

**POWER SYSTEM RELAYING AND CONTROL COMMITTEE 2019**

**Scope:** Treatment of all matters Energy Society and associated Groups and Societies of the in which the dominant factors are the application, design, construction, and operation of protective, regulating, monitoring, synchronism-check, synchronizing, reclosing, and auxiliary relays, including all matters necessary to the function of such relays and relaying systems employed in the generation, transmission, distribution, and utilization of electrical energy and including the effects of such relays on system operation. Treatment of techniques and requirements for communications within, between, and among protective relays, to the extent that these communications affect protection functions or performance. Maintenance of liaison and collaboration as required with other committees of the Power & Energy Society of the IEEE. Web Site: <http://www.pes-psrc.org/>

**Officers:**

**R. W. Patterson,**  
*Chair*  
**Patterson Power Engineers**  
**Chattanooga, TN**

**Dr. Murty Yalla,**  
*Vice-Chair*  
**Beckwith Electric Co. Inc.**  
**Largo, FL**

**Michael Thompson, Secretary**  
**SEL Engineering Svcs**  
**Fairview Heights, IL**

**Don Lukach,**  
*Standards Coordinator,*  
**Ameren Illinois**  
**Decatur, IL**

**Members**

Adamiak, M.  
Allen, E.  
Anderson, B.B.  
Antonova, G.S.  
Apostolov, A. P.  
Barsch, J.  
Bartok, G.J.  
Basler, M.  
Beckwith, T.R.  
Benmouyal, G.  
Benou, M.R.  
Boysen, B.  
Brahma, S.  
Brunello, G.A.  
Brunner, C.  
Bui, D-P  
Bukhala, Z.  
Burnworth, J.  
Carpenter, W. M.

Carroll, P.T.  
Cease, T.W.  
Chaudhary, A.K.S  
Chelmecki, C.  
Conrad, S. P.  
Crellin, R.  
Cunico, R.  
Dahlin, T.  
Das, M.  
Das, R.  
Dempsey, R. W.  
Deronja, A.  
Dickerson, B.  
DoCarmo, H.  
Donahoe, K.  
Dood, M.  
Elkin, P.  
Englsih, W.  
Finney, D.  
Fischer, N.  
Fodero, K.  
Fontana, D.  
Friend, F. A.  
Garcia, R.  
Gers, J.  
Giarratano, D.  
Hackett, J.  
Hamilton, R.  
Hartmann, W. G.  
Henneberg, G.  
Henville, C. F.  
Holbach, J.  
Houser, K.  
Hu, Y.  
Hunt, R.  
Huntley, C.  
Imai, S.  
Jodice, J.A.  
Johnson, A.  
Jones, K.  
Kao, M.  
Kim, S.  
Kobet, G.  
Kojovic, L.  
Kumar, P.  
Kunsmann, S.A.  
Lascu, R.  
Long, J.  
Lukach, D.  
Madani, V.  
Mackie, B.  
Magruder, B.  
Makki, A.  
Maragal, D.  
Martin, A.  
Martin, K.  
Martin, P.  
McCannon, W.  
McDonald, M.  
McLaren, P. G.  
Meisinger, M.  
Midence, R.  
Miller, D.H.  
Monterrubio, H.  
Mooney, J.  
Moskos, G.  
Mugalian, B.  
Mulawarman, A.  
Mysore, P.  
Nagpal, M.  
Nemeir, M.  
Niemira, J.  
Novosel, D.

O'Brien, J.M.  
Patterson, R.  
Patti, C.  
Pickett, B.A.  
Polonco, L.Pond, J.  
Preuss, C.  
Rahmatian, F.  
Ranieri, M. M.  
Ray, R.E.  
Reckerd, D.  
Reichard, M.L.  
Ruckman, C.  
Sambasivan, S.N.  
Sanders, M.  
Schroeder, M. S.  
Sciacca, S.  
Seegers, T.  
Sufana, C.  
Swanson, M. J.  
Sykes, J.A.  
Thakur, S.  
Thompson, M.  
Tualla, I.  
Tziouvaras, D. A.  
Udren, E. A.  
Uribe, A.  
Vandiver, B.  
Venkata, S.S  
Voloh, I.  
Ward, S.  
Whittaker, R.  
Yalla, M.  
Young, R.C.  
Wang J.  
Winston, P.B.  
Zhang, Z.  
Zimmerman, K

**Honorary Members**

Appleyard, J. C.  
Beresh, R.  
Boyle, J. R.  
Bright, J. A.  
Brownlee, W. R.  
Dawson, D. C.  
Dietrich, R. E.  
Dingler, J. B.  
Feero, W. E.  
Giuliante, A. T.  
Haas, R. W.  
Horowitz, S. H.  
Ibrahim, M.  
Ingleson, J. W.  
Jackson, B.  
Johnson, G.F.  
Koepfinger, J.  
Lowe, W. G.  
Marieni, G. J.  
Mathews, C. A.  
May, G. E.  
Michelson, E. L.  
Mozina, C. J.  
Murphy, J. J.  
Nail, G. R.  
Niessink, T.  
Parr, G.  
Phadke, A.G.  
Pumphrey, O. F.  
Rockefeller, G. D.  
Sachdev, M. S.  
Stephens, J. E.  
Vozzka, D. R.

Zulaski, J. A.

**B: ADVISORY SUBCOMMITTEE**

**Scope:** Assist the Chair of the PSRC on all matters that he may request in the functioning, direction, and conduct of the work of the Main Committee. (Main Committee Officers, Subcommittee Chairs and past PSRC Chairs)

**R. W. Patterson,**  
*Chair*  
**Patterson Power Engineers**  
**Chattanooga, TN**

**Dr. Murty Yalla,**  
*Vice-Chair*  
**Beckwith Electric Co. Inc.**  
**Largo, FL**

Antonova, G.  
Barsch, J.  
Dalton, C.  
Dempsey, R.W.  
Finney, D.  
Friend, F.  
Gamble, R.  
Henville, C. F.  
Lukach, D.  
McDonald, M. J.  
Monterrubio, H.  
Mysore, P.  
Patterson, R.  
Sanders, M.P.  
Swanson, M.  
Thompson, M.  
Uribe, A.  
Winston, P.B.  
Yalla, M.  
Zimmerman, K.  
Winston, P.B.

**B1: AWARDS AND TECHNICAL PAPER RECOGNITION**

**Assignment:** Nominate PSRC-sponsored papers, standards, and reports for PES Technical Council and IEEE awards. To nominate individual members for award recognition. (Sub Committee Vice-Chairs).

**H. Monterrubio,, Chair**  
**BeckwithElectric Co.**  
**Largo, Florida**

**M. Swanson, Vice-Chair & Secretary**  
**MJ Swanson Assoc**  
**Windham, NH**

Friend, F.  
Kobet, G.  
Mackie, B.  
Martin, A.  
Mulawarman, A.  
Niemira, J

**B2: FELLOWS AWARDS**

*Assignment:* Assist PSRC sponsors with advice on the Fellow nomination process. To access the background of Fellow nominees and aid the PSRC in preparation of required documents.

**C. F. Henville, Chair**  
*Henville Consulting Inc.*  
*Delta, BC, CA*

**B3: MEMBERSHIP**

*Assignment:* Provide assistance in searching for new participants who have qualifications for eventual membership. Assist in maintaining diversity of expertise among active members and participants. Provide assistance, where appropriate, for those needing help gaining support of the organization where they are employed.

**M.J. Swanson, Chair**  
*MJ Swanson Associates*  
*Windham, NH*

**C. Dalton, Vice-Chair & Secretary**  
*EPRI*  
*Duluth, GA*

**B4: O&P MANUAL REVISION AND WORKING GROUP CHAIR TRAINING**

*Assignment:* Revise and amend PSRC Organization and Procedure Manual when directed to do so by the PSRC Chair. Conduct working group Chair forums on procedures and training.

**P.B. Winston, Chair**  
*Southern Company*  
*Peachtree Corners, GA*

**B5: PUBLICITY WORKING GROUP**

*Assignment:* The B5 working group's assignment was newly defined in January 2017, then presented and approved at the May 2017 meeting, with continued goals identified for 2018 to build upon 2017 progress.

- Promote IEEE PES PSRCC activities globally.
- Facilitate global outreach using tools such as webinars, tutorials, trade publications and other similar methods.
- Strengthen PSRCC awareness by preparing

technical articles as may be required for the promotion of technical committee working group activities about the art of relaying, and the work of the PSRCC.

**C. Dalton, Chair**  
*EPRI*  
*Duluth, GA*

**M.J. Swanson, Vice-Chair & Secretary**  
*MJ Swanson Associates*  
*Windham, NH*

**B8: LONG RANGE PLANNING**

*Assignment:* The primary function of the Long Range Task Force is to act in an advisory capacity to the Chair of the PSRC. They will discuss and analyze developments in various fields of Electric Power Engineering as they affect the activity of the Power System Relaying Committee. They are to advise the Officers of PSRC if any changes in the organization and operation of the PSRC are desirable. The membership of the Long Range Task Force is limited to ex-Chairs of PSRC.

**P.G. Mysore, Chair**  
*Pratap Consulting Services*  
*Plymouth, MN*

Dempsey, R.W.  
Henville, C. F.  
McDonald, M. J.  
Mysore, P.  
Sanders, M.P.  
Winston, P.B.

**B9: PSRC WEB SITE**

*Assignment:* Provide assistance in setting up Web Sites and maintaining the PSRC Web Site.

**R. Gamble, Chair**  
*Energy Initiatives Group*  
*Marlborough, MA*

**C: SYSTEMS PROTECTION SUBCOMMITTEE**

*Scope:* Evaluate protection system responses to abnormal power system states. Evaluate and report on special protection schemes, remedial actions schemes, monitoring and control systems and their performance during abnormal power system conditions. Recommend corrective strategies and develop appropriate standards, guides, or special publications. Evaluate and report on new technologies which may have a

bearing on protection system performance during abnormal power system conditions.

**G. Henneberg, Chair**  
*NV Energy*  
*Reno, NV*

**F. Friend, Vice-Chair**  
*American Electric Power*  
*Columbus, OH*

Anderson, J.  
Antonova, G.  
Apostolov, A.  
Best, M.  
Black, M.  
Blumshein, J.  
Brahma, S.  
Cease, T.W.  
Cunico, R.  
Deronja, A.  
Farnatatos, E.  
Friend, F.  
Garcia, R.  
Gharpure, V.  
Goldstein, A.  
Hackett, J.  
Harris, J.  
Henville, C. F.  
Higginson, M.  
Houser, K.  
Hu, Yi.  
Hunt, R.  
Johnson, A.  
Jones, K.  
Kanabar, M.  
Kifle, A.  
Kockoff, M.  
Lascu, R.  
Madani, V.  
Malson, H.  
McLaren, P. G.  
Meisinger, M.  
Miller, D.

Moxley, R.  
Myrda, P.  
Napal, M.  
Patel, Mahendra  
Patel, Manish  
Rahmatian, F.  
Reckerd, D..  
Seegers, T.  
Sykes, J.  
Tualla, I.  
Tziouvaras, D. A.  
Udren, E. A.  
Vandiver, B.  
Venkata, S.S.  
Verzosa, J.  
Ward, S.  
Ware, D/  
Winston, P. B.

**C19: STANDARD FOR PHASOR DATA CONCENTRATORS FOR POWER SYSTEMS**

*Assignment:* Develop a Standard for Phasor Data Concentrators for power systems.

