected between relay IEDs for various relay schemes so are widely used. It seems inappropriate to leave this matter wide open, as it is today, and still is in draft 9 R1. These comments have been forwarded to WG I-6.

The fall meeting of PSRC will also be the annual joint meeting with the C0 portion of the Substations Committee. To minimize conflicts with PSRC WG meetings and the Utility Initiative, the Substations work sessions, task forces, and working groups will meet on Sunday and Monday (September 10 & 11).

V. SUBCOMMITTEE REPORTS

Subcommittee reports are available under "Minutes" on the Web Page.

VI. OLD BUSINESS

Nothing to report

VII. NEW BUSINESS

Nothing to report

FUTURE MEETING LOCATIONS AND DATES:

September 18-21, 2000	Andover, MA	Rolling Green Inn
January 8-11, 2001	Austin, TX	Hilton-Austin North
May 21-24, 2001	Vancouver, BC, Canada	The Empire Landmark
September 17-20, 2001	Madison, WI	Madison Concourse
January 7-10, 2002	Laguna Cliffs, CA	Laguna Cliffs Marriott
May 2002	Not decided yet	
September 9-12, 2002	Ponte Vedra Beach, FL	Saw Grass Marriott

B. ADVISORY COMMITTEE

Chairman: A.G. Phadke

Vice Chairman: G.R. Nail

May 9, 2000

The official response of the PSRC to the PES reorganization proposal was formulated at this meeting with contributions from the Long Range Planning Task Force, the AdCom, and PSRC officers. This report has been sent to the Technical Council, and this subject along with the comments received from all the Technical Committees will be a subject of discussion at the Seattle Summer Power Meeting.

There had been some uncertainty about scheduling of a PSRC tutorial at one of the forthcoming PES meetings. After a telephone conversation with the Chairman of the Power Engineering Education Committee, it was agreed that our EMTP tutorial will be presented at the Columbus Winter Power Meeting of 2001.

It was agreed that the general membership of PSRC has an interest in the work of the New Technology working group, C3, chaired by Alex Apostolov. It was decided that this working group will hold meetings on Wednesday evenings, alternating with the 'Ask the Experts' sessions normally scheduled for that time slot.

Moh Sachdev has taken over the assignment of Standards Coordinator from Miriam Sanders. He and Miriam will investigate the possibility of having a new edition of C37 collection of PSRC standards published by the IEEE SA.

Steve Conrad takes over as the PSRC Webmaster from Moh Sachdev starting with this meeting.

Chuck Mozina's term as the USNC representative to CIGRE study committee 34 expires this year. T.W. Cease takes over this responsibility, and will serve as our representative for the next 6 years. If you have any questions regarding CIGRE, please contact TW or Chuck in the future. You may also contact Arun Phadke, who is the current Chairman of the USNC Technical Committee.

B1: AWARDS AND TECHNICAL PAPER RECOGNITION

Chair: Brad Nelson

Vice Chair: Damir Novosel

Output: Review & Recommend PSRC Publications and Awards

Expected Completion Date: Continuous

The following PES award winners announced and recognized at the Main Committee meeting:

PES Prize Paper Award – Microprocessor Based Instrument for Detecting and Locating Electric Arcs, by T. S. Sidhu, Gurdeep Singh and M. S. Sachdev

PES Working Group Recognition Award (for a Standard or Guide) – C37.112 IEEE Standard Inverse-Time Characteristic Equations for Overcurrent Relays, chairman G. Benmouyal

The PSRC is proud of our winners selected from among the nominees of the 17 technical committees of the PES. The winners will be recognized at the PES Summer Power Meeting.

The following retiring subcommittee chairmen were recognized:

Mark Adamiak, Chairman, Relaying Communications Subcommittee

Jeff McElray, Chairman, Relaying Practices Subcommittee

Phil Waudby, Chairman, Rotating Machinery Protection Subcommittee

John Zipp, Chairman, Line Protection Subcommittee

Phil Winston, Chairman, Systems Protection Subcommittee

The following chairmen of completed working groups were recognized:

Mladen Kezunovic, Chairman, Application of Intelligent Systems to Power System Protection

Mark Carpenter, Chairman, C37.113 Guide for Protective Relay Applications to Transmission Lines

Barb Beckwith, Chairman, Terminology Usage Review

Doug Dawson, Chairman, Relay Trip Circuit Design

B2: FELLOWS AWARDS

Chair: J.S. Thorp

Output: Review Fellow Nominations

Expected Completion Date: Continuous

No written report.

B3: MEMBERSHIP COMMITTEE

Chair: M. Swanson

Output: Improve PSRC Participation

Expected Completion Date: Continuous

1999 Utility attendee growth was from 67 to 70 during the year.

We conducted an interest survey on possible computer skill education subjects. George Nail has this report. The most needed classes were web-site creation and maintenance, working with WORD, and working with spreadsheets.

We coordinated computer skills education class, WG web-site creation and maintenance, at the Grand Rapids meeting, 1.2 hours during the first session on Tuesday. Moh Sachdev will teach it as part of the PSRC web-site WG meeting.

We corresponded with Albuquerque and Louisville attendees. We assisted with George Nail's new membership session on Tuesday morning. There were 16 new attendees, including 8 people from utilities.

B4: O/P MANUAL & WG TRAINING

Chair: John Appleyard

Vice Chair: M. Swanson

Output: Update the O/P Manual

Expected Completion Date: Continuous

WG B4 Chair met on January 11 with 42 members attending and John Appleyard presiding.

Eric Udren gave a comprehensive report on IEC scope, policies, and operations.

B8: BIBLIOGRAPHY AND PUBLICITY

Chair: T.S. Sidhu

Output: Transactions Paper

Expected Completion Date: Continuous

The working group met with six members and one guest present. The 1999 bibliography paper has been sent for publication in the IEEE Transactions on Power Delivery. Assignments for preparing the 2000 bibliography paper were made. A report highlighting the 1999 activities of the PSRC has been published in the Feb. 2000 issue of the PES Review. Relay Engineers mailing list is being updated by the Mail List Task Force and is expected to be available by the next meeting. Will Marsh will check on any NERC activity and will report to the working group.

B9 PSRC WEB SITE

Chair: S.P. Conrad

Output: Web Sites

Expected Completion Date: Continuous

Steve Conrad has taken over as the PSRC Webmaster. PSRC recognizes the contributions of Moh Sachdev in getting this activity started, looks forward to working with Steve Conrad, and wishes him well in this new role.

C: System Protection Subcommittee

Chair: J. S. Thorp

Vice Chair: D. Novosel

The System Protection Subcommittee met on May 10, 2000 at 1:30 PM in Grand Rapids, Michigan.

WG C3 will alternate with "Ask the Experts" on Wednesday afternoon, beginning in September.

Task force CTF2 on "Protective Relaying and Power Quality" will become WG C2. The chairman is T.W. Cease and the vice-chairman is David Hart.

WG Reports:

C1: Software Models for Relays

Chair: P. G. McLaren

Vice Chair: K. K. Mustaphi

Established: 1995

Expected Completion Date: 1999

Output: IEEE Transactions Paper

The WG did not meet.

C3: New Technology for Transmission and Distribution Protection

Chair: A. P. Apostolov

Vice Chair: P. A. Solanics

Established: 1994

Expected Completion Date: 1999

Output: Report to Main Committee and IEEE Transactions Paper

WG met on May 9, 2000; 14 members and 42 guests were present.

One presentation was made at the meeting: "Substation Process Bus" by Eric Udren, Cutler Hammer

There were very interesting discussions and comments on different aspects of the presentation.

Selection of topics for presentations at the September 2000 meeting will be made by the end of July 2000.

