

**IEEE Distribution Subcommittee
Draft Meeting Minutes
July 25, 2012
San Diego, CA**

ADMINISTRATIVE

Chair John McDaniel called the IEEE Distribution Subcommittee meeting to order at 1:00 p.m. with 29 members and 1 guest present. The notes from the January 2012 meeting were approved.

CHAIR REPORT – John McDaniel, *Distribution Subcommittee*

AS many of you may know by now, Jim Burke has finally retired. Jim was a long time member of the Distribution Subcommittee and its groups. He was also a past chair of the Subcommittee. Jim was a very active member and a valuable contributor to the Distribution area. Jim will be greatly missed.

The T&D Committee is finalizing its Policy and Procedures for Standards Development for approval. This document covers the governance of the T&D Committee and how standards are developed with the Committee. This document will not change how the Distribution SC conducts its business. Most of the language in the document is boilerplate and was drafted by IEEE Standards Association. I will forward this document to the Working Chairs after it has received all of its approvals.

There have been some significant changes to a few other subcommittees within the T&D Committee. The Lightning and Insulator SC no longer exist. The Insulator portion has merged with the former Towers, Poles & Conductors SC to form the Overhead Lines SC. The Lightning portion has to join the General Systems SC for administrative purposes.

VICE CHAIR REPORT – Julio Romero Aguero, *Distribution Subcommittee*

A total of 31 papers were reviewed with the following outcome: 3 papers accepted; 17 papers rejected; 11 papers under review and resubmit. Moreover a total of 8 additional papers were reviewed for the regular issues of IEEE Transactions on Smart Grid with the following outcome: 5 papers accepted; 2 papers rejected; 1 paper under review and resubmit.

WORKING GROUP REPORTS

DISTRIBUTION RELIABILITY – Rodney Robinson, Chair

Rodney Robinson, chair called the WG meeting to order with 57 attendees. Vice chair and secretary were present. The sign-in sheet was circulated and introductions were made. Minutes from the January 2012 meeting were approved unanimously.

There were three presentations given and all are available on this Working Group's website. The first presentation, "A Quantitative Assessment of Utility Reporting Practices for Reporting

Electric Power Distribution Events", was given by Joe Eto. Since the original presentation on this topic, we now have 10 years of data that document 2% degradation per year of reliability during that timeframe. This may be due to company adoptions of automatic outage management systems with full connectivity models. Heide Caswell then presented the IEEE 2011 Benchmarking Results. There were 200 companies represented, providing power to over 69,800,000 customers in the USA and Canada. The third presentation, NRECA 2011 Benchmarking