**V. Gharpure, Chair**  
*Quanta Technology*  
*Cary, NC*

**M. Kanabar, Vice-Chair & Secretary**  
*General Electric*  
*Markham, ON, CA*

Adamiak, M.\*  
Agrawal, P.\*  
Antonova, G.\*  
Brancaccio, D.\*  
Carrol, R.\*  
Chohan, S.\*  
Dwyer, D.  
Goldstein, A.\*  
Hu, Y.\*  
Huang, Z.\*  
Johnson, A.\*  
Kirkham, H.  
Maragai, D.  
Martin, K.\*  
Miller, J.\*  
Murphy, J.  
Otto, J.  
Patel, M.  
Skendic, V.\*  
Vandiver, B.\*  
Weeks, T.\*

**C21: GUIDE FOR ENGINEERING, IMPLEMENTATION AND MANAGEMENT OF SYSTEM INTEGRITY PROTECTION SCHEMES (SIPS) PC37.250**

*Assignment:* Develop an IEEE Guide for Engineering, Implementation, and Management of System Integrity Protection Schemes.

**Y. Hu, Chair**  
*Quanta Technology*  
*Raleigh, NC*

**G.Henneberg, Vice-Chair & Secretary**  
*NV Energy*  
*Reno, NV*

Agudelo, L. \*  
Allen, E.  
Apostolov, A.  
Aquiles-Perez \*  
Beaumont, P.  
Brahma, S.  
Calero, F.  
Deronja, A.  
Falk, H.  
Henville, C. \*  
Johjnsn, A.  
Kawano, F. \*  
Malson, H.  
Miller, D.  
Moxley, R.\*  
Omi, S.  
Park, J.  
Patel, Manish  
Phillippe, T.  
De laQuintana, A  
Ren, Z.

Seegers, T.  
Shi, B.  
Shoto, T.\*  
Wang, A.\*  
Whittaker, R.  
Yu, X.

**C23: COORDINATION OF SYNCRHOPHASE RELATED ACTIVITIES**

*Assignment:* The ongoing task force will provide three main functions:

- Liaison with NASPI (North American Synchrophasor Initiative) (specifically the PRSVTT (Performance Requirements, Standards and Verification Task Team)) to keep the PSRC in sync with the changes and needs in the industry with respect to the development and usage of PMU devices. Formalize transfer process of PRSVTT developed documents to PES PSRC including making recommendations which PRSVTT activities should be transferred to IEEE reports, guides and standards.
- Make recommendations to PSRC for assignments that would require the creation of working groups in PSRC and also recommend what the output of those working groups might be (Guides, reports, etc.) based on the needs of the industry.
- Coordinate related activities with other IEEE PES committees.

**M. Patel, Chair**  
**EPRI**  
**Phoenixville, PA**

**A. Goldstein, Vice-Chair & Secretary**  
**NIST**  
**Gaithersburg, MD**

Dwyer, D.  
Gharpure, V.  
Hackett, J.  
Hu, Y.  
Kirkham, H.  
Madani, Wahid  
Martin, K.  
Murphy, J.  
Myrda, P.  
O'Brien, J.  
Patel, M.

**C24: MODIFICATION OF COMMERCIAL FAULT CALCULATION PROGRAMS FOR WIND TURBINE GENERATORS**

*Assignment:*

- 1) To survey WTG manufacturers to determine what parameters they could provide that could be used by steady state short circuit program developers in various time frames.
- 2) Use the result of this survey to prepare a report that can be used by steady state program developers to refine their models.

**S. Brahma, Chair**  
**Clemson University**  
**Clemson, SC**

**E. Farantatos, Vice-Chair & Secretary**  
**EPRI**  
**Palo Alto, CA**

Aquiles-Perez, S.  
Chan, S.  
Gokaraju, R.  
Guerrero, M.  
Henville, C.  
Houser, K.  
Jalali, M.  
Lascu, R.  
Liao, Y.  
Lien, J.  
Miller, D.  
Patel, Manish,  
Patel, Mahendra  
Peng, C.  
Qui, J.  
Qiu, Q.  
Ridley, K.  
Zadeh, M.  
Zamani, A.

**C25: PROTECTION OF WIND ELECTRIC PLANTS**

*Assignment:* Write a report to provide guidance on relay protection and coordination at wind electric plants. This report will cover protection of generator step up transformers, collector system feeders, grounding transformers, collector buses, reactors, capacitors, main station transformers, tie lines and points of interconnection and associated arc flash issues. Although the report will address coordination with wind turbine generator protective devices and static var sources, the protection of the wind turbine generators and static var sources will not be included.

**M. Best, Chair**  
**UC Synergetic**  
**Ft. Mill, SC**

**K. Houser, Vice-Chair & Secretary**  
**Dominion VA Power**  
**Richmond, VA**

Antonova, G.  
Boysen, B.  
Brahma, S.  
Buchanan, D.  
Chowdhury, R.  
Farantatos, E.  
Frederickson, D.  
Gers, J.  
Henville, C.  
Kanabar, M.  
Lascu, R.  
Liao, Y.  
Lien, J.  
Midence, R.  
Miller, D.  
Nagpal, M.  
Niemi, J.  
Omi, S.  
Powers, A.  
Ridley, K.  
Ruscior, M.  
Schroeder, L.  
Seuss, J.  
Turner, S.  
Vakil, A.  
Van de Ligt, J. Vico, J.  
Zadeh, M.  
Zamani, A.

**C26: C37.233, POWER SYSTEM PROTECTION TESTING GUIDE**

*Assignment:* Revise C37.233 Power System Protection Testing Guide.

**D. Ware, Chair**  
**Power Grid Engineering**  
**Treasure Island, FL**

**M. Black, Vice-Chair & Secretary**  
**Sargent & Lundy**  
**Lookout Mt, TN**

Bientez, M.  
Bloder, N.  
Boyson, B.  
Brown, J.  
Casilla, N.  
Cavalheira, E.  
Cooper, S.  
Donahoe, K.  
Gamble, R.  
Garcia, R.  
Jester, J.  
Kim, S.  
Lee, A.  
Liao, Y.  
Madani, V.  
Mohtadj, A.  
Moore, B.  
Newman, A.  
Seegers, T.  
Selak, N.  
Siira, M.  
Shock, E.  
Short, S.  
Stec, W.  
Stojak, M.  
Tempone, A.  
Turner, S.

Uribe, A.  
Vang, T.  
Verzosa, J.  
Vico, J.  
Weyer, G.  
Zaitz, Z.

**C28: C37.242 GUIDE TO THE SYNCHRONIZATION, CALIBRATION, INSTALLATION AND TESTING OF PMUS FOR POWER SYSTEM PROTECTION AND CONTROL**

*Assignment:* Revision of the IEEE guide which provides guidance for synchronization, calibration, testing, and installation of phasor measurement units (PMUs) applied in power system protection and control. The following are addressed in this guide:

- a) Test and calibration procedures for PMUs for laboratory and field applications. These procedures have been superseded by another IEEE document and will be revised or deleted as appropriate.
- b) Considerations for the installation of PMU devices based on application requirements and typical bus configurations. New lessons learned since the publication of this guide may be accounted for in a revision to the guide.
- b) Techniques focusing on the overall accuracy and availability of the time synchronization system. New technologies and further information about synchronization may be accounted for in a revision to the guide.
- d) Communications testing for connecting PMUs to other devices including Phasor Data Concentrators (PDCs). Lessons learned from the field may be included in a revision of the guide.

**A. Goldstein, Chair**  
**NIST**  
**Gaithersburg, MD**

**H. Kirkham, Vice-Chair & Secretary**  
**PNNL**  
**Richland, WA**

Bonjan, S.  
Brunello, G.  
Cooper, S.\*

Das, R. \*  
 Dickerson, B.  
 Dwyer, D.  
 Friend, F.  
 Ghapure, V.  
 Gosalia, J. \*  
 Hackett, J.  
 Hu, Y.  
 Johnson, A.  
 Kezunovic, M. \*  
 Lamb, J. \*  
 Madani, V.  
 Martin, K.  
 Midence, R. \*  
 Mix, S. \*  
 Murphy, J. \*  
 O'Brien, J.  
 Ouilette, D.  
 Patel, M.  
 Perera, N. \*  
 Rahmatian, F.  
 Subramaniam, R. \*

**C29: POWER SYSTEM TESTING METHODS FOR POWER SWING BLOCKING AND OUT-OF-STEP TRIPPING**

*Assignment:* Create a report on test instructions / parameters to accompany the PSRC documents Application of Out-Of-Step Protection Schemes for Generators and Tutorial on Setting Impedance Based Power Swing Blocking and Out of Step Tripping Functions on Transmission Lines to aid the users in quality testing of their settings and systems when following the working group outputs which recommend testing of complex relay settings and systems.

**H. Malson, Chair**  
**Synchrogrid**  
**Amarillo, TX**

**M. Kockott, Vice-Chair & Secretary,**  
**ABB, Raleigh, NC**

Aquiles-Perez, S.  
 Benitez, M.  
 Carvalheira, E.  
 Casilla, N.  
 Chen, S.  
 Conrad, S.  
 Cooper, S.Das, R.  
 Dempsey, B.  
 Espinosa, J.  
 Fowler, R.  
 Henneberg, G.  
 Hilaly, M.  
 Jones, K.  
 Kobet, G.  
 Le, V.  
 Liao, Y.  
 Lu, Y.  
 Maragal, D.  
 Mohtadi, A.R.  
 Omi, S.

Osman, M.  
 Pettigrew, R.  
 Polanco, L.  
 Rajapakse, A.  
 Ren, Z.  
 Ruiz, J.  
 Schroeder, L.  
 Singh, G.Sykes, J.  
 Thakur, S.  
 Turner, S.  
 Tziouvaras, D.  
 Vakili, A.  
 Vandelig, J.  
 Vandiver, B.  
 Vang, T..  
 Verzosa, J.  
 Wilson, J.  
 Yang, L.  
 Zadeh, M..

**C30: MICROGRID PROTECTION SYSTEMS**

*Assignment:* Prepare a report that will investigate and assess techniques, approaches, and potential solutions to the challenges of microgrid protection.

**M. Higginson, Chair**  
**S&C Electric**  
**Chicago, IL**

**F. Friend, Vice-Chair & Secretary**  
**American Electric Power**  
**Columbus, OH**

Barati, M.  
 Black, M.Bloder, M.  
 Brahma, S.  
 Burnworth, J.  
 Das, R.  
 Dong, X.  
 Fowler, R.  
 Garcia, R.  
 Garg, K.  
 Hamilton, R.  
 Hartmann, W.  
 Kockott, M.  
 Kumar, P.  
 Lasca, R.  
 Liao, Y.  
 Mackie, B.  
 Madani, V.  
 Meliopoulos, S.  
 Nagpal, M.  
 Niemira, J.  
 O'Brien, J.  
 Rajapakse, A.  
 Song, E.  
 Sykes, J.  
 Venkata, M.  
 Wong, C.  
 Yang, L.  
 Zamani, A

**C31: GUIDE FOR PROTECTION SYSTEM REDUNDANCY FOR POWER SYSTEM RELIABILITY**

*Assignment:* ??