C6: Wide Area Protection and Emergency Control

Chair: M. Begovic

Vice Chair: D. Novosel

Established: 1996

Expected Completion Date: 2000

Output: Report to Main Committee

The Working Group met in a single session with 12 members and 12 guests in attendance. Two new members, Mr. Gustavo Brunello of GE, and Mr. David Hart of ABB, expressed interest in joining the Group as members and accepted contributing assignments. There was a lively discussion about the remaining (unfilled) items in the report outline, and several new contributions were assigned. There was some debate about the use of definitions of terms, especially related to load shedding; it was decided that an appropriately sized vocabulary of terms be added to the report as an appendix. It was also decided that a statistical analysis of NERC wide area disturbances be added to the report, both as an indication of relative importance of different types of protection and control, as well as a rationale for developing trends. Jim Thorp provided a very interesting quantitative insight into NERC wide area disturbances, indicating an almost linear relationship between the size and relative frequency of blackouts.

Next meeting: The WG will meet in September in a single session. Computer Projector needed.

C7: EMTP Applications to Power System Protection

Chair: D. Tziouvaras

Vice Chair: L. Kojovic

Established, 1997

Expected Completion Date: 1999

Output: Report to Main Committee

The WG did not meet.

The WG is in the process of obtaining permission from PES to present the EMTP tutorial during the PES Summer Meeting in Seattle, WA.

C8: Phasor-Based Models for Analyzing Relay Performance

Chair: Mike Meisinger

Vice Chair: M. S. Sachdev

Established, 1997

Expected Completion Date: 2002

Output: Transactions Paper

The Working Group met at 8:00 AM on May 10, 2000 in Ruby room, Amway Grand Hotel, Grand Rapids, MI. Ten members and ten guests were present.

The Chair distributed the revised outline of the paper that had been prepared by him in collaboration with the Vice Chair. Moh Sachdev briefly outlined the changes made in the outline and the rationale for making those changes. A brief discussion followed. The Working Group then decided that the revised outline met the objectives set by the Working Group.

Some sections of the paper were reassigned. All outstanding assignments are due before July 15, 2000. On receiving the drafts, the Vice Chair will incorporate them in the paper and will circulate the draft paper to the members before the September meeting.

C9: Underfrequency Load Shedding and Restoration

Chair: A. Apostolov

Vice-Chair: K. Behrendt

Established, 1999

Expected Completion Date: 2001

Output: Guide on the Application of under-frequency load shedding and restoration

The working group met on Tuesday, May 8, with 20 members and 22 guests present. The PAR has been approved and the working group document has been assigned the number PC37.117. The working group reviewed the guide's scope, purpose, and outline that were developed at previous meetings. Some writing assignments have been received. The outline, and writing assignments received were emailed to members for their information and review. The outline was reviewed further to identify any missing elements and clarify existing elements. Additional writing assignments were made. This information will also be posted on the working group Website when that is available in the near future. New writing contributions will also be added to the web site as they are received. Writing contributions should be submitted at least one month before the next PSRC meeting to allow time for these contributions to be reviewed before the next meeting.

Notable additions and clarifications to the outline include:

- the need to address load shedding issues on lines and feeders with distributed generation

- the need to clarify and coordinate islanding protection versus under frequency load shedding
- the possible affects of utility unbundling (separation of genco, transco, and disco) on UF load shedding
- testing and maintenance practices
- the need to include a discussion of UF relay algorithms to the extent that they affect UF relay performance in load shedding and restoration schemes

Further discussion took place regarding document boilerplate. Any references should be included in the text body whenever used. They will be moved to a separate reference section when the document is finalized. A discussion of drawing programs indicated that VISIO is in most common usage. Al Darlington will be contacted about sharing his electrical symbols stencil set.

The scheduled completion date remains December 2001. The working group expects to meet in single session at the next PSRC meeting, and needs a room for 40 with a projector screen.

C10: Effects on Changing Utility Environment on Protective Relaying

Chair: J. DeLa Re

Vice-Chair: R. Hunt

Established, 1999

Expected Completion Date: 2002

Output: Report to Main Committee

The Working Group met at 1:30 p.m., Tuesday, May 9, 2000, in Room Emerald B with 26 attendees. The chairman distributed copies of last meeting minutes and presentation materials.

Five presentations were made by utility and manufacturing engineers to discuss and comment on the charges that the power industry deregulation is creating for protection engineers:

Tom Domin	PP&L Resources	USA
J. Rothwell	Wisconsin Electric	USA
Vahid Madani	Pacific Gas & Electric	USA
Daniel Karlsson	ABB	Sweden
Fernando Cobelo	ZIV Aplicaciones y Tecnologia, S.A.	Spain

A copy of the summary is included at the end of this report.

Assignments and Action Items

- Chair and Vice-Chair will write a summary of presentations to be distributed among WG members and interested guests.
- Chair and Vice-Chair will write the skeleton of a white paper to be circulated among the members and guests of the Working Group for inputs before our next meeting in Massachusetts.
- We request permission to conduct a survey among Utility Protection engineers.

Chair and Vice-Chair will bring draft of survey to the September meeting.

Next meeting: For our next meeting, we need a room for 40 participants and a projection system to run PowerPoint presentations.

C11: Protection Issues during System Restoration

Chair: T. Sidhu

Vice-Chair: D. Tziouvaras

Established: 2000

Expected Completion Date: 2003

Output: PSRC Report

Assignment: To study relaying issues during system restoration following a major disturbance and suggest remedial measures.

The WG met on May 9, 2000, with 8 members and 21 guests in attendance. This was the first meeting of the Working Group. Demetrios Tziouvaras made a presentation on the WSCC major disturbances and restoration experiences. This was followed by a presentation from Simon Chano who described major disturbances and restoration experiences at Hydro Quebec. Some protection issues during restoration were identified. Demetrios Tziouvaras and Simon Chano will summarize their presentations and send it to the Chairman before the next meeting. Mohamed Ibrahim, Rai Marttila, and Nash Kassam agreed to make presentations at the next meeting on the subject of relaying issues during restoration.

Next Meeting: A room for 30 participants, computer projector, and overhead projector needed.

Task Force CTF2: “Protective Relaying and Power Quality”

The Task Force met in a single session with 34 participants. D. Novosel was chairing the session. Seventeen people volunteered as members. Constructive discussion resulted in a proposal to initiate the Working Group, “Protective Relaying and Power Quality”.

The following assignment was proposed:

This WG will address following:

- Provide overview on power quality issues related to protective relaying. Address standards/recommended practices related to power quality.

- Impact of protective relaying practices on power quality.
- Impact of power quality on protective relaying.
- Power quality monitoring functions in the relays.

It is proposed to start with the WG report. The Task Force proposed T.W. Cease to be a WG Chairman. T.W. Cease will select a vice-chair.

NERC Liaison Report to SC and Other Liaison Reports

Nothing of significance to report.

D. LINE PROTECTION SUBCOMMITTEE

R.M. Westfall, Chairman

Mark Carpenter, Vice Chairman

The Line Protection Subcommittee met in Grand Rapids on May 10, 2000 with 21 members, 37 guests present, and Chairman Ron Westfall presiding. The minutes of the San Diego meeting were approved.

D1: EFFECTIVENESS OF DISTRIBUTION PROTECTION

P. Carroll, Chairman

C. Fink, Vice Chairman

Established: 1994, Output: IEEE Paper

Expected Completion Date: 2001

Status: Draft #5

The working group met with 8 members and 15 guests. After introductions, the meeting began with a review of our working group charter. Meeting attendees were informed that final adjustments to the survey were now complete and that the survey will be forwarded to volunteers for mail-out assignments. The group then discussed possible presentation topics for future meetings. Several potential topics and presenters were identified. The meeting continued with a presentation by Ed Krizauskas on WG I11's experience with the PSRC's survey software. This included a demonstration of survey creation and analysis features of the software. Thanks to Ed for the presentation and for joining the working group. Ed has volunteered to compile our survey results. The meeting concluded with discussion on the mail-out list and mail-out mechanics. Our existing list will be compared to I11's list and adjusted as necessary. We will mail out electronically (via E-mail) to those with known E-mail addresses, and on floppy discs to recipients without E-mail addresses.

