

**C: System Protection Subcommittee****Chair: J. S. Thorp****Vice Chair: D. Novosel**

The System Protection Subcommittee met on September 20, 2000 at 3:00 PM in Andover, Mass.

The Subcommittee discussed an inquiry about our interest in "Recommended practices on deployment and use of disturbance recorders and digital fault recorders".  
A Task Force chaired by Carlos Castro will meet in January to assess interest..

**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.

**C2: Power Quality Issues in Protective Relaying****Chair: T.W. Cease****Vice Chair: David Hart****Established: 2000****Expected Completion Date: 2003****Output: Report to Main Committee and IEEE Transactions Paper**

Power Quality Issues in Protective Relaying held its first meeting on September 19, 2000 with 14 members and 20 guests. The scope of the working group was reviewed and it was agreed that for now the scope would remain unchanged. David Hart made a presentation on IEEE 1159. Don Ware and Demetrios Tziouvaras accepted assignments. At the next meeting another Power Quality standard will be presented

**C3: New Technology for Transmission and Distribution Protection****Chair: A. P. Apostolov****Vice Chair: P. A. Solanics****Established: 1994****Expected Completion Date: Continuing****Output: Report to Main Committee and IEEE Transactions Paper**

The presentations began alternating with "Ask the Experts" on Wed afternoon at this meeting. The presentations were:

**ATPDraw: Modeling and Testing****Jules Esztergalios, BPA****New Technology for Data Processing in Substation Integration Systems****A. Makki, SoftStuff****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 on Wednesday, September 20th, with 7 members and 6 guests present. After discussions of the current version of the document there was consensus that the following is required in order to improve the document:

- The document needs page numbers, figure numbers, section numbers
- A Table of Contents should be added at the beginning of the document
- The new version of the document should be distributed as a zipped RTF format file
- A Load Rejection contribution from S. Horowitz is not included in the document (to be added)
- Move all Historical Examples for disturbances from the beginning of the document in an Annex at the end
- Add examples of major disturbances and how Wide-Area-Relaying can help in such events for the North East (M. Ibrahim), South East (T.W. Cease), Central (S. Horowitz)
- Voltage Stability was assigned to M. Begovic
- Analytical Techniques section to be reduced to text only in the main part of the document and all equations moved to an Annex at the end of the document

The Expert System section needs clarification. Schedule a 20 min presentation for the next meeting, followed by discussions. Computer projector is needed for the presentation

Next Meeting: single session, 20 people, CP

**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 met in Andover, MA on September 20, 2000. The WG has received permission by PES to present the tutorial at the winter PES meeting in Columbus, OH. The WG is also seeking permission from the subcommittee to present a summary paper at the three regional relay conferences - Georgia Tech, Texas A&M, and WPRC, and have the tutorial available for sale at the conferences

**C8: Phasor-Based Models for Analyzing Relay Performance**

**Mike Meisinger, Chair**  
**M. S. Sachdev, Vice Chair**  
**Established, 1997**  
**Expected Completion Date: 2002**  
**Output: Transactions Paper**

The Working Group met at 9:30 AM on September 20, 2000 in Seminar room, Rolling Green Ramada Inn, Andover MA. Seven members and eleven guests were present.

Drafts of two sections reassigned at the May meeting had not been received. The WG reviewed the outstanding tasks and assigned the Chair to follow up the completion of

the drafts with Jaime De La Ree, Mika Begovic, Irwin Hasenwinkle and Mike Meisinger for obtaining the drafts from them.

After some discussion it was decided that the introduction should include an appropriate definition of the scope of applications in which relay engineers can use phasor models. Gabriel Benmouyal agreed to provide a draft of this addition. He also agreed to provide an example of CVT for including in the paper.

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**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, September 19th, with 22 members and 7 guests present. 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 by the end of November so that a draft document can be prepared and sent out for comments before the January meeting.

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 met 1:30 PM, Tuesday, September 19, 2000 with 26 members and guests. The vice-chairman distributed copies of the last meeting minutes.

Discussion centered on what goals a survey would have, what types of questions should be asked, and who the target audience for the survey should be.

**Assignments and Action Items**

- Members Julie Vitello and Charlie Henville to write skeleton list of questions to be answered by paper. Questions to be circulated to WG members and interested guests before the January, 2001 WG meeting.
- Five presentations by utility engineers and vendors were made at the May, 2000 meeting. The Chair will distribute copies of these presentations to WG members and interested guests.

**Next Meeting:**

For our next meeting we need a room for 40 participants and a projection system to run power-point 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 working group met in Andover, MA on September 19, 2000. A planned presentation by M. Ibrahim was cancelled. The presenter did not attend the PSRC meeting in Andover and had to cancel for personal reasons. The WG plans to have a presentation by Rai Martilla during the January meeting. Two new members, Brad Nelson and David Leonhart joined the WG.

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

**NERC Liaison Report to SC**

Nothing of significance to report.

**Liaison Report of the IEEE PES Power System Stability Controls Subcommittee (SC) to the PSRC Gary Michael**

The SC met at the 2000 SPM on 19 July 2000 in Seattle with around 60 people attending. The meeting included special presentations by Vijay Vittal on robust PSS and by Paulo Gomes on the March 11, 1999 Brazilian blackout. The Brazilian blackout is described in two CIGRE papers of the 2000 Paris meeting.

The SC also sponsored a technical paper session with two transaction papers and three proceeding papers, and co-sponsored the panel session on Power Plant Secondary (High Side) Voltage Control. Both sessions were well attended. The panel session is documented on pages 271 - 312 of the proceedings.

At the Columbus, Ohio 2001 winter meeting, the SC is planning a special technical session (panel session with tutorial content) on generator field circuit time-overload capability. The session is co-sponsored by the Excitation Systems Subcommittee, and is expected to be on Monday afternoon, January 29.

The SC is initiating work on direct load control for price and voltage stability. Jeff Dagle from Pacific Northwest National Laboratory will lead the work with cooperation from the Power System Operations Committee. A panel session is planned for the Columbus meeting (Tuesday afternoon, January 30). A position paper may follow.

The SC is starting to plan a panel session on recent experience with special protection systems for the 2001 summer meeting. This will include implementations following major disturbances, and use of PLC and other digital controls.