**S. Ward, Chair**  
**Quanta Technology**  
**Raleigh, NC**

**A. Deronja, Vice-Chair & Secretary**  
**American Transmission Co**  
**Waukesha, WI**

Anderson, J.  
 Black, M.  
 Boysen, B.  
 Brown, J.Byun, R.  
 Chowdhury, R.  
 Cunico, R.  
 Ding, Z.  
 Donahoe, K.  
 Frye, R.  
 Gresko, G.  
 Gulcaynski, N.  
 Henville, C.  
 Kockott, M.  
 Martin, A.  
 Mezco, A.  
 Morrissey, D.  
 Moskos, G.  
 Moxley, R.  
 O'Brien, J.  
 Orrego, N.  
 Palmer, C.  
 P[atel, M  
 Pond, J.  
 Recker, D.  
 Ridley, K.  
 Schroeder, L.  
 Stoedter, G.  
 Tatro, Ph.  
 Tempone, A.  
 Tuladhar, L.  
 Ware, D.  
 Yang, Q.

**C32: PROTECTION PRACTICES FOR INTERCONNECTING SOLAR OR OTHER INVERTER BASED GENERATION TO UTILITY TRANSMISSION SYSTEMS**

*Assignment:* ??

**M. Nagpal, Chair**  
**B.C. Hydro**  
**Burnaby, Canada**

**M. Jensen, Vice-Chair & Secretary**  
**PG&E**  
**Fresno, CA**

Antonova, G.  
 Banerjee, K.  
 Bapary, A.  
 Bloder, M.  
 Buchanan, D.  
 Cummings, B.  
 Cunico, R.  
 Dongale, P.  
 Elling, S.  
 Garg, K.  
 Jensen, M.  
 Jones, K.

Kifle, A.  
 Kumar, P.  
 Ladner, H.  
 Lien, J.  
 Midence, R.  
 Morrissey, D.  
 Nguyen, A.  
 O'Brien, J.  
 Patel, M.  
 Perera, N.  
 Perez, J.  
 Recker, D.  
 Ridley, K.  
 Schroeder, L.  
 Selak, N.  
 Seuss, J.  
 Stec, W.  
 Van de Light, J.  
 Vico, J.  
 Zamani, A.

**C33: SUPPORT FOR WG-P2004 "RECOMMENDED PRACTICE FOR HARDWARE-IN-THE-LOOP (HIL) SIMULATION BASED TESTING OF ELECTRIC POWER APPARATUS AND CONTROLS"**

*Assignment:* Support the development of the IEEE Recommended Practice in Cooperation with PELS, IAS, and IES efforts.

**Michael Steurer, Chair**  
**Florida State University,**  
**Tallahassee, FL**

**Georg Lauss, Vice-Chair & Secretary**  
**Austrian Institute of Technology**  
**Vienna, Austria**

**D. Ouellette, PSRC Chair**  
**RTDS Technology**  
**Winnepeg, MB CA**

**S. Meliopoulos,**  
**Vice-Chair & Secretary**  
**GA Institute of Technology,**  
**Atlanta, GA**

Black, M.  
 Burnworth, J.  
 Davari, M.  
 Ding, X.  
 Friend, F.  
 Gurusingle, D.  
 Henneberg, G.  
 JeanJulien, S.  
 Johnson, A.  
 Lauss, G.  
 Lundstrom, B.  
 Maragal, D.  
 Martin, T.  
 McLaren, P.  
 Meliopoulos, S.  
 Mix, S.  
 Myrda, P.  
 Panwar, M.  
 Paquin, J.

Short, S.  
Thompson, M.

**CTF34: INVERTER-BASED SHORT CIRCUIT CURRENT IMPACTS**

Assignment: Coordinate/communicate the efforts of the PES/NERC Low Short Circuit Current Impacts Task Force and PSRC working groups addressing the issues of inverter-based resources.

**K. Jones, Chair**  
**Xcel Energy**  
**Amarillo, TX**

**G. Kobet, Vice-Chair & Secretary**  
**TVA**  
**Chattanooga, TN**

Baker, P.  
Chowdhury, R.  
Cunico, R.  
Espinosa, J.  
Farantatos, E.  
Garg, K.  
Higginson, M.  
Jensen, M.  
Madani, V.  
Mansih, P.  
Mysore, P.  
Nagpal, M.  
O'Brien, J.

**C35: CONFERENCE PAPER DEVELOPMENT FOR C37.246 GUIDE FOR PROTECTION SYSTEMS OF TRANSMISSION-TO-GENERATION INTERCONNECTIONS**

Assignment: Write a conference and IEEE transactions papers for C37.246 IEEE Guide for Protection System of Transmission-to-Generation Interconnections.

**A. Deronja – Chair**  
**American Trans. Co**  
**Waukesha, WI**

**K. Houser-Vice-Chair & Secretary**  
**Dominion**  
**Richmond, VA**

Bapary, A.  
Barsch, J.  
Cunico, R.  
Fontana, D.  
Holt, C.  
Jensen, M.  
Liao, Y.  
Midence, R.  
Nagpal, M.  
Patel, M.  
Schroeder, L.

Tualla, I.  
Ward, S.

**C36: PAPER DEVELOPMENT FROM C2 REPORT: ROLE OF PROTECTIVE RELAYING IN THE SMART GRID**

Assignment: Prepare IEEE transactions paper developed from the C2 report: Role of Protective Relaying in the Smart Grid

**R. Moxley, Chair**  
**Siemens**  
**Firth, ID**

**R. B. Kazimier, Vice-Chair & Secretary**  
**Beckwith Electric Co.,**  
**Knoxville, TN**

Apostolov, A.  
Black, M.  
Gers, J.  
Martin, T.  
Ding, X.  
Donahoe, K.  
Kanabar, M.  
Liao, Y.  
Myrda, P.  
Selak, N.  
Seuss, J.  
Stec, W.  
Yang, Y.

**C38: GUIDE FOR THE DESIGN OF MICROGRID PROTECTION SYSTEMS**

Assignment: To create the Guide for the "Design of Microgrid Protection Systems"

**S.S. Mani Venkata, Chair**  
**Venkata Consulting**  
**Solutions, Inc.**  
**Oro Valley, AZ**

**Michael Higginson, Vice-Chair & Secretary**  
**S&C Electric Company**  
**Chicago, IL**

Baker, P.  
Best, M.  
Bloder, M.  
Boysen, B.  
Brahua, S.  
Buffinton, J.  
Calero, F.  
Das, R.  
Davies, B.  
Earle, J.  
Elkin, P.  
Farrar, T.  
Friend, F.  
Garg, K.  
Henneberg, G.

Higginson, M.  
Jensen, M.  
Jester, J.  
Ladeh, M.  
Martin, T.  
Newell, R.  
Niemira, J.  
Orrego, N.  
Ortega, G.  
Patel, M.  
Reno, M.  
Schroeder, L.  
Thompson, M.  
Venkata, S.S.  
Yang, L.  
Zamani, A.

**CTF-39: GUIDE FOR TESTING AUTOMATIC VOLTAGE CONTROL SYSTEMS IN REGIONAL POWER GRIDS**

Assignment: This guide describes the application philosophy, limitations, and testing methods for the automatic voltage control (AVC) system of the regional power grid. This guide applies to the testing for reactive-power-control-based AVC systems in the regional grid.

**TBD, Chair**

**TBD, Vice-Chair & Secretary**

**D: LINE PROTECTION SUBCOMMITTEE**

**Scope:** Investigate and report on the relaying techniques and systems used for transmission and distribution (T&D) line protection. Develop statistics and recommend protection practices for improving line relaying performance. Develop and maintain standards for line protection.

**K. Zimmerman, Chair**  
**Schweitzer Engineering**  
**Laboratories**  
**Fairview Heights, IL**

**B.D. Mackie, Vice-Chair**  
**Nashville Electric Service**  
**Nashville, TN**

Barsch, J.  
Blumschein, J.  
Boysen, B.  
Brunello, G.  
Carpenter, M.  
Carroll, P.  
Conrad, S.  
Crellin, R.  
Cunico, R.  
Deronja, A.

Fischer, N.  
Fontana, D.  
Friend, F.  
Gamble, R.  
Gulczynski, N.  
Jones, K. W.  
Kao, M.  
Kobet, G.  
Kockott, M.  
Lascu, R.  
Lukach, D.  
McCannon, W.  
McDonald, M.  
Miller, D.  
Mulawarman, A.  
Mysore, P.  
O'Brien, J.  
Patel, M.  
Patterson, R.  
Patti, C.  
Polanco, L.  
Sambasivan, S.  
Schroeder, M.  
Seegers, T.  
Sufana, C.  
Sykes, J.  
Udren, E.  
Walker, C.  
Ward, S.  
Winston, P.  
Zhang, Z.

**D28: (PC37.230) GUIDE FOR PROTECTIVE RELAY APPLICATIONS TO DISTRIBUTION LINES**

Assignment: Revise the C37.230-2007 Guide

**B. Boysen, Chair**  
**We Energies**  
**Milwaukee WI**

**C. Patti, Vice-Chair & Secretary**  
**Power Engineers**  
**Portland, OR**

Aldrich, D.  
Best, M.  
Carroll, P.  
Crellin, R.  
Das, R.  
Friend, F.  
Higginson, M.  
Holt, C.  
Jester, J.  
Johnson, G.  
Ljubomir, K.  
Lascu, R.  
Lukach, D.  
Mackie, B.  
Meisinger, M.  
Monterrubio, H.  
Mulawarman, A.  
Ryan, G.  
Walker, C.  
Xavier, J.  
Zimmerman, K.

**D29: TUTORIAL ON SETTING IMPEDANCE-BASED POWER SWING BLOCKING AND OUT-**

**OF-STEP TRIPPING FUNCTIONS ON TRANSMISSION LINES**

Assignment: Write a tutorial on setting impedance-based power swing blocking and out-of-step tripping functions on transmission lines

**K. Jones, Chair**  
**Xcel Energy**  
**Amarillo, TX**

**N. Fischer, Vice-Chair & Secretary**  
**Schweitzer Engineering Laboratories**  
**Pullman, WA**

Anderson, J.  
Aquiles-Perez, S.  
Bapary, Abu  
Blumschein, J.  
Botero, L.  
Bradley, J.  
Brahoi, S.  
Bueno, J.  
Burkart, D.  
Crellin, R.  
Dongale, P.  
Fischer, N.  
Henneberg, G.  
Hilaly, M.  
Jones, K.  
Kao, M.  
Mahendra, P.  
Malson, H.  
Maragal, D.  
Mertz, C.  
Mezco, A.  
Miller, J.  
Mooney, J.  
Mulawarman, A.  
Paduraru, C.  
Pang, C.  
Park, J. Patel, M.  
Perkins, J.  
Polanco, L.  
Qiu, Q.  
Tatro, P.  
Tziouvaras, D.  
Vakili, A.  
van de Ligt, J.  
Velez, J.  
Versoza, J.

**D30: TUTORIAL ON APPLICATION AND SETTING OF GROUND DISTANCE ELEMENTS ON TRANSMISSION LINES**

Assignment: Write a tutorial on the application and setting of mho and quadrilateral distance elements on transmission lines when subjected to distorted waveforms or other unique applications.

**K. Zimmerman, Chair**  
**Schweitzer Engineering Laboratories**

*Fairview Heights, IL*

**J.T. Warren, Vice-Chair & Secretary**  
**Southern Company**  
**Birmingham, AL**

Alguilar, R.  
Bapary, A.  
Dadash Zadeh, M.  
Hilaly, M.  
Kobet, G.  
Le, V.  
Lindemeier, A.  
Martin, A.  
Mooney, J.  
Wilson J.