D2: FAULT LOCATING

Karl Zimmerman, Chairman

Damir Novosel, Vice Chairman

Established: 1996, Output: IEEE Guide

Expected Completion Date: 2000

Status: Draft #4

In the absence of the Chairman, the Vice-Chairman conducted the meeting. The group met in a single session with 9 members and 14 guests. A "Near final draft" was distributed at the meeting. Each chapter was reviewed to reach the consensus that the document can be submitted for balloting.

The following process was approved:

- Comments and final contributions to be e-mailed or faxed to Karl Zimmerman by July 1, 2000.
- After all changes are incorporated into the document, Karl Zimmerman and Damir Novosel will evaluate to determine if the document will be submitted for balloting.

If the contributors submit major changes, the document will be reviewed one more time at the September meeting. If there are no major changes, the document will be submitted for balloting.

The following tasks were assigned:

- Put the document on the web and distribute electronic copy to members
- Paragraph on "time-changing fault resistance, filtering, DC offset" (Ch. 20) G. Benmouyal
- Add paragraph to section on "Series Compensated Lines" (4.2) - R. Marttila & M. Saha
- Revise section on "Three-Terminal Lines" (4.1) – D. Tziouvaras & D. Hart
- Revise section on "Distribution System Faults" (4.4) – P. Carroll & D. Novosel
- Other minor comments will be sent to Karl Zimmerman by July 1, 2000

D4: AUTOMATIC RECLOSING

W.M. Strang, Chairman

Mal Swanson, Vice Chairman

Established: 1996, Output: IEEE Guide

Expected Completion Date: 2001

Status: Current Draft #7

The working group met on May 9, 2000 with 12 members and 5 guests attending, and Bill Strang presiding.

Section 4.3.4, Sequence Coordination, was discussed and modified in the drawing portions. Bill will forward the improved section to IEEE headquarters to join Draft 7, which is otherwise ready for balloting.

The balloting body should start to be created in two weeks.

D6: TRANSMISSION LINE PROTECTIVE SYSTEMS LOADABILITY

Tony Seegers, Chairman

Ed Krizauskas, Vice Chairman

Established: 1997, Output: Special PSRC Publication
Expected Completion Date: 2001
Status: Draft #5

Working Group D-6, Transmission Line Protective System Loadability, met on Tuesday, May 9, 1999 with 11 members and 20 guests. Skip Williams, Vice Chair, can no longer attend PSRC meetings due to a reassignment by his employer. Ed Krizauskas will be Vice Chair.

The following documents were available at the meeting:

- Marked-up Draft 4A of the paper
- Draft 5 of the paper
- Survey comments
- Appendix A proposed rewrite
- Figures

The editorial team will go through the remaining comments:

- Tony Seegers – Sections I, II and Appendix
- Dave Jamison – Section IIIA
- Dan Hamai – Section IIIB
- Dean Miller – Section IVA
- Bill Lowe – remainder of Section IV

Also, we will discuss and decide on submitting the paper for the regional conferences in 2001.

D10: EMTP REFERENCE MODELS FOR TRANSMISSION LINE RELAY TESTING
K. Mustaphi, Chairman
T. Sidhu, Vice Chairman
Established: 1998, Output: Transaction Paper
Expected Completion Date: 2001
Status: New Working Group

The working group met on May 10, 2000 with about 15 attendees. Minutes of the San Diego meeting were approved as circulated. Three write-ups (case-file nomenclature, ct & cvt models and line models) received from the members were discussed. A number of suggestions were made and the contributors will revise their write-ups accordingly. The working group also decided to define the data for the system elements in a generic form. The following assignments were made which are due to the chairman by August 15, 2000:

- Test procedure – G. Benmouyal
- Introduction – T. Sidhu
- Line model – K. Mustaphi
- Instrument transformers – L. Kojovic
- Sources – M. Nagpal
- Load control – E. Price

- Breaker control – A. Chaudhary
- Faults – E. Price
- Case file nomenclature – J. Zipp
- Transformers – B. Mork

D12: LINE PROTECTION GUIDE PRESENTATION

J. Zipp, Chairman

Elmo Price, Vice Chairman

Established: 1998, Output: Tutorial

Expected Completion Date: 2000

Status: presentation material complete

The working group was formed to develop a tutorial based on the line protection guide. Due to several factors, one being that we would end up producing another document, another being there are several good line protection tutorials available, we changed focus.

We developed a PowerPoint presentation that describes the development of the Line Protection Guide and presents some of the features of the Guide. This presentation has been given at Texas A&M and Georgia Tech.

The main purpose of the presentation is to publicize (and sell) the Line Protection Guide. About 350 copies have been sold so far.

At this working group meeting, Mark Carpenter and Elmo Price summarized the Texas A&M and Georgia Tech experiences.

We have three more presentations pending:

- MIPSYCOM – approved
- Western Relay Conference – pending
- Electric Council of New England – pending

A combination of the original presenters and working group members will give the paper at these meetings.

Events worth noting:

- Presentation on Website
- This presentation was developed and presented in 7 months.
- Thanks to the individuals that got us on the agendas
- Thanks to the Editing Team: Elmo Price, Mark Carpenter, George Parr, Alex Apostolov, Rick Taylor, Tony Seegers, Roger Hedding & John Zipp
- Arun Phadke for bargaining a good selling price for the Guide
- We project another 400 copies of the Guide will be sold if we get the above three meeting dockets.
- Presenters were: Mark Carpenter, Rick Taylor, Elmo Price

Our plan is to hold one more working group meeting in September to wrap up loose ends on the upcoming events. Mark Carpenter volunteered to coordinate ordering the Guides for sale at presentation sites.

D14: TRANSMISSION LINE PROTECTION GUIDE

W.M. Carpenter, Chairman

A.N. Darlington, Vice Chairman

Established: 1992, Output: IEEE Guide

Expected Completion Date: 1999

Status: Published

Working Group D-14 completed the assignment and disbanded. The Guide for Protective Relay Applications to Transmission Lines is published and approximately 400 copies have been sold since April.

Old Business: None

New Business: None

General Discussion: None

Minutes for May 2000 PSRC, H Subcommittee. Grand Rapids, MI

H: RELAY COMMUNICATIONS SUBCOMMITTEE_

Chair: M. S. Simon

Vice Chair: K. J. Fodero

**H1: REVISION OF IEEE GUIDE FOR POWER LINE CARRIER APPLICATIONS
JOINT WORKING GROUP**

Chair: B. Nelson

Vice Chairman: M. Simon

Established: 1995

Output: Clauses 9 and 10 for the Revision of IEEE 643. 643 will be produced by the PSCC

Expected Completion Date: 1999

H1 has completed its assignment in authoring clauses 9 and 10 for P643. Consensus by the working group has been reached.

When the balloting process is complete on P643 by the IEEE, the working group will re-convene to resolve any comments regarding these clauses as well as verify that there is no duplication with other elements of the guide.

H2: COMTRADE STANDARD REVISION

Chair: R. Ryan

Vice Chair: C. Shank

Established: 1995

Output: Revised Standard C37.111-199x

Expected Completion Date: May 1999

The Comtrade Standard Revision working group has completed their work. Therefore, the working group will be disbanded.