**D34: COORDINATE WITH IEC-60255-187-3 FUNCTIONAL SPECIFICATION FOR LINE CURRENT DIFFERENTIAL**

Assignment: Prepare a technical report to the line protection subcommittee to evaluate advantages and disadvantages of common transmission line pilot protection schemes, including POTT, DCB, DCUB, and line current differential. The schemes will be evaluated in terms of speed, sensitivity, dependability and security based on the design and configuration of transmission lines and system topology. A limited number of example systems will be evaluated.

**N. Fischer, Chair**  
**Schweitzer Engineering Laboratories**  
**Pullman, WA**

**J. Mooney, Vice-Chair & Secretary**  
**Power Engineers**  
**Portland, OR**

**D35: EVALUATION OF TRANSMISSION LINE PILOT PROTECTION SCHEMES**

Assignment: Prepare a technical report to the line protection subcommittee to evaluate advantages and disadvantages of common transmission line pilot protection schemes, including POTT, DCB, DCUB, and line current differential. The schemes will be evaluated in terms of speeds, sensitivity, dependability and security based on the design and configuration of transmission lines and system topology. A limited number of example systems will be evaluated.

**R. Gamble, Chair**  
**TVA**  
**Chattanooga, TN**

**N. Gulczynski, Vice-Chair & Secretary**  
**American Trans. Co.**

Anderson, J.  
Armstrong, B.  
Bapary, A.  
Barsch, J.  
Bell, T.  
Benitez, M.  
Brown, J.  
Brunello, G.  
Deaton, J.  
Deronja, A.  
Dongale, P.  
Fontana, D.  
Garver, M.  
Gosalia, J.  
Hakim, W.  
Joshi, B.  
Kifle, A.  
Kockott, M.  
Lamb, J.  
Mackie, B.  
Martin, A.  
Moxley, R.  
Mulawarman, A.  
Perera, N.  
Qiu, Q.  
Sekhar, V.  
Shanmugasundaram, V.  
Tuladhar, L.  
Tziouvaras, D.  
Verzosa, J.  
Warren, T.  
Yang, Q.  
Zaitz, Z.

**D37: IMPACT OF SERIES COMPENSATION ON TRANSMISSION LINES**

Assignment: Create a report the impact of series compensation on transmission lines

**M. Kockott, Chair**  
**ABB, Inc.**  
**Raleigh, NC**

**L. Polanco, Vice-Chair & Secretary**  
**GE**  
**Schenectady, NY**

**D38: IMPACT OF HIGH SIR ON DISTANCE RELAYING**

Assignment: Prepare a technical report to the line protection subcommittee to evaluate the impact of high SIR on line protection.

**C. Walker, Chair**  
**Walker Consulting Svc.**  
**Ellisville, MO**

**G. Ryan, Vice-Chair & Secretary**

**Ameren**  
**Decatur, IL**

Armstrong, B.  
Banerjee, K.  
Bapary, A.  
Barsch, J.  
Blumschein, J.  
Fousler, R.  
Gamble, R.  
Garg, K.  
Gulczynski, N.  
Hart, J.  
Hilaly, M.  
Holt, C.  
Janssen, B.  
Kao, M.  
Lamb, J.  
Lukach, D.  
Machie, B.  
Moxley, R.  
Mulawarman, A.  
Mysore, P.  
Newman, A.  
Perez, J.  
Turner, S.  
Voloh, I.  
Warren, T.  
Zaaid, A.

**D 39:**

**C37.104 IEEE GUIDE FOR AUTOMATIC RECLOSING ON AC DISTRIBUTION AND TRANSMISSION LINES**

Assignment: Revise C37.104 IEEE Guide for Automatic Reclosing on AC Distribution and Transmission Lines.

**M. Patel, Chair**  
**Southern Company Svcs.**  
**Forest Park, GA**

**B. Armstrong, Vice-Chair & Secretary**  
**Patterson Power Eng.**  
**Chattanooga, TN**

Aldrich, D.  
Anderson, J.  
Bapary, A.  
Barsch, J.  
Benitez, M.  
Black, M.  
Blumschein, J.  
Boysen, B.  
Brahma, S.  
Burkart, D.  
Deronja, A.  
Formea, J.  
Gamble, R.  
Garcia, R.  
Garver, M.  
Gulczynski, N.  
Hakim, W.  
Holt, C.  
Jensen, M.  
Joshi, B.  
Kanabar, M.  
Kao, M.  
Kifle, A.  
Lamb, J.

Lukach, D.  
Mackie, B.  
Martin, A.  
Mulawarman, A.  
O'Brien, J.  
Patti, C.  
Perera, N.  
Qiu, Q.  
Rajapakse, A.  
Rios, M.  
Ryan, G.  
Schroeder, M.  
Shanmugasundaram, V.  
Stoedter, G.  
Tualla, I.  
Tuladhar, L.  
Voloh, I.  
Warren, T.  
Zamani, A.

**D40: MANAGE THE DEVELOPMENT OF LINE PROTECTION TOPICS**

Assignment: Manage the development of line protection topics and harmonize efforts with IEEE Std. C37.113-2015, IEEE Guide for Protective Relay Applications to Transmission Lines.

**J. Barsch, Chair**  
**AEP,**  
**Gahanna, OH**

**D. Lukach, Vice-Chair & Secretary**  
**Ameren Illinois,**  
**Decatur IL**

Anderson, J.  
Bapary, A.  
Barsch, J.  
Crellin, R.  
Deronja, A.  
Fontana, D.  
Gamble, R.  
Kleckner, S.  
Kockott, M.  
Lebeau, D.  
Lukach, D.  
Mackie, B.  
O'Brien, J.  
Tualla, I.  
Walker, C.  
Warren, T.  
Zaitz, Z.

**D41: COORDINATION OF ACTIVITIES RELATED TO LINE PROTECTION INVERTER-BASED SOURCES.**

Assignment Monitor and collect line protection events, coordinate with other industry activities, and provide recommendations to improve line protection response when connected to inverter-based sources.

**I Voloh – Chair**  
**GE**  
**Markham, ON Canada**

**Vice-Chair & Secretary - TBD**

**Member list to be provided.**

**H: RELAYING COMMUNICATIONS SUBCOMMITTEE**

**Scope:** Evaluate and report on the characteristics and performance of protective relaying communications and control systems. Recommend communication requirements, operating and test procedures which assure reliable performance of the overall protection and control system. Report on new relaying equipment designs tailored to specific communication requirements. Included are matters necessary to the function of such systems employed in the generation, transmission, distribution, and utilization of electrical energy, and their effects on system operation. Control systems include data acquisition and processing from devices such as transducers, Intelligent Electronic Devices (IEDs), and Human Machine Interfaces (HMIs) including the low-level interfaces to these systems. Power System control issues associated with Power System Dynamics are excluded from this scope.

**G. Antonova, Chair**  
**ABB,**  
**Vancouver BC**

**A. Martin, Vice-Chair**  
**BPA-TECS AMPS**  
**Portland, OR**

Adamiak, M.  
Apostolov, A.  
Bell, T.  
Benou, M.  
Bougie, J.  
Brunner, C.  
Capulozzo, M.  
Dahlin, T.  
Das, R.  
Dickerson, B.  
Dood, M.  
Fodero, K.  
Giarratano, D.  
Goldstein, A.  
Hackett, J.  
Hamilton, R.  
Holstein, D.  
Hu, Y.  
Huntley, C.  
Kunsman, S.  
Liposchak, R.  
Makki, A.

Maragal, D.  
Martin, A.  
Martin, K.  
Midence, R.  
Monterrubio, H.  
Murphy, J.  
Pickett, B.  
Pond, J.  
Preuss, C.  
Ray, R.  
Reckerd, D.  
Sanders, M.  
Sufana, C.  
Swanson, M.  
Udren, E.  
Vandiver, B.  
Verzosa, J.  
Voloh, I.

**H3: TIMETAGGING FOR INTELLIGENT ELECTRONIC DEVICES (COMTAG)**

Assignment: Develop an IEEE Standard for time tagging for power system IEDs. This will include common requirements for time tags and show how to apply them to various classes of time sequence data. Requirements and methods for stating the resulting time accuracy will be included. Joint with Substations Committee C4.

**B. Dickerson, Chair**  
**Arbiter Systems**  
**Cranbrook, BC, CA**

**J. Hackett, Vice-Chair & Secretary**  
**Mehta Tech Inc.**  
**Eldridge, IA**

Adamiak, M.  
Allen, E.  
Apostolov, A.  
Cenzon, E.  
Dood, M.  
Goldstein, A.  
Huntley, C.  
Lacroix, M.  
Martin, K.  
Makki, A. \*  
Murphy, J.  
Narendra, K. \*  
Preuss, C.  
Sciacca, S.  
Skendzic, V. \*  
Vandiver, B.

**H6: IEC 61850 APPLICATION TESTING**

Assignment: Write a report to the H Subcommittee on application testing of IEC 61850 based protection and control systems. Emphasis will be on the GOOSE functions.

**C. Sufana, Chair**  
**Retired**

**Huntington Beach, CA**

**B. Vandiver, Vice-Chair & Secretary**  
**ABB, Inc.**  
**Houston, TX**

Adamiak, M.  
Agudo, M.  
Aguilar, R.  
Anderson, J.  
Anderson, S.  
Apostolov, A.  
Becker, F.  
Benmouyal, G.  
Bolado, O\*  
Bougie, J.  
Brunner, C.  
Bui, D-P.  
Buneo, J.  
Burger, J. \*  
Chan, M.  
Chelmecki, C.  
Dood, M.  
Duvelson, E.  
Easley, K.  
Ellis, A.  
Falk, H.  
Giarratano, D. \*  
Gosalia, J.  
Graf, R.  
Gresko, G.  
Grimm, J.  
Gunther, E.  
Holbach, J.  
Huntley, C.  
Jalali, M.  
Kanabar, M.  
Kunsman, S.  
Lacroix, M.  
Lee, A.  
Liposchak, R.  
Lu, Y.  
Mar, J.  
Maragal, D.  
Martin, A.  
Muschlitz, B.  
Musunuri, S.  
Niemira, J.  
Nordell, D.  
Oubidar, M. \*  
Perez, J.  
Reckerd, D.  
Shanmugasundaram, V.  
Short, S.  
Simon, M. \*  
Skendzic, V.  
Tessier, D.  
Thibodeau, E.  
Thompson, S.  
Thornton-Jones, R. \*  
Verzosa, J.  
Vo, C.  
Ware, D.  
Wong, C.  
Yuan, T.\*  
Zubair, M.\*

**H11: IEC/IEEE 60255-118.1, SYNCHROPHASOR FOR POWER SYSTEMS-MEASUREMENTS**

Assignment: Develop a joint IEC/IEEE Synchrophasor Measurement Standard 60255-118-1 based on C37.118.1 under PAR approved 14 June 2013.

**K. Martin, Chair**  
**Electric Power Group**  
**Portland, OR**

**A. Goldstein, Vice-Chair & Secretary**  
**NIST**  
**Gaithersburg, MD**

Antonova, G.  
Brunello, G.  
Das, R.  
Dickerson, B.  
Dwyer, D.  
Gosaa, J.  
Hu, Y.  
Kirkham, H.  
Lacroix, M.  
Luo, S.  
Murphy, J.  
Narendra, K.  
Ouellette, D.  
Patel, M.  
Shi, B.  
Skendzic, V.  
Udren, E.  
Zhang, J.

**H17 (SUSPENDED):**  
**ESTABLISHING LINKS**  
**BETWEEN COMTRADE, IEC**  
**61850 AND CIM**

Assignment: Develop a standards approach to link IEC 61850, CIM and COMTRADE so that the COMTRADE channels can be associated to a node in the power network.

**C. Brunner, Chair**  
**IT4 Power**  
**Zug, Switzerland**

**A. Apostolov, Vice-Chair & Secretary**  
**Omicron**  
**Los Angeles, CA**

**H22 PC37.249 GUIDE FOR**  
**CATEGORIZING SECURITY**  
**NEEDS FOR PROTECTION**  
**RELATED DATA FILES**  
**(JOINT WORKING GROUP**  
**SUBSTATIONS COMMITTEE**  
**C19 & PSRC H22**

Assignment: Identify and categorize protection related data files based on content, use, and risk of disclosure or compromise. Protection related data files include but are not limited to files used for configuration, management, and analysis of protective relaying systems.

**A. Makki, Chair**  
**SoftStuf**  
**Philadelphia, PA**

**C. Calix, Vice-Chair & Secretary**  
**EON US**  
**Lexington, KY**

Busot, D.  
Cease, T.W.  
Chelmecki, C.  
Dood, M.  
Easley, K.  
Giarratano, D.  
Holstein, D.  
Johnson, T.  
Kunsmann, S.  
Miller, J.  
Monterrubio, H.  
Reckerd, D.  
Sufana, C.  
Tessier, D.  
Thibodeau, E..  
Tibbals, T.  
Turner, S.

**H27: PC37.251 STANDARD**  
**FOR COMMON PROTECTION**  
**AND CONTROL SETTINGS**  
**OR CONFIGURATION DATA**  
**FORMAT (COMSET)**

Assignment: Develop a standard XML based file format for exchange of protection and control configuration data between engineering tools and asset management tools. The modeling and naming conventions should be based on the definitions and extension rules defined in IEC 61850.

**M. Capuzzo, Chair**  
**Doble Engineering**  
**Tulsa, OK**

**B. Vandiver, Vice-Chair & Secretary**  
**ABB**  
**Houston, TX**

Cooper, S.  
Faulk, H.  
Formea, J.  
Frazier, N.  
Laughner, T.  
Maragal, D.

**H30: IEC 61850 USER**  
**FEEDBACK**

Assignment: Collect user feedback from utilities and consultants for designing and implementing IEC-61850 based substation automation system. Prepare a report outlining the experienced issues and suggest enhancements to IEC-61850 standard and manufacturer implementations.

**D. Maragal, Chair**  
**New York Power Authority**  
**White Plains, NY**

**A. Martin, Vice-Chair & Secretary**  
**BPA - TECS AMPS**  
**Portland, OR**

Allen, M.  
Anderson, J.  
Apostolov, A.  
Becker, F.  
Billimoria, N.  
Brunner, C.  
Burkart, D.  
Falk, H.  
Gohari, J.  
Holbach, J.  
Jay, G.  
Jenkins, D.  
Kanabar, M.  
Kunsmann, S.  
Liposchak, R.  
Mulawarman, A.  
Myrda, P.  
Quellette, D.  
Qiu, Q.  
Schock, E.  
Shah, P.  
Udren, E.  
Wilson, B.  
Wong, C.  
Xavier, J.

**H31: COMMON PROTECTION**  
**& CONTROL PARAMETERS**  
**FOR COMSET**

Assignment: Develop generic models and parameters of protection functions.

**D. Maragal, Chair**  
**New York Power Authority**  
**White Plains, NY**

**A. Apostolov, Vice-Chair & Secretary**  
**Omicron Electronics**  
**Los Angeles, CA**

Aldrich, D.  
Allen, E.  
Blumschein, J.  
Brunner, C.  
Burkart, D.  
Capuzzo, M.  
Cenzon, E.  
Chelmecki, C.  
Gohari, J.  
Gosalia, J.  
Jenkins, D.  
Kanabar, M.  
Narendra, K.  
Oliveira, A.  
Qiu, Q.  
Rietmann, P.  
Tessier, D.  
Thibodeau, E.  
Turner, S.  
Verzosa, J.  
Xavier, J.

Zadeh Dadash, M.

**H32: PERFORMANCE**  
**REQUIREMENTS FOR**  
**ETHERNET CIRCUITS**  
**APPLIED TO**  
**TELEPROTECTION**

Assignment: To prepare a report on the use of Ethernet transport for teleprotection services and line current differential protection.

**K. Fodero, Chair**  
**Schweitzer Engineering**  
**Laboratories**  
**Pullman, WA**

**W. McCannon, Vice-Chair & Secretary**  
**Southern Company**  
**Atlanta, GA**

Anderson, J.  
Antonova, G.  
Apostolov, A.  
Beaumont, P.  
Benou, M.  
Blumschein, J.  
Brown, J.  
Cooke, R. \*  
Dahlin, T.  
Gresko, G.  
Huntley, C.  
Jenkins, D.  
Keating, M. \*  
Palmer, C.  
Pickett, B.  
Ray, R.  
Reckerd, D.  
Rodriguez, J.  
Shono, T.  
Tran, T.  
Ward, S.  
Nordell, D.  
Udren, E.

**H35: XML TRANSLATION**  
**FOR COMTRADE**

Assignment: To prepare a report on proposed upgrades to COMTRADE as well as an XML implementation.

**M. Adamiak, Chair**  
**Adamiak Consulting**  
**King of Prussia, PA**

**Z. Makki, Vice-Chair**  
**SOFTSTUF Inc.**  
**Philadelphia, PA**

**M. Capuzzo, Secretary**  
**Doble Engineering Co.**  
**Tulsa, OK**

Dickerson, W.  
Leyba, M.  
Makki, A.  
Muschlitz, B.  
Rzepka, G.  
Goldstein, A.

Short, S.

**H38: DESIGN AND IMPLEMENTATION OF TIME SYNCHRONIZATION DISTRIBUTION SYSTEMS FOR SUBSTATION AUTOMATION (P2030.101)**

Assignment: To write a summary paper to promote the new P2030.101.

**J. Bougie, Chair**  
**GPI, LLC**  
**Cedarburg, WI**

**TBD, Vice-Chair & Secretary**

Antonova, G.  
Becker, F.  
Cooke, R.  
De Vries, R.  
Dickerson, W.  
Dood, M.  
Easley, K.  
Huntley, C.  
Ingram, D.  
McKenzie, N.  
Preuss, C.

**H40: DATABASES USED IN SAS**

Assignment: This recommended practice presents general requirements, design, and lifecycle costs versus performance for databases associated with substation automation systems. Also included are specifications for database elements that should be standardized to ensure interoperability. Example designs are included for reference purposes, which are not intended to prescribe a definitive database design. Applications utilizing databases can be very different and may have vastly different requirements.

**J. Bougie, Chair**  
**GPI, LLC**  
**Cedarburg, WI**

**TBD, Vice-Chair & Secretary**

Antonova, G.  
Ceglia, M.  
Dood, M.  
Formea, J.  
Johnson, A.  
Liposchak, R.  
Martin, K.  
Preuss, C.  
Rietmann, P.  
Shannon, B.

**H41: REVISION OF IEEE 1646 COMMUNICATION DELIVERY**

**TIME PERFORMANCE REQUIREMENTS**

Assignment: Revise IEEE standard 1646-2004 – IEEE Standard Communication Delivery Time Performance Requirements for Electric Power Substation Automation"

**D. Holstein, Chair**  
**OPUS Consulting Group**  
**Seal Beach, CA**

**T.W. Cease, Vice-Chair & Secretary**  
**Consultant**  
**Palmeto, GA**

Araujo, M.  
Dood, M.  
Fodero, R.  
Higgins, N.  
Lacoix, M.  
Preuss, C.  
Thibodeau, E.  
Xiang, Y.I  
Yang, Q.

**H44: ENHANCING GOOSE I/O MONITORING**

Assignment: Write a IEEE guide titled "Monitoring and Diagnostics of IEC 61850 GOOSE and Sampled Values Based Systems".

**A. Martin, Chair**  
**Bonneville Power Administration,**  
**Vancouver, WA,**

**Q. Yang, Vice-Chair & Secretary**  
**Schweitzer Engineering Laboratories**  
**Seattle, WA**

Anderson, J.  
Apostolov, A.  
Becker, F.  
Beresh, R.  
Brunner, C.  
Carvalho, C.  
Dasari, S.  
Falk, H.  
Herman, J.  
Kanabar, M.  
Newell, R.  
Ouellette, D.  
Preuss, C.

**H45: GUIDE FOR CENTRALIZED PROTECTION AND CONTROL (CPC) SYSTEMS WITHIN A SUBSTATION**

Assignment: Complete the pre-PAR activity for the working group "To Develop a Guide for Centralized Protection and

Control (CPC) Systems within a Substation".

**R. Das, Chair**  
**GE Energy Consulting**  
**Schenectady, NY**

**M. Kanabar, Vice-Chair & Secretary**  
**GE**  
**Markham, ON, CA**

Anderson, J.  
Beaumont, P.  
Fischer, B.  
Gokaraju, R.  
Hunt, R.  
Jester, J.  
Lascu, R.  
Madani, V.  
Meliopoulos, A.P. (Sakis)  
Monterrubio, H.  
Myrda, P.  
Preuss, C.  
Qui, Q.  
Raymond, J.  
Ruiz, J.  
Sanchdev, M.S.  
Vardhan, H.  
Yang, Q.

**H46: RECOMMENDED PRACTICE FOR HUMAN MACHINE INTERFACES (HMIS) USED WITH ELECTRIC UTILITY AUTOMATION SYSTEMS**

Assignment: To create a recommended practice for Human Machine Interfaces (HMIs) used with electric utility automation systems.

**M. Black, Chair**  
**Sargent & Lundy**  
**Lookout Mt, TN**

**TBD, Vice-Chair & Secretary**

**HTF47: IMPACT OF DIGITAL COMMUNICATIONS ON PROTECTION & CONTROL APPLICATIONS**

Assignment: To determine if a working group should be formed on Impact of Digital Communications on Protection & Control Applications.

**M. Kanabar, Chair**  
**GE**  
**Markham, ON Canada**

**TBD, Vice-Chair & Secretary**

**HTF48: EDUCATION/OUTREACH FOR SYNCHRONIZED MEASUREMENTS**

Assignment: Investigate the needs and opportunities for outreach and education regarding synchronized measurements, especially Phasor Measurement Units (PMU).

**W. Dickerson, Chair**  
**Arbiter Systems**  
**Cranbrook, BC Canada**

**R. Midence, Vice-Chair & Secretary**  
**ERLPhase**  
**Stoney Creek, ON CA**

**HTF49: TUTORIAL ON THE USE OF PACKET-SWITCHED COMMUNICATION CHANNELS FOR PROTECTION AND CONTROL**

Assignment: To consider a development of a tutorial of the use of packet-switched communication channels for protection and control.

**S. Ward, Chair**  
**Quanta Technologies**  
**Raleigh, NC**

**TBD, Vice-Chair & Secretary**

**HTF50: REQUIREMENTS FOR TIME SOURCES IN PROTECTION AND CONTROL SYSTEMS**

Assignment: To consider requirements for time sources in protection and control systems

**J. Bougie, Chair**  
**GPI, LLC**  
**Cedarburg, WI**

**TBD, Vice-Chair & Secretary**

**I: RELAYING PRACTICES SUBCOMMITTEE**

**Scope:** Develop, recommend and establish standards on protective relaying practices which are compatible with the electrical environment, including but, not limited to; relay withstand capabilities to electromagnetic interference, characteristics and performance of instrument transformers, testing procedures, applications, performance criteria, and definitions of relays and relay systems. Evaluate and report on pertinent aspects of protective relaying not addressed by other PSRC Subcommittees. Maintain

applicable protective relaying standards.