H3: Comtrade Users Working Group

Chair: C. Shank

Vice Chair:

Established:

Output: Standard

Expected Completion Date:

The Comtrade Users Working Group has completed their work. At this time there are not enough comments from the users to warrant the publication of a standard, paper, or working group report. Therefore, the working group will be disbanded. However, as the number of users increases, there may be a need to re-activate the working group at a future date.

H4: PC37.115, Standard test method for use in the evaluation of message communications between IEDs in an integrated substation protection, control, and data acquisition systems

Chair: D. Holstein

Vice Chair: Eric Udren

Established: 1997

Output: Standard

Expected Completion Date: 1999

The following text is provided as the H4 working group report to the H subcommittee in meeting Grand Rapids, MI. Dennis Holstein (Chairman), John Tengdin (Vice-Chairman), and Eric Udren (Secretary) attended.

H4 met in single session. Twenty members and guests attended.

The minutes were reviewed and accepted. The agenda was reviewed and accepted. H4 objective is to release C37.115 for electronic ballot by the end of 2001. This is more than 4 years after the PAR was approved, therefore the chairman will submit by March 2001, a request to the PSRC Standards Coordinator to extend the PAR completion date 2 years.

Draft 2 was placed on the FTP site for review in May. H4 members and guests provided comments and recommendations at the meeting. Additional comments and recommendations will be sent by EMAIL to the H4 Chairman. These contributions will be reviewed, and as appropriate integrated into Draft 3. Then in July, Draft 3 will be released to H4 members at our meeting in Andover, MA for markup. Draft 3 will also be released to those organizations listed on the PAR for coordination.

H4 members selected three more applications from the 26 applications developed by WG H5 for build out. This brings to seven the number of scenarios that will be defined in informative annexes in C37.115. H4 members also approved some reorganization of C37.115 to integrate the requirements for network management and application development tools.

H4 requests a double session and a computer projector for their meeting in Andover, MA.

H5: Application of Substation Peer to Peer Communications

Chair: M. Yalla

Vice Chair: M. Adamiak

Output: Paper

Expected Completion Date: 2001

Review comments from Main Committee January 2001.

The working group met on Tuesday with 6 members and 10 guests to perform a review of the entire document. In the review process, it was noted that there were a number of overlapping sections which were subsequently deleted. Changes were made to a number of sections and three section updates were identified. All updates / changes will be incorporated in the final document by the end of May. At this time, the final document will be sent to the working group and subcommittee for comments of substance with comments due by July 18. These comments will be reviewed at the September 2000 meeting and then sent to the main committee for comments of substance.

General Schedule:

Final Draft out to WG and Subcommittee for comments of substance: May 31, 2000

Review comments from WG and Subcommittee: Sept PSRC

Send to Main Committee for comment: October 2000

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

H6 met in a single session on May 9 with 11 members and 14 guests attending with John Burger chairing. After introductions were made, the minutes of the San Diego meeting were reviewed and corrected.

John Burger then covered several related topics of interest; namely the Utility Initiative and IEC TC57 WG 10, 11, and 12 61850 efforts. It appears that an UCA User's group will be formed along the same lines as the DMP User's group. John indicated that the IEC is developing 61850 that is trying to incorporate some of the work done by the Utility Initiative from the GOMSFE document. Mark Adamiak, John Tengdin, Dennis Holstein, Charlie Sufana, and Alex Apostolov provided additional comments concerning the efforts to harmonize the GOMSFE and 61850 documents.

Dennis Holstein gave a short explanation on what 61850 addressed namely: station level requirements, bay to bay communications, the process bus, the substation configuration language, stacks, protocol profiles, and conformance testing. It covers all aspects but excludes control center interfacing and teleprotection (substation to substation).

Charlie Sufana reported on his attendance at two of the IEC meetings where the TC57 working groups were developing 61850. He was the only US utility rep at the Orlando meeting in March. Mark Simon and he hosted a smaller group in Chicago at the end of April. He indicated that there appeared to be a great deal of work to be completed before 61850 was finished but that the IEC headquarters was pushing the TC 57 group to get the document through the CDV (committee draft vote) process by the fall of year 2000. The meeting at Chicago cleared up a great deal of the issues, but it remains to be seen if the 61850 work stays on schedule.

Several additional reports were given. John Burger gave a short report in Mark Simon's absence on the testing efforts by ComEd on the Alcatel switch. Dennis Holstein reported on the H4 and H5 efforts.

John Burger then led discussion on the content of the H6 document and asked for volunteers for writing assignments. It was decided that the title should be changed to: Application Considerations of UCA 2.0 for Substation Ethernet Local Area Network Communications for Protection and Control. Mark Adamiak, John Burger, and Dennis Holstein accepted writing assignments. More volunteers are needed.

The working group will meet in September and will need a single session. It will not need an overhead.

H7: INTER RELAY COMMUNICATION PROTOCOL STANDARD

Chair: G. Michel

Vice Chair:

Established: 1997

Expected Completion Date:

The WG met at 9:30am Tuesday morning May 9 in the Amway hotel's Pearl room with 9 members and 7 guests. Roger Ray, H7 WG Vice Chairman, conducted the meeting in Gary Michel's absence.

After introductions and review of the minutes of the last PSRC meeting, the draft#2 document was distributed and reviewed; several errors were corrected, and texts changed for clarifications. A Draft 2X was produced.

Communication failures were discussed and it was agreed to capture the ideas, and ensuing actions, in a new section 4.4; Bill Higinbotham agreed to provide this section.

There was some discussion on the +/-100ppm tolerance range for the interface, as the ITU's G.736 was reported as specifying +/-50ppm for digital interfaces. This difference was considered acceptable after understanding that the +/-100ppm had been suggested to allow lower-cost crystals for the relay circuit (needed when communication from the mux is lost). Some clarification was suggested (in the draft).

Since the WG had previously agreed that the standard should specify the type of fiber-optic connector, this was discussed. There was unanimous agreement that the "ST" connector be specified, it was also noted that if some other connector becomes preferable in the future, the standard can always be revised.

It was decided to remove some irrelevant sections in Annex-A (on single mode fiber, and SC connectors).

It was pointed out that the "relay" end of the fiber may go to a teleprotection module, not a relay; this should be cleaned up, perhaps using the IEC terminology as a guide.

The name on the standard still says "Trial-Use"; it is currently felt that this should be deleted, but can be done just before being submitted.

Carlos Samitier, from Spain, has been attending H7 regularly, so the WG was happy to agree to his request to become a member of the WG. Carlos suggested we review the ITU G.704, 706, 732, 775 recommendations for possible relevant requirements, such as the in-frame/out-of-frame algorithms.

Please have any contributions to incorporate into draft#3, by June 30, so we can review them in Seattle.

PSRC H7 WG Meeting Attendees: Chris Huntley, Bill Higinbotham, Mark Simon, Carlos Samitier, Veselin Skendzic, Kevin Hill, Jeff Gilbert, Roger Ray, Ken Fodero, Tim Phillippe, Bob Pettigrew, Solveig Ward, George Butrus, Jay Murphy, Rose Kallio, Gabriel Benmouyal.

Next PSCC Digital Teleprotection WG Meeting: July 18, 2000 in Seattle, WA at the IEEE PES Summer Power Meeting.

Next PSRC H7 WG Meeting: Sept. 19 or 20 in Andover, MA at the Rolling Green Inn.

H8: FILE NAMING CONVENTION FOR TIME SEQUENCE DATA_

Chair: Jim Ingleson

Established: May 1999

Output: Report to the PSRC

Expected Completion Date: January 2001

Design a file naming convention for time sequence data files commonly used by protection engineers. With the proliferation of files from numerous data sources, it becomes desirable to imbed in the file name relevant information.

Such a convention will facilitate the process of finding specific files.