**A. Uribe, Chair**  
**Power Grid Engineering**  
**Lake Mary, FL**

**J. Niemira, Vice-Chair**  
**S&C Electric**  
**Chicago, IL**

Beckwith, T.  
Bolado, O..  
Burnworth, J.  
Carpenter, W.M.  
Channarasappa, S.  
Dalton, C.  
Donahoe, K.  
Dood, M.  
Friend, F.  
Fry, R.  
Garcia, R.  
Hackett, J.P.  
Jodice, J.  
Knappek, W.  
Kobet, G.  
Kojovic, L.  
Long, J.  
Mackie, B.  
Magruder, B.  
Makki, A.  
McLaren, P.G.  
Meisinger, M.  
Moskos, G.P.  
Moxley, R.  
Niemira, J.  
Pickett, B.A.  
Pond, J.  
Preuss, C.  
Rahmatian, F.  
Ramirez, M.  
Ranieri, M.M.  
Swanson, M.J.  
Tempone, A.  
Turner, S.  
Tziouvaras, D.A.  
Udren, E.A.  
Valenzuela, J.  
Whittaker, R.  
Young, Ray

**12 : TERMINOLOGY REVIEW**  
**WORKING GROUP**

Assignment: Review drafts of PSRC publications for proper terminology, abbreviations and symbols; and to recommend additions and changes to the IEEE database as appropriate.

**M. J. Swanson, Chair**  
**MJ Swanson Associates**  
**Windham, NH**

**F. Friend, Vice-Chair &**  
**Secretary**  
**AEP**  
**Columbus, OH**

Black, M.  
Bolado, O.  
Fontana, D.  
Kifle, A.

Liao, Y.  
Patti, C.  
Ranieri, M.  
Schroeder, M.  
Seegers, T.  
Whittaker, R.

**14 IEC ADVISORY WORKING**  
**GROUP**

Assignment: Analyze standards development of IEC Technical Committee 95 to foster understanding and rationalization of IEC versus IEEE relaying documents. Develop U.S. position on IEC voting documents. Report on IEC TC 95 and TC 57 standards activities to the subcommittee.

**E. Udren, Chair**  
**Quanta Technology, LLC**  
**Pittsburgh, PA**

**J. Gosalia, Vice-Chair &**  
**Secretary**  
**J&L Consulting LLC**  
**Paradise Valley, AZ**

Adamiak, M.  
Beaumont, P.  
Bell, T.  
Brunello, G.  
Brunner, C.  
Burnworth, J.  
Dwyer, D.  
Huntley, C.  
Kunsmann, S.  
Mulawarman, A.,  
Niemira, J.  
Ranieri, M.  
Skendzic, V.  
Spiewak, E.  
Thompson, M.  
Vandiver, B.  
Voloh, I.  
Ward, S.  
Yalla, M.

**126: REVIEW AND EXPAND**  
**TRANSACTION PAPER ON**  
**MATHEMATICAL MODELS**  
**OF CURRENT, VOLTAGE,**  
**AND COUPLING CAPACITIVE**  
**VOLTAGE TRANSFORMERS**

Assignment: Revise Mathematical Model of Instrument Transformers and expand IEEE Transaction papers and prepare IEEE Report

**M. Meisinger, Chair**  
**S&C Electric Europe LTD**  
**Chicago, IL**

**S. Turner, Vice-Chair &**  
**Secretary**  
**ECI**  
**San Diego, CA**

Chen, Y.  
Higginson, M.  
Kojovic, G.  
Makki, A.  
McLaren, P.  
Turner, S.  
Tziouvaras, D.

**127: INVESTIGATION OF**  
**PROTECTIVE RELAY SELF-**  
**MONITORING CAPABILITIES**

Assignment: Prepare a technical report to the PSRC main committee on the enumeration, performance and efficacy of self-monitoring capabilities within protective relays in order to determine the extent and degree of self-monitoring

**R. Moxley, Chair**  
**Siemens**  
**Firth, ID**

**C. Dalton, Vice-Chair &**  
**Secretary**  
**EPRI**  
**Duluth, GA**

Anderson, S.  
Beresh, G.  
Bilimoria, N.  
Brown, J.  
Farrar, T.  
Fontana, D.  
Frye, R.  
Gagnon, J.P.  
Gamble, R.  
Garcia, R.  
Jester, J.  
Kanabar, M.  
Kazimier, B.  
Lu, Y.  
Martin, A.  
Mideance, R.  
Miller, D.  
Myrda, P.  
Oliveira, A.  
Seegers, T.  
Thibodeau, E.  
Tierney, D.  
Udren, E.  
Vasudevan, B.  
Voloh, I.

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

Assignment: Revision to Guide C37.110

**J. Valenzuela, Chair**  
**Kiewit Eng & Design**  
**Lenexa, KS**

**M. Higginson, Vice-Chair &**  
**Secretary**  
**S&C Electric Co**

**Chicago, IL**

Deronia, A.  
Knappek, W.  
Lane, J.  
Long, J.  
Niemira, J.  
Shanmuga-Sundaram, V.  
Swanson, M.  
Wilson, J.  
Zamani, A.

**130: REVISION OF C37-235-**  
**GUIDE FOR THE**  
**APPLICATION OF**  
**ROGOWSKI COILS USED**  
**FOR PROTECTIVE**  
**RELAYING PURPOSES**

Assignment: Revision to Guide C37.235

**L. Kojovic, Chair**  
**Eaton Corporation**  
**Fransville, WI**

**R. Frye, Vice-Chair &**  
**Secretary**  
**TVA**  
**Chattanooga, TN**

Das, R.  
McLaren, P.  
Mugalian, B.  
Schroeder, M.

**131: STANDARD FOR**  
**ENVIRONMENTAL &**  
**TESTING REQ. FOR DEVICES**  
**INSTALLED IN**  
**TRANSMISSION &**  
**DISTRIBUTION FACILITIES**  
**1613/1613.1 (SUBS C2)**

Assignment: ??

**B. Mugalian, Chair**  
**S&C Electric Co.**  
**Chicago, IL**

**C. Preuss, Vice-Chair &**  
**Secretary**  
**Black & Veach**  
**Overland Park, KS**

Dood, M.  
Meisinger, M.  
Nordell, D.  
Preuss, C.  
Ranieri, M.  
Ward, S.

**132: SURVEY OF**  
**PROTECTIVE RELAYING**  
**TEST PRACTICES**

Assignment: To review report prepared by working group I11 in 2001 called "Survey of Relaying Test Practices" and update the survey accordingly to today's industry environment.

**A. Uribe, Chair**

**Power Grid Engineering  
Lake Mary, FL**

**TBD, Vice-Chair & Secretary**

Beach, D.  
Black, M.  
Buchanan, D.  
Casilla, N.  
Cooper, S.  
Knapek, W.  
Lee, A.  
Monterrubio, H.  
Moore, B.  
Newman, A.  
Schock, E.  
Shannon, B.  
Siira, M.  
Sykes, J.  
Tempone, A.  
Ware, D.  
Weyer, G.

**I33: REVIEW OF RELAY  
TESTING TERMS**

Assignment: Produce formal definitions for terms commonly used to describe relay testing procedures and prepare a report for consideration by the I-Subcommittee and future inclusion in the IEEE Dictionary

**A. Makki, Chair  
SoftStuf  
Philadelphia, PA**

**H. Monterrubio,  
Vice-Chair & Secretary  
Beckwith Electric Co., Inc.  
Weston, FL**

Apostolov, A.  
Black, M.  
Bloder, M.  
Boysen, B.  
Cooper, S.  
Jester, J.  
Jodice, J.  
Knapek, W.  
Lee, J.  
Moore, B.  
Mugalian, B.  
Pascal, C.  
Pond, J.  
Ranieri, M.  
Seegers, T.  
Taylor, M.  
Tessier, D.  
Verzosa, J.

**I35: PC37.2 -STANDARD FOR  
ELECTRICAL POWER  
SYSTEM DEVICE FUNCTION  
NUMBERS, ACRONYMS, AND  
CONTACT DESIGNATIONS  
(SUBS C5)**

Assignment: Standard PC 37.2  
**M. Dood, Chair  
Schweitzer Engineering  
Laboratories  
New Berlin, WI**

**M. Lacroix, Vice-Chair &  
Secretary  
SEPSE Consultants  
Baie-D'Urfe. Quebec, CA**

Bolado, O.  
Preuss, C.

**I36: REVISION OF IEEE STD.  
C37.90.2 - IEEE STANDARD  
FOR WITHSTAND  
CAPABILITY OF RELAY  
SYSTEMS TO RADIATED  
ELECTROMAGNETIC  
INTERFERENCE FROM  
TRANSCIEVERS**

Assignment: Revision IEEE Std. C37.90.2 Standard for Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers.

**J. Pond, Chair  
National Grid USA  
Auburn, GA**

**J. Burnworth, Vice-Chair &  
Secretary  
Basler  
Highland, IL**

Anderson, J.  
Bell, T.  
Palmer, C.  
Ranieri, M.  
Ray, R.  
Ramie, J.

**I37: REVISION TO IEEE  
STANDARD C37.90-2005**

Assignment: Review the various definitions of relay testing terms and develop a Report with formal definitions in order to help eliminate any confusion. The Report will also be used by I2 for inclusion in the IEEE dictionary.

**O. Bolado, Chair  
ZIV  
Rolling Meadows, IL**

**M. Ramirez, Vice-Chair &  
Secretary  
Power Grid Engineering  
Lake Mary, FL**

Beckwith, T.  
Bolado, O.  
Burnworth, J.  
Farrar, T.  
Formea, J.  
Frye, R.  
Polanco, L.  
Preuss, C.  
Ranieri, M;

**I38: IEEE C37.92: STANDARD  
FOR ANALOG INPUTS TO**

**PROTECTIVE RELAYS FROM  
ELECTRONIC VOLTAGE AND  
CURRENT TRANSDUCERS**

Assignment: Revision of C37.92

**R. Frye, Chair  
TVA  
Chattanooga, TN**

**E. Udren, Vice-Chair &  
Secretary  
Quanta Technology  
Pittsburgh, PA**

Aldrich, D.  
Black, M.  
Burnworth, J.  
Calero, F.  
Chowdhury, R.  
Forema, J.  
Friend, F.  
Frye, R.  
Gibaldi, A.  
Hackett, J.  
Henville, C.  
Hunt, R.  
Huntley, C.  
Kojovic, L.  
McLaren, P.  
Minshall, D.  
Monterrubio, H.  
Niemira, J.  
Pnd, J.  
Rhamatian, F.  
Raneri, M.  
Roesler, S.  
Ruiz, J.  
Shrestha, A.  
Thibodeau, R.  
Udren, E.  
Yang, Q.  
Zamani, A.

**ITF39: STANDARD FOR I/O  
REQUIREMENTS AND  
TESTING METHODOLOGY  
FOR INTELLIGENT  
ELECTRONIC DEVICES  
(IEDS) PC37.1.1**

Assignment: ??

**C. Preuss, Chair  
Black & Veach  
Overland Park, KS**

**A. Tempone, Vice-Chair &  
Secretary  
Duke Energy  
Lake Mary, FL**

Akpagloh, F.  
Awuvir, A.  
Becker, F.  
Bell, T.  
Blooming, T.  
Bolado, O.  
Caballero, A.  
Caldwell, Z.  
Correia, J.  
Deshpande, S.  
Fleckenstein, J.

Formea, J.  
Glamocanin, V.  
Huang, Q.  
Jester, J.  
Kifle, A.  
Martin, T.  
Mohanta, D.  
Mohd Fadzil, N.  
Mugalian, B.  
Munir, S.  
Othman, M.  
Ramirez, M.  
Seegers, T.  
Short, S.  
Singh, B.  
Swanson, M.  
Thibodeau, E.  
Wallace, C.  
Witham, C.

**ITF40: REVIEW OF IEEE  
C37.90.1 – STANDARD FOR  
SURGE CAPABILITY (SWC)  
TESTS FOR RELAYS AND  
RELAY SYSTEMS  
ASSOCIATED WITH  
ELECTRIC POWER  
APPARATUS**

Assignment: To determine if IEEE C37.90.1 Standard for Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus should be revised.

**J. Burnworth, Chair  
Basler Electric,  
Highland, IL**

**B. Mackie, Vice-Chair &  
Secretary  
Nashville Electric Svc.  
Nashville, TN**

**ITF41: REVIEW OF IEEE  
C37.90.3 - IEEE STANDARD  
ELECTROSTATIC  
DISCHARGE TESTS FOR  
PROTECTIVE RELAYS**

Assignment: ??

**A Uribe, Chair  
Power Grid Engineering, LLC.  
Lake Mary, FL**

**J. Niemira, Vice-Chair &  
Secretary  
S&C Electric Co.  
Chicago, IL**

**J: ROTATING MACHINERY  
PROTECTION  
SUBCOMMITTEE**

**Scope:** Evaluate and report on protective relaying concepts and practices applicable to generators, motors, synchronous condensers, associated auxiliary systems, and performance of plant protective systems. Develop

and maintain related relaying standards.

**Dale Finney, Chair**  
**Schweitzer Engineering**  
**Laboratories**  
**N.Sydney, NS CA**

**G. Kobet, Vice-Chair**  
**TVA**  
**Chattanooga, TN**

Ashrafi, H.  
Basler, M.  
Beckwith, T.  
Benmouyal, G.  
Bukhala, Z. A.  
Conrad, S. P.  
Das, M.  
Das, R.  
English, W.  
Farr, T.  
Fisher, N.  
Gardell, J. D.  
Gers, J.  
Hartmann, W. G.  
Henneberg, G.  
Kerrigan, P.  
Kim, S.  
Klingerman, N.  
Kobet, G.  
Kumar, P.  
Monterrubio, H.  
Mozina, C. J.  
Nagpal, M.  
Patel, S. C.  
Patterson, R.  
Ruckman, C.  
Shaw, P.  
Tatro, P.  
Thakur, S.  
Thompson, M.  
Yalla, M.

**J5: APPLICATION OF OUT-OF-STEP PROTECTION SCHEMES FOR GENERATORS**

Assignment: Produce a summary and full report to the J Subcommittee explaining the various schemes and setting guidelines in use for Out-Of-Step protection for AC generators.

**S. Thakur, Chair**  
**Exelon Nuclear**  
**Kennett Square, PA**

**M. Das, Vice-Chair & Secretary**  
**GE Energy**  
**Greenville, SC 29615**

Ashrafi, H.  
Barsch, J.  
Benmouyal, G.  
Brahma, S.  
Bukhala, Z.  
Conrad, S.  
Finney, D.

Fischer, N.  
Galanos, J.  
Gers, J.  
Gokaraju, R.  
Henneberg, G.  
Kanabar, M.  
Khalek, M.  
Kim, S.  
Kumar, P.  
Liao, Y.  
Mozina, C.  
Mysore, P.  
Nagpal, M.  
Reichard, M.  
Rizvi, I.  
Ruckman, C.  
Sankaran, M.  
Shah, P.  
Tatro, P.  
Thompson, M.  
Turner, S.  
Tziouvaras, D.  
Verzosa, J.  
Yalla, M.

**J12: IMPROVED GENERATOR GROUND FAULT SCHEMES**

Assignment: To review new methods related to generator ground fault protection

**D. Finney, Chair**  
**Schweitzer Engineering**  
**Laboratories**  
**North Sydney, Canada**

**M. Das, Vice-Chair & Secretary**  
**GE Energy**  
**Greenville, SC**

Ashrafi, H.  
Bukhala, Z.  
Cooper, M.  
Fischer, N.  
Hamilton, R.  
Kanabar, M.  
Kao, M.  
Kobet, G.  
Kumar, P.  
Mozina, C.  
Patterson, R.  
Pavavicharn, S.

Polanco, L.  
Reichard, M.  
Sankaran, M.  
Sawatzky, T.  
Shah, P.  
Thakur, S.

**J13: MODELING OF GENERATOR CONTROLS FOR COORDINATING GENERATOR RELAYS**

Assignment: Working jointly with Excitation System Control Subcommittee of the EDPG

and Power System Dynamic performance committee write a report to the J subcommittee on Improving the modeling of the dynamic response of generators and the characteristics of generator excitation control systems to disturbances and stressed system conditions. Improve the modeling of protective relays in power dynamic stability modeling software.

**J. Gers, Chair**  
**GERS USA**  
**Weston, FL**

**P. Tatro, Vice-Chair & Secretary**  
**Energy Initiatives Group**  
**Grafton, MA**

Ashrafi, H.  
Bartok, G.  
Basler, M.  
Benmouyal, G.  
Bukhala, Z.  
Conrad, S.  
English, W.  
Gala, D.  
Gopalakrishnan, A.  
Hamilton, R.  
Henneberg, G.  
Henville, C.  
Hoch, N.  
Kao, M.  
Kumar, P.  
Mozina, C.  
Patel, D.  
Patterson, R.  
Pavavicharn, S.  
Pettigrew, B.  
Reichard, M.  
Sankaran, M.  
Sawatzky, T.  
Thakur, S.  
Tziouvaras, D.  
Uchihama, J.  
Verzosa, J.

**J14: PLANT PROTECTION ISSUES ASSOCIATED WITH BLACK STARTING OF GENERATORS**

Assignment: Investigate and report to the J Subcommittee on plant protection issues associated with black start.

**C. Ruckman, Chair**  
**Burns & McDonnell**  
**Kansas City, MO**

**Z. Bukhala, Vice-Chair & Secretary**  
**GE Energy**  
**Schenectady, NY**

Ashrafi, H.  
Basler, M.  
Brunello, G.  
Finney, D.  
Hoch, N.

Patterson, R.  
Polanco, L.  
Reichard, M.  
Shah, P.  
Siira, M.

**J15: INVESTIGATION OF THE CRITERIA FOR THE TRANSFER OF MOTOR BUSES**

Assignment: Review, compare and contrast NEMA MG-1 with ANSI C50.41 regarding transfer criteria. Investigate existing open-transition motor bus transfer (MBT) actual data from multiple events at the medium voltage level. Examine for current versus Volts/Hz at transfer periods to see if there is a correlation. Examine v/Hz of composite bus and individual motors. Examine published reports and papers on motor bus transfer criteria to reconcile the conclusions with the field-measured results.

**W. Hartmann, Chair**  
**Beckwith Electric Co. Inc.**  
**Largo, FL**

**J. Valenzuela, Vice-Chair & Secretary**  
**Kiewit Eng. & Design Co**  
**Lenexa, KS**

Ashrafi, H.  
Basler, M.  
Beckwith, T.  
Benmouyal, G.  
Farr, T.  
Finney, D.  
Kanabar, M.  
Monterrubio, H.  
Patterson, R.  
Pavavicharn, S.  
Reichard, M.  
Ruckman, C.  
Shah, P.  
Thakur, S.  
Yalla, M.

**J16: REVISION OF C37.101 GUIDE FOR AC GENERATOR GROUND PROTECTION**

Assignment: Revise C37.101 guide for ac generator ground protection

**N. Klingerman, Chair**  
**Duke Energy**  
**Huntersville, NC**

**S. Thakur, Vice-Chair & Secretary**  
**Exelon Generation**  
**Kennett Square, PA**

**J17: REVISION OF C37.102, GUIDE FOR AC GENERATOR PROTECTION**

Assignment: Revise C37.102 guide for ac generator protection

**M. Das, Chair**  
**GE Energy**  
**Greenville, SC**

**G. Kobet, Vice-Chair & Secretary**  
**TVA**  
**Chattanooga, TN**

Ashrafi, H.  
Barner, K.  
Beckwith, T.  
Brunello, G.  
Bukhala, Z.  
Burkart, D.  
Carlson, R.  
Chowdhury, R.  
Conrad, S.  
Das, M.  
Das, R.  
English, W.  
Espinosa, J.  
Finney, Dale  
Fischer, N.  
Gers, J.  
Hamilton, R.  
Hartmann, W.  
Kao, M.  
Kim, S.  
Klingerman, N.  
Kobet, G.  
Kumar, P.  
Patterson, R.  
Pettigrew, B.  
Polanco, L.  
Reichard, M.  
Ruckman, C.  
Ruscior, M.  
Safari-Shad, N.  
Tatro, Ph.  
Thakur, S.  
Tierney, D.  
Thompson, M.  
Usmen, O.  
Vakili, A.  
Verzosa, J.  
Yalla, M.  
Yang, L

**J18: IMPACT OF INVERTER BASED SOURCES ON ROTATING MACHINES**

Assignment: ??

**N. Fischer, Chair**  
**Schweitzer Engineering Laboratories**  
**Pullman, WA**

**M. Jensen, Vice-Chair & Secretary**  
**PG&E**  
**Clovis, CA**

Barner, K.  
Brunello, G.  
Carlson, R.  
Chowdhury, R.  
Cummings, B.  
Donolo, M.  
Elling, S.  
English, W.  
Espinosa, J.  
Farr, T.  
Farantatos, E.  
Finney, D.  
Haas, D.  
Kifle, A.  
Klingerman, N.  
Kumar, P.  
Ladner, H.  
Martinez, J.  
Perera, N.  
Quellette, D.  
Reed, K.  
Schetter, J.  
Smith, J.  
Tatro, P.  
Van de ligt, J.  
Yalla, M.

**JTF1 IEEE STD C37.106 GUIDE FOR ABNORMAL FREQUENCY PROTECTION FOR POWER GENERATING UNITS**

Assignment: ??

**R. Chowdhury, Chair**  
**Schweitzer Engineering Laboratories**  
**Charlotte, NC**

**TBD, Vice-Chair & Secretary**

Bukhala, Z.  
Cummings, B.  
English, W.  
Espinosa, J.  
Kobet, G.  
Parvin, M.  
Peder, N.  
Podany, N.  
Stoedter, G.  
Yedidi, V.

**K: SUBSTATION PROTECTION SUBCOMMITTEE**

**Scope:** Evaluate and report on methods used in protective relaying of substations and the consumer or independent power producer, associated equipment and performance of these protective systems. Develop and maintain relaying standards which relate to this equipment and the utility-consumer interface.

**J. Barsch, Chair**  
**American Electric Power**  
**Gahanna, OH**

**A Mulararman, Vice-Chair**  
**Xcel Energy**  
**Minneapolis, MN**

Bapary, A.  
Best, M.  
Brunello G.  
Carroll, P.  
Conrad, S.P.  
Crellin, R.  
Das, R.  
Davies, B.  
Elkin P.  
English, W.  
Fontana D.  
Hamilton, R.  
Henneberg, G.  
Henville, C.  
Kazimier, B.  
Lukach, D.  
Madani, V.  
Miller, D.  
Moskos, G.  
Mysore, P.  
Nagpal M.  
Pickett, B.  
Polanco, L.  
Sevov, L.  
Sufana, C.  
Thompson, M.  
Qiu Q.  
Voloh, I.  
Whittaker, R

**K1: PC37.245, GUIDE FOR THE APPLICATION OF PROTECTIVE RELAYING FOR PHASE SHIFTING TRANSFORMERS**

Assignment: To write a guide for the application of Protective Relaying for Phase Shifting Transformers (PSTs). The protection methods for different types of PST and operating conditions of PSTs will be reviewed. Representation of PST models to determine short circuit currents for relaying considerations will be considered. Protection CT sizing and location issues will be considered. Relay application and setting examples will be provided.

**L. Sevov, Chair**  
**TRC**  
**Toronto, ON CA**

**B. Davies, Vice-Chair & Secretary**  
**TRC**  
**Augusta, ME**

Bapary, A.  
Conrad, S

Crellin, R.  
Elkin, P.  
Gajic, Z.  
Henville, C.  
Hilaly, M.  
Ibrahim, M.  
Khan, U.  
Miller, D.  
Mooney, J.  
Pajuelo, E.  
Sambasivan, S.  
Soudi, F.  
Subramanian, S.  
Thompson, M.  
Tziouvaras, D.  
Seegers, T.  
Wiedman, T.  
Zahid, A.

**K10: SCC21 DISTRIBUTED RESOURCES STANDARD COORDINATION**

Assignment: To interface with SCC21/P1547 in order to reduce unnecessary delays by getting PSRC input into the process without having to wait for after-the-fact coordination.

**R. B. Kazimier, Chair**  
**Beckwith Electric**  
**Knoxville, TN**

**M. Siira, Vice-Chair & Secretary**  
**ComRent Load Bank Sol.**  
**Cedarburg, WI**

Bradley, C.  
Carroll, P.  
Conrad, S.  
Das, R.  
Fowler, R.  
Friend, F.  
Guerrero, M.  
Hartmann, W.  
Houser, K.  
Kifle, A.  
Lascu, R.  
Stec, W.  
Sufana, C.  
Yalla, M.  
Zamani, A..

**K11: OPEN PHASE DETECTION FOR NUCLEAR GENERATING STATIONS**

Assignment: Write a report to the K Subcommittee entitled Methods for Analyzing and Detecting an Open Phase Condition of a Power Circuit to a Nuclear Plant Station Service or Startup Transformer.

**C. Sufana, Chair**  
**Retired**  
**Huntington Beach, CA**

**M. Urbina, Vice-Chair & Secretary**  
**Sargent & Lundy**  
**Chicago, IL**

Arritt, R.  
 Ashrafi, H.  
 Bigham, L.  
 Black, M.  
 Bukhala, Z.  
 Chaudhary, A.  
 Clefton, G.\*  
 Colaiani, P.\*  
 Elkin, P.  
 Finney, D.  
 Franklin, G.\*  
 Gardell, J.\*  
 Hamilton, R.  
 Horton, R.  
 Jalali, J.  
 Johnson, W.  
 Johnson, G.\*  
 Kao, M.  
 Kobet, G.  
 Kojovic, L.  
 Krvavac, J.  
 Kumar, P.  
 Lu, Y.  
 Martin, C.\*  
 Martin, A.  
 Mezco, A.  
 Nayak, O.  
 Oliver, J.  
 Palaneappan, R.  
 Patterson, R.  
 Pitts, G.\*  
 Schroeder, M.  
 Sleva, T.  
 Stewart, D.\*  
 Subramanian, R.  
 Taylor, R.  
 Thakur, S.  
 Vo, C.  
 Voloh, I.  
 Warren, T

**K12: P1032 GUIDE FOR PROTECTING STATIC VAR COMPENSATORS, JOINT WITH SUBSTATION COMMITTEE WORKING GROUP I9**

Assignment: To work jointly with Substations WG I9 to write a guide for protecting transmission static var compensators. PSRC WG K12 will provide guidance and review on topics that are already covered in other IEEE guides to prevent overlap and identify areas where interpretation of existing guides is necessary to meet the specific application challenges unique to transmissions static var compensators.

**S. Samineni, Chair**  
**Schweitzer Engineering Laboratories**  
**King of Prussia, PA**

**M. Best, Vice-Chair & Secretary**  
**UC Synergetic**  
**Fort Mill, SC**

Antonova, G.  
 Brunello, G.  
 Conrad, S.  
 Elkin, P.  
 Lee, A.  
 Manna, T.  
 Maragal, D.  
 Miller, D.  
 Nestor, C.  
 Pajuelo, E.  
 Stojak, M.  
 Thompson, M.  
 Wang, A.  
 Wang, J.  
 Whittaker, R.  
 Zamani, A.

**K16: PC37.91, REVISION OF C37.91 GUIDE FOR PROTECTING POWER TRANSFORMERS**

Assignment: To revise and update C37.91, IEEE Guide for Protecting Power Transformers" to correct errors and address additional protection related topics.

**W. English, Chair**  
**Consumers Energy**  
**Jackson, MI**

**S. Conrad, Vice-Chair & Secretary**  
**Public Svc. Co. of NM**  
**Albuquerque, NM**

Bapary, A. Bloder, M.  
 Boysen, B.  
 Carroll, P.  
 Crellin, R.  
 Davies, B.  
 Elkin, P.  
 Hamilton, R.  
 Kao, M.  
 Lee, A.  
 Lebya, M.  
 Long, J.  
 Lukach, D.  
 Mackie, B.  
 Manna, T.  
 Midence, R.  
 Patti, C.  
 Pickett, B.  
 Schroeder, M.  
 Sevov, L.  
 Thompson, M.  
 Torres, N.  
 Van den Berg, J.  
 Verzosa, J.  
 Walker, C.  
 Ware, D.  
 Weyer, G.  
 White, C

**K17: GEOMAGNETIC DISTURBANCES (GMD) IMPACT ON PROTECTION SYSTEMS**

Assignment: To submit a WG report to the PSRC K Substation Subcommittee

evaluating the performance of protection systems during Geomagnetic Disturbances.

**Q. Qiu, Chair**  
**American Electric Power**  
**New Albany, Ohio 43054**

**L. Polanco, Vice-Chair & Secretary**  
**AET**  
**Foxboro, MA**

Adamiak, M.  
 Bapary, Abu  
 Campbell, J.  
 Davies, B.  
 Fischer, N.  
 Fontana, D.  
 Henville, C.  
 Le, V.  
 Liao, Y.  
 Makki, A.  
 Madani, V.  
 Manna, T.  
 Meliopoulos, S.  
 Mullawarman, A.  
 Pickett, B.  
 Sambasivan, S.  
 Sun, R.  
 Thompson, M.  
 Udren, E.

**K18: PC37.108, GUIDE FOR PROTECTION OF SECONDARY NETWORK SYSTEMS**

Assignment: To revise and update C37.108-2002 Guide for the Protection of Secondary Network Systems.

**A. Mulawarman, Chair**  
**Xcel Energy,**  
**Minneapolis, MN**

**R. Whittaker,**  
**Vice-Chair & Secretary**  
**Consultant**  
**Portland, OR**

Bapary, A.  
 Bertolini, E.  
 Donahoe, K.  
 Frye, R.  
 Garcia, R.  
 Kumar, P.  
 Lascu, R.  
 Lukach, D.  
 Mackie, B.  
 Moskos, G.  
 Pavavicharn, S.  
 Pickett, B.  
 Sevov, L.  
 Sufana, C.  
 Thompson, M.  
 Torres, N.  
 Van de Ligt, J.  
 Xavier, J.

**K21: C37.112 STANDARD INVERSE-TIME CHARACTERISTIC**

**EQUATIONS FOR OVERCURRENT RELAYS**

Assignment: Pursue the renewal of C37.112.

**R. Crellin, Chair**  
**HDR**  
**Billings, MT**

**M. Thompson, Vice-Chair & Secretary**  
**SEL Engineering Svcs**  
**Fairview Heights, IL**

Boysen, B.  
 Burnworth, J.  
 Gamble, R.  
 Hamilton, R.  
 Ladner, H.  
 Lukach, D.  
 Sues, J.  
 Sufana, C.  
 Udren, E.  
 Yalla, M.

**K22: C37.234 IEEE GUIDE FOR PROTECTIVE RELAY APPLICATIONS TO POWER SYSTEM BUSES**

Assignment: Revise and ballot IEEE Standard C37.234 prior to its expiration in 2019.

**A. Bapary, Chair**  
**American Electric Power**  
**Tulsa, OK 74119**

**A. Deronia, Vice-Chair & Secretary**  
**American Transmission**  
**Waukesha, WS**

Anderson, J.  
 Barsch, J.  
 Boysen, B.  
 Busot, D.\*  
 Burkart, D.  
 Conrad, S.  
 Crellin, R.  
 Das, R.  
 Davies, B.  
 Dongale, P.  
 Eling, S.  
 Farrar, T.  
 Gulczynski, N.  
 Joshi, B.  
 Lander, H.  
 Lascu, R.  
 Leyba, M.  
 Lee, A. Lukach, D.  
 Mackie, B.  
 Manna, T.\*  
 Moskos, G.  
 Mulawarman, A.  
 Nguyen, A.  
 O'Brien, J.  
 Patti, C.  
 Perere, N.  
 Pickett, B.  
 Ryan, G.  
 Ryan, K.  
 Sevov, L.

Sharma, M.  
 Sufana, C.  
 Thompson, M.  
 Tualla, I.  
 Tulaladhar, L.  
 Versosa, J.  
 Voloh, I.  
 Walker, C.  
 Yang, Q.

**K24: DEVELOP A SUMMARY  
 PAPER BASED ON K1 WG  
 UPDATE OF C37.245**

Assignment: To write a summary paper to promote the new C37.245 phase shifting transformer protection guide.

***B. Davies, Chair***  
***TRC***  
***Augusta, ME***

***TBD, Vice-Chair & Secretary***

**KTF25: INVESTIGATE THE  
 NEED TO REVISE C37.99  
 IEEE GUIDE FOR THE  
 PROTECTION OF SHUNT  
 CAPACITORS.**

Assignment: Investigate the need to revise C37.99 IEEE Guide For The Protection Of Shunt Capacitors and recommend an assignment to the K subcommittee for a working group if the decision is made to proceed.

***M. Kao, Chair***  
***Patterson Power Engineers***  
***Chattanooga, TN***

***TBD, Vice-Chair & Secretary***

**KTF26: INVESTIGATE THE  
 NEED TO REVISE C37.109  
 IEEE GUIDE FOR  
 PROTECTION OF SHUNT  
 REACTORS.**

Assignment: Investigate the need to revise C37.109 IEEE Guide For The Protection Of Shunt Reactors and recommend an assignment to the K subcommittee for a working group if the decision is made to proceed.

***K. Garg, Chair***  
***SEL Engineering Svcs***  
***Pullman, WA***

***I. Voloh, Vice-Chair &  
 Secretary***  
***GE***  
***Markham, ON Canada***