1. Prepare a report for the PSRC?
2. What was the start date of the project? May 1999
3. What is the expiration date of the current standard (answer for revision projects only)? Does not apply.
4. What is the due date for your project that is expected according to the PAR or other commitments? Does not apply.
5. Using your best judgment, what is the date that you will complete your project? Completion is defined as publishing of the final product. January 2001
6. How many members do you have on your WG or Taskforce? Nineteen (19) Members

H9: Consideration in Applying PLC and Relays to Special Line Configurations

Chair: M. Sanders

Vice Chairman: M. McDonald

Established: 1999

Output: Practical Paper for presentation at regional conferences

Expected Completion Date: 2001

H9 Working Group met for the in a single session on May 10 with 10 members and 9 guests. Draft 2 of the special paper was distributed. Two topics were added to the list of items to cover. They are Multi-terminal lines with wavelength considerations and Very Short Lines. Several of the previous topics were marked for possible deletion since they are general topics found in guides and standards. It was decided to change the proposed title of the paper to "Special Considerations in Applying Power Line

Carrier for Protective Relaying". It was also suggested that the previously published cable attenuation curves from a PEA paper be added to the section on non-homogenous lines. Several writing assignments were accepted and are due to the chair by July 30, 2000.

H10: Revision of the Audio Tone Application Guide C37.93

Chairman: Bill Higinbotham

Vice Chairman: Jerry Hohn

Established: 1997

Output: Revised application guide

Expected Completion Date: 2000

The Audio Tone Guide Revision Working Group H10 met on Wednesday, May 10 with eight members and 5 guests. Draft 2 of PC37.93 was reviewed by the attendees and additional writing assignments from Doug Dawson, Chris Huntley, and Mark Simon were discussed and accepted for inclusion.

Assignments:

Mark Simon is to get copy of appropriate information from the Bell Publication 41011 to working group members.

Jerry Hohn will review IEEE Style Guide for proper identification of IEEE Standards.

Ken Fodero will provide figures to the chairman for inclusion in Draft #3.

Jerry Hohn will prepare paragraph-discussing measurements of signal levels.

The chairman asked that all assignments be returned to him by July 1. The working group agreed to use Word 6 for all future document work. Draft #3 will be sent to working group members by July 31 for review prior to the September PSRC meeting.

A single meeting session for 20 attendees was scheduled for the September 11, 2000 working group meeting. No a/v equipment was requested.

Task Force Reports

HTF1: SWITCHYARD DATA ACQUISITION

Chair: E. Udren

Vice Chair:

Established: 1996

Expected Completion Date: 1998

HTF11: REVISION TO THE SYNCROPHASOR STANDARD

Chair: K. Martin

Vice Chair:

Established: 2000

Expected Completion Date:

IEEE Synchrophasors Standard 1344 Task Force

The Task Force met at 11:00 am on Wednesday, May 10 for the first time. Six people expressed an interest to be members of the Task Force; we had five guests.

The Task Force voted unanimously to re-affirm the 1995 IEEE Standard for Synchrophasors for Power Systems, IEEE Std 1344. The Vice-Chairperson will begin the re-affirmation process by working with the Chairperson, Ken Martin.

The Task Force also voted unanimously to continue work on a Revision for the Standard.

The Task Force sees the advantages of working with a companion IEC Synchrophasors Standard working group. The Vice-Chairperson will pursue this issue.

An open discussion took place suggesting changes to the existing Standard and enhancements to the Standard. Vasudev Gharpure and Mark Adamiak agreed to provide their written suggestions for further discussions at the next PSRC meeting in September.

Liaison Reports

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

2. Substation Committee - J. Tengdin

The PES Substations Committee has formed an ad hoc group, chaired by Larry Barto - Georgia Power, to examine the need for an IEEE standard for Substation Configuration Management. This standard would include the connectivity of the power system devices, the connection of IEDs to the power system, and the substation communication system connected to the IEDs. It would also be dynamic, reflecting changes if an IED went off line. IEC 61850-6 Substation Configuration Language has a much narrower scope. It was learned at the TC57 WG11-12 meeting in March that the IEC document will primarily be an engineering tool used by manufacturers to configure IEDs. The ad hoc group will make its report - whether or not to proceed with a PAR - at the PES Summer Meeting in Seattle. If the word is "Go", then the first meeting of the working group will be at the joint meeting in September.

Respectfully submitted, John Tengdin, PSRC - Substations Committee Liaison

3. IEC TC57 Working Group 10, 11 and 12 Report - J. Tengdin

4. SCC 36 - D. Holstein

Coordination Reports

C93 - Liaison Report on ANSI C93 Committee - Roger Ray

The last meeting of the ANSI C93 committee was held in San Diego on January 14 & 15, 2000. At this meeting, we covered changes to our O&P manual. We also continued to work on ANS C93.4, which covers hybrids, L/C units, combiners, and other auxiliary coupling equipment. Other C93 standards are C93.1 (Coupling Capacitors Voltage Transformers), C93.3 (Line Traps), and C93.5 (PLC Transmitters/Receivers, dedicated type).

The next meeting of the Committee will be in Newark, NJ on June 5 & 6, 2000.

Old Business

Amateur Radio Relay League proposal for Low Frequency Allocation.

The ARRL submitted a proposal to the FCC requesting a permanent frequency allocation in the Power Line Carrier band. This was submitted in October of 1998. There have been several comments for and against this proposal. Comments are posted on the FCC web site of <http://www.fcc.gov> under electronic comments for RM-9404 (case sensitive).

As of this date, the FCC has not made a ruling for or against the ARRL proposal. If you desire more information on the proposal, please contact Mark Simon.

New Business

Working groups will be asked to fill out an annual report that will go the PSRC leadership. A standardized template will be sent to the working group chairs. If any one else desires a copy please contact Mark Simon.

Each working group should take a look at their working groups web pages. In most cases, they are blank. Please feel free to use this space to not only advertise your working groups project but as a tool to do your work.

We would like to welcome two new members to our subcommittee: Murty Yalla and Bill Lowe.

I: RELAYING PRACTICES SUBCOMMITTEE

Chair: Jeff Gilbert

Vice Chair: Larry Smith

The Relaying Practices Subcommittee (SC) met on May 10, 2000, in Grand Rapids, MI. Minutes of the previous January 2000 meeting were approved. The following reports were submitted to the Vice Chair for inclusion in the minutes.

I1: REVISION OF IEEE C37.103 - GUIDE FOR DIFFERENTIAL AND POLARIZING RELAY CIRCUIT TESTING

Chair: W.J. Marsh, Jr.

Vice-Chair: J. D. Huddleston, III

Established: 1996

Output: Revision of IEEE C37.103-1990

Expected Completion Date: 2000

The PAR for this project was due to expire in September 2000; however, IEEE Standards Board has agreed to extend the PAR until December 2001. Primary current injection testing of generators was discussed and the consensus was that it was technically infeasible. The Chair charged all members to read this document very carefully and send all corrections to him via marked copy or diskette by June 15, 2000. He will transmit a Draft 10 in order to receive final comments by the September 2000 meeting.

I2: TERMINOLOGY USAGE REVIEW

Chair: Mal Swanson

Vice-Chair: J. D. Huddleston, III

Established: 1986

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

Expected Completion Date: Continuing

Mal Swanson was introduced as the new working group chairman. List of Definitions, "Definitions for Switchgear #4" is complete and awaiting approval of the PSRC Officers. SC Chairmen will be reminded to supply a copy of all WG documents for review by this WG.

I3: RELAY PERFORMANCE MEASURING CRITERIA

Chair: W.M. Carpenter

Vice-Chair: F. Marquez

Established: 1996

Output: Special Publication

Expected Completion Date: 1999

The I3 WG did not meet.

I4: IEC STANDARDS ADVISORY

Chair: Eric Udren

Vice-Chair: M. M. Ranieri

Established: 1989

Output: IEC Standards

Expected Completion Date: Continuing

I5: TRIAL-USE STANDARD FOR LOW ENERGY INPUTS TO PROTECTIVE RELAYS

Chair: Eric Udren

Vice-Chair: Peter McLaren

Established: 1992

Output: New Trial-Use IEEE Standard P1331

Expected Completion Date: 1999

The I5 WG did not meet.

I6: REVISION OF C37.90 - STANDARD FOR RELAYS AND RELAY SYSTEMS ASSOCIATED WITH ELECTRIC POWER APPARATUS

Chair: Mario Ranieri

Vice-Chair: James Teague

Established: 1993

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

Expected Completion Date: 1999

A final version of Draft # 9 with changes previously recommended in draft # 8 and late comments received prior to the meeting were discussed in detail resulting in additional WG assignments. Draft # 10 will include a scope and purpose as well as a reference to C37.90.3 as part of the overview. We will also include a new section for mechanical requirements using much of the information taken directly from IEC 255-6, clause 5. WG assignments are due as soon as possible in order to incorporate the changes into a preliminary version of draft #10 that will be circulated to WG members for final written comments. We expect the finalized copy of draft # 10 to be issued prior to August 1, 2000 in anticipation of a final approval at the September meeting. We hope to be able to request a balloting body at that time.

I7: ELECTROSTATIC DISCHARGE TESTING FOR PROTECTIVE RELAYS

Chair: J. Teague

Vice-Chair: M. S. Simon

Established: 1992

Output: New IEEE Standard C37.90.3
Expected Completion: 1999

The group agreed that the final draft of the standard will be PC37.90.3 Draft 2.3, 5/1/2000. This draft will be forwarded to the IEEE as soon as possible for balloting. The group developed an outline with will be the basis for a summary paper. This summary paper may be published as a stand-alone document or in conjunction with the efforts of C37.90, and C37.90.1, which are under revision, and close to being balloted.

I8: REVISION OF C37.90.1 - SURGE WITHSTAND CAPABILITY (SWC) TESTS FOR PROTECTIVE RELAYS AND RELAY SYSTEMS

Chair: J. G. Gilbert

Vice-Chair: J. Teague

Established: 1994

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

Expected Completion: 1999

Working group I8 met Wednesday morning with 5 members and 2 guests present. A proposed outline for a summary paper was reviewed. Working group members

volunteered to write specific sections of the paper. Writing assignments are due to the chairman by August 31, 2000.

I9: REVISION OF C37.105 - STANDARD FOR QUALIFYING CLASS 1E RELAYS AND AUXILIARIES FOR NUCLEAR POWER PLANTS

Chair: Subinoy Mazumdar

Vice-Chair: Sahib Usman

Established: 1998 (originally WG J7)

Output: Transactions Paper

Expected Completion Date: 2001

I10: REVISION OF C37.98: STANDARD FOR SEISMIC TESTING OF RELAYS

Chair: Mason Clark

Vice Chair: Munnu Bajpai

Established: 2000

Output: Revision of IEEE Standard C37.98

Expected Completion: 2004

New working group formed formerly ITF3. PAR to be submitted by June 15, 2000.

I11: RELAY TEST PRACTICES SURVEY

Chair: Ed Krizauskas

Vice-Chair: Bill Lowe

Established: 1998

Output: Transactions Paper
Expected Completion Date: 2001

Response is light asking everyone to please respond to the survey.

**I12: REVISION OF C57.13.1 - GUIDE FOR FIELD TESTING OF RELAYING
CURRENT TRANSFORMERS**

Chair: Mike Meisinger

Vice-Chair: Don Sevcik

Established: 1998

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

Expected Completion Date: 2002

Previous writing assignments were reviewed and assignments agreed to. Don Sevcik will email a compiled draft based on the electronic copy of this guide with received contributions.

**I13: REVISION OF C57.13.3 - GUIDE FOR GROUNDING OF INSTRUMENT
TRANSFORMER
SECONDARY CIRCUITS AND CASES**

Chair: Moh Sachdev

Vice-Chair: Brian Mugalian

Established: 1998

Output: Revision of IEEE/ANSI C57.13.3-1983 (R1990)

Expected Completion Date: 2001

**I14: TELECOMMUNICATION TERMS/NEW TERMS USED BY PROTECTION
ENGINEERS**

Chair: Tim Phillippe

Vice-Chair: A. Apostolov

Established: 1998

Output: Special Publication

Expected Completion Date: 2003

A rough format for a special publication was discussed and adopted, to provide an application context in which to define telecommunications terms used by protection engineers. Working group writing assignments were determined, with a due date of August 15,2000. Chairman Tim Phillippe will draft a short paragraph to define each section, and working group members are to compile a list of terms relating to each topic. Of specific concern are telecommunications terms and terms derived from other technological fields that relate to the protection engineer.

**I15: REVISION OF C37.110 - GUIDE FOR THE APPLICATION OF CURRENT
TRANSFORMERS USED FOR PROTECTIVE RELAYING PURPOSES**

Chair: G. P. Moskos

Vice-Chair: B. Jackson
Established: 1998
Output: Revision of IEEE C37.110-1996
Expected Completion Date: 2003

Draft #1 was distributed and discussed. New writing assignments made and the decision for volunteers to perform a complete review of the draft was made.

I16: ADVANCES IN MICROPROCESSOR RELAYS

Chair: M. Sachdev
Vice Chair:
Established: 2000
Output: Special Report
Expected Completion:

New working group formerly ITF2 Produce a simple first use text on Microprocessor Relays

I19: ANALYSIS OF SUBSTATION DATA

Chair: L. Smith
Vice Chair: Bruce Pickett
Established: 1995
Output: Special Publication
Expected Completion Date: 2001

The document draft was discussed and Volunteers for writing assignments were accepted.

Task Force Reports:

ITF1 Relay Service Letter Database: J. Ingleson. Needs input. Request for input to be placed on WEB page.

Liaison Reports:

Instrument Transformers Subcommittee of the PES Transformers Committee:
Jim Huddleston III Nothing to report. Contacting Chairmen of PC57.13, PC57.13.5, and PC57.13.6 Working Groups for latest copies of draft documents.

P420 IEEE Standard Design and Qualification of Class 1E Control Boards, Panels, and Racks Used in Nuclear Power Generating Stations: Cliff Downs
Working to resolve negative ballots and other comments to Draft 1. Hoping to finish modifications and reballot at the end of 2000.

Power System Planning and Implementation Committee: No liaison.

Coordinator's Reports:

P323 IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations: Munnu Bajpai No activity to report.

P384-NPEC, IEEE Standard Criteria for Independence of Class 1E Equipment and Circuits: Munnu Bajpai. No activity to report.

Approval was given to dropped coordination with P323 and P384.

Revision of C57.13-1993 IEEE Standard Requirements for Instrument Transformers (Tom Nelson, chairman): Jim Huddleston. Nothing new to report.

Proposed C57.13.6 Instrument Transformers for Use with Electronic Relays and Meters (Chris Ten-Haagen, chairman): Jim Huddleston. PAR extended until December 2000.

T&D Committee: No liaison.

Old Business:

No old business was taken up.

New Business:

The PSRC has a need for paper reviewers. Sign up with Jim Thorp if you have not already done so.

>From the officers: if there is a need for a WG to copy IEEE standards as part of the work toward the assignment, it is O.K. to do so.

WG chairs in this subcommittee - make sure the PSRC web site has at least the following for your WG: WG name, assignment, chairman's name, and contact information.

Tim Phillippe was added to the Subcommittee.

Mark Carpenter request a Task Force be formed on the use of the "RELAY PERFORMANCE MEASURING CRITERIA" document and the request was approved.

John Tengdin requested that a Task Force be formed to validate the use of Device Numbers in the update of C37.2-1996. The request was approved.

J: ROTATING MACHINERY PROTECTION SUBCOMMITTEE

R.D. Pettigrew, Chairman

S. P. Conrad, Vice Chairman

The subcommittee met on May 10, 2000 with 12 members and 11 guests present. Minutes of the January 12, 2000 meeting in San Diego, CA were approved. There were no Advisory Committee items of interest brought forth by the Chairman.

J1: REVISION OF C37.106-1987 GUIDE FOR ABNORMAL FREQUENCY PROTECTION FOR POWER GENERATING PLANTS

G. Benmouyal, Chairman

E. Fennell, Vice-Chairman

Established: 1996

Output: Standard Revision of IEEE/ANSI C37.106-1987

Expected Publication Date: December 2001

Status: Working on Draft 6

The working group met with 8 members and 5 guests 1 new member joined the WG. Draft #6 of the Guide was discussed during the meeting.

A glossary will be added to the text. Clause 7 will be reviewed to incorporate a discussion generator underfrequency protection and system issues.

Copies of Draft #7 will be sent to the turbine manufactures in order to obtain their comments prior to the next WG meeting.

J2: AC MOTOR PROTECTION TUTORIAL

S. Zocholl, Chairman

(Vacant), Vice-Chairman

Established: 1998

Output: Tutorial on AC Motor Protection

Expected Completion Date: 2001

Status: Reviewing Working Group Assignments

The WG met with 9 members and 8 guests. The tutorial was prepared in the form of 84 slides of a power point presentation. It was agreed that notes would be added and that the file would comprise the tutorial.

The chairman will write and add the notes to the slides. Miroslav Rustic will prepare slide addition of about 10 slides, on a specific thermal model. He will complete this in a few weeks.

The revised power point file will be completed and reviewed prior to the September meeting.

J3: REVISION OF THE AC MOTOR PROTECTION GUIDE

J.D. Gardell, Chairman

M. Bajpai, Vice-Chairman

Established: 1993

Output: Standard Revision IEEE/ANSI C37.96

Expected Completion Date: 2000
Status: Resolving Ballot Issues

The WG did not meet. The guide is in final preparations with the IEEE office.

J4: GUIDE FOR AC GENERATOR PROTECTION_

M. Yalla, Chairman

K. Stephan, Vice-Chairman

Established: 2000

Output: Transaction Revised Guide C37.102

Expected Completion Date: TBD

Status: First Meeting

This first meeting of the WG J4 was held on May 9, 2000 with 16 members and 9 guests.

The chair announced that Kevin Stephan would be vice-chair.

C37.1021995 was reaffirmed with a high percentage of votes in favor of reaffirmation. The details of only one negative ballot were received at this meeting and will be incorporated in the planned revision by the WG.

The WG reviewed and pre-arranged comments by Phil Waudby and Rai Marttila on C37.102. Adding a section on multifunction generator relays is necessary. Split-phase protection is another area that needs to be revised. Joe Koepfinger suggested we change the title to "synchronous" to be more specific. Also, additional work on variable speed startup of generators appears likely as well as more guidance on setting of relays.

The WG discussed changing the Guide to a Recommended Practice. After much discussion, the consensus was to keep C37.102 as a guide. A PAR will be submitted prior to next meeting. The WG was not aware of any international efforts requiring harmonizing at this time.

Writing assignments were made for all existing clauses and one additional new clause. These are due July 5th. Writing assignments were accepted by Messrs.: Yalla, Das, Waudby, Usman, Kumar, Bukhala, Kassam, Marttila, Ristic, Mozina, Uchiyama, Benmouyal, Kerrigan, and Stephan.

J6: PERFORMANCE OF GENERATOR PROTECTION DURING SYSTEM DISTURBANCES

S. Patel, Chairman

K. Stephan, Vice-Chairman

Established: 1998

Output: Transaction Paper
Expected Completion Date: 2001
Status: Forming Draft 1

The WG met with on May 10, 2000 with 11 members and 13 guests in a single session.

A writing assignment on steady-state stability calculations was distributed and Draft #1 of the paper was discussed. Arrangements were made to acquire the necessary figures for the paper in electronic form. Individual clauses of Draft #1 were assigned for review to WG members such that the original authors did not review their own work. Also there will be an emphasis during this review to “test” the document for its ability to help the reader in terms of avoiding misoperation of generator protection during power system disturbances.

Reviewing assignments were accepted by Messrs.: Kerrigan, Das, Henville, Bajpai, Usman, Fennel, Domin, Patel, Kumar, and Viers.

J7: REVISION OF GUIDE FOR GENERATOR GROUND PROTECTION GUIDE

J.T. Uchyama, Chairman

R. Das, Vice-Chairman

Established: 2000

Output: Standard Revision IEEE C37.101-1987

Expected Completion Date: 2004

Status: New Working Group being formed

The WG met on May 9, 2000, with 10 members and 9 guests.

The WG reviewed and discussed the following issues:

1. The title of the Guide: After much discussion the title will not change.
2. Clauses 1-4 were reviewed and the results were satisfactory. Also a clause for “terminology and glossary” will be added.
3. Clauses 5.1-5.8 contain detailed information on generator grounding equipment design/selection, which are covered by other IEEE documents (i.e. C62.92). The WG felt the basic ground methods should be listed in the guide, with emphasis placed on ground protection rather than information on ground equipment designs.
4. Chair will coordinate with Mike Reichard and Chuck Mozina for rewording the clauses prior to the next meeting.

Liaison Reports

1) Electric Machinery Committee, Chuck J. Mozina

No report given.

Coordination Reports

1) P958-EDPG, Guide for Adjustable Speed Drives, J. Gardell

No report given.

- 2) **P408-NPEC, Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations, K.J. Khunkhun**

No report given.

- 3) **C50.41, ANSI Standard for Polyphase Induction Motors for Power Generating Stations, R. Pettigrew**

No report given.

- 4) **P1010, Guide for Control of Hydroelectric Power Plants, Wayne Hartmann**

No new activity to report.

Old Business

New Business

K: SUBSTATION PROTECTION SUBCOMMITTEE

Chair: C. F. Henville

Vice Chair: S. R. Chano,

The Subcommittee met in Grand Rapids on May 10, 2000, with 19 members and 26 guests present. The minutes of the previous meeting in San Diego CA were approved with no modifications.

K1: PROTECTION OF PHASE ANGLE REGULATING TRANSFORMERS.

Chair: Mohamed Ibrahim

Vice Chair: Frank Plumptre

Established, 1999

Expected Completion Date: 2000

Output: Summary Paper

The WG met for one session with 7 members and 4 guests attending. A draft of the summary paper was distributed for comments. The summary paper will be issued to the Substation Subcommittee for balloting prior to the next meeting.

K2: TRANSFORMER PROTECTION GUIDE

Chair: R. Hedding

Vice Chair: R.W. Haas

Established: 1991

Output: Revision of Standard ANSI C37.91

Expected Completion Date: 1999

Ballot re-circulation-Draft 13

The working group met in one session with 7 members and 8 guests attending. The work has been completed as a result of the Guide being approved RevCom at their March Meeting. At present, the document is in the hands of the IEEE Editors. It was the consensus of the group that no summary paper be written as no dramatic substantial changes were made to this document after the last revision. Copies of draft 13 will be sent to a select number of relatively new engineers from Detroit Edison who attended the meeting. They were asked to review the Guide from their perspective for completeness.

K4: BUS PROTECTION GUIDE

Chair: S. P. Conrad

Vice Chair: R. W. Haas

Established, 1999 (Originally 1983)

Output: Revision of Standard ANSI C37.97

Expected Completion Date: 2000

The WG did not meet in Grand Rapids. The chair will finalize cleanup details and submit the document to the IEEE Standards office in July 2000. An editor and a balloting body are to be established once the document is in the hands of IEEE.

K5: NETWORK TRANSFORMER PROTECTION GUIDE

Chair: C. R. Sufana

Vice Chair: J. J. Horwath

Established, 1994

Output: Revision of Standard ANSI C37.108

Expected Completion Date: 2000

Draft ballot

Working Group K5 met in a single session with 8 members and 10 guests present. Charles Sufana discussed the status of C37.108. The document is now in the proper IEEE style and the drawings will be completed by the end of the month. After that, it will be re-circulated. Richard Friedman from P1547, Standard for Distributed Resources Interconnected with Electric Power Systems attended the session. The main topic of the discussion was the differences between P1547 and C37.108 regarding the connection of Distributed Generation to Network Protections. The major differences are P1547 recommends using a time to delay the tripping protection to allow the reverse power relay on the distributed generation to trip it off before it is separated from the system by the network protector and the use of inverters as distributed generation. These differences were not resolved at this meeting. All Working Group members are to review Draft 9 and send their comments to the Chair by May 23. Also, any comments on P1547 are to be sent to Steve Conrad.

K6: SHUNT CAPACITOR PROTECTION GUIDE

Chair: G. Fenner

Vice Chair: S. R. Chano

Established, 1994

Output: Revision of Standard ANSI C37.99

Expected Completion Date: 2000

Draft 10(Final)

The WG held one session 10 members and 4 guests attended the meeting. The status of C37.99 is in its final stage of being completed as Draft 10 was approved on January 30,2000 by the Standards Board. A copy of the document was forwarded to the Standards Publishing Department and an editor was assigned to comment on the submitted final Draft. Comments from the editor were submitted to the Chair in April, which resulted in major editorial modification of the original document. These changes were discussed during the meeting in the presence of Miriam Sanders who were invited to attend the session. It was decided that the final copy should not be printed without the final approval by the WG members. The rest of the meeting was devoted for discussions related to forming a new WG to work on tutorial presentations at the PES and other regional conferences. Many WG members expressed their interest in joining and participating in regional conference presentations.

TF (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: 2002

The Working Group met in one session with 5 members and 6 guests. The PAR was approved on January 30, 2000.Draft 0 which included new sections on protection of shunt reactors with auxiliary power windings, protection of neutral reactors, and use of microprocessor based relays was reviewed. This draft also included enhancements on using ground directional relays, and operation with series compensated lines. Additional writing assignments were made on use of microprocessor relays and their filtering capabilities, negative sequence relay application, and relaying issues on the auxiliary power windings. Munno Bajpai was added to the working group.

K8: GUIDE FOR PROTECTIVE RELAYING OF UTILITY CONSUMER INTERFACE.

Chair: Irwin Hasenwinkle

Vice Chair: Fred Griffin

Expected Completion Date: 2000

Output: Revision of ANSI Standard C37.95

Draft 8

The WG met with 4 members and 6 guests present. Draft 6 of the document has been successfully balloted. However, 2 negative ballots were received and several worthwhile changes were suggested during the balloting process. As a result of the changes made during the January meeting, the negative ballots were withdrawn. Draft 7 has been submitted to the IEEE for re-circulation. During the meeting, several minor changes incorporated since the January meeting were discussed. Hopefully, the re-circulation will be successfully completed by the September meeting, which will permit submittal to the Standards Board and approval by the time the PAR expires.

K10: SCC21 Distributed Resources Standard Coordination

Chair: William Feero

Vice Chair: Doug Dawson

Established, 1999

Expected Completion Date: 2001

Output: Standard through the SCC 21

The meeting was held in one session with 12 members and 11 guests. Dick Friedman from the SCC21-P1547, who is the Section Leader of Clause 3 of P1547, attended our meeting. Since he has just developed a condensed functional version of Clause 3 of Draft 4 of P1547, the meeting was turned over to him to present Clause 3. The sub-clause on Network Protector drew strong discussion. Steve Grier volunteered specific comments. Comments on Draft 4 and the condensed revision of Clause 3 were requested to be sent back to the Chair of K10 within one week. P1547 will be meeting again in early June to discuss Draft 5. Draft 6 will be presented in Denver (Golden), Colorado in late August. Draft 7 may be sent out for ballot by mid-September. We will have to do most of our work by email between now and then.

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

Chair: A. F. Elneweihi

Vice Chair: F. P. Plumptre

Established, 1999

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

Expected Completion Date: 2003

The Working Group met in two sessions with 6 members and 5 guests in attendance. Dean Miller from Pacificcorp joined the WG. Steve Rowe will no longer participate as a member of the WG. The members reviewed and made some modifications to the outline. Writing assignments were made and are due to the Chair by the end of June 2000.

Liaison Reports:

1. Transformer Committee, J.D. Huddleston III -

The Transformers Committee met in Nashville April 2-5, 2000, but the Monterrey Minutes for November 7-10, 1999 are the latest available.

Coordination Reports:

1. ANSI/IEEE Switchgear Standards – F. Plumptre

a) ANSI/IEEE Standard C37.20.3 Standard for Metal-Enclosed Interrupter Switchgear.

Nothing to report

b) C37.100.1, Common Requirements for IEEE Power Switchgear Standards

Nothing to report

2. Transformer Committee, Project C57.119, Recommended Practice for Performing Temperature Tests on Oil Immersed Power Transformers at Loads Beyond Nameplate Rating - J. E. Stephens

The new WG Chairman has sent the document to IEEE for circulation, and plans to complete the project by August 2000.

3. PC62.91-SPD, Revision of IEEE 32 Requirements, Terminology, and Test Procedures for Neutral Grounding Devices - D. C. Dawson.

No report.

4. C37.66 Requirements for Capacitor Switches for Ac Systems – S. R. Chano

Nothing is reported. Simon Chano will contact T&D Capacitor Committee to verify the activities of C37.99 are taking place.

5. P1375 Guide for the Protection of Large Stationary Battery Systems - T. E. Weidman

Nothing is reported

6. P1538 (When approved) Guide for Determination of Maximum Winding Temperature Rise in Liquid Filled Transformers - Dan Hollands

Nothing is reported

7. P1409 Guide for Application of Power Electronics for Power Quality Improvements on Distribution Systems Rated 1 kV through 38 kV – S.P. Conrad

Nothing is reported.

8. P1106 Recommended Practice for Installation, Maintenance, Testing, and Replacement of Vented Nickel-Cadmium Batteries for Stationary Applications – S.P. Conrad.

New coordination request. Nothing is reported.

9. PC37.74 Standard Requirements for Subsurface Vault, and Padmounted Load-Interrupter Switchgear and Fused Load-Interrupter Switchgear for Alternating Current Systems up to 38 kV - Roger Hedding.

New coordination request. Nothing is reported.

10. ANSI/IEEE Switchgear Standards - Vittal Rebbapragada

a) **PC37.30.01 Standard Requirements for High Voltage Air Switches, Switching Devices, and Interrupters.**

b) **PC37.100.1 IEEE Standard of Common Requirements for Power Switchgear**

New Coordination Request. Nothing is reported

Old Business

New Business

Four Working Groups have almost completed their assignment. It was decided to discuss during the September meeting new proposals to form future Working Groups. All members are encouraged to come up with new proposals for the upcoming meeting.

Working group chairs were encouraged to send information on scope, membership, and status of their working groups to Charlie Sufana, Subcommittee Web page coordinator. This will ensure that current, useful information is provided on the Working group web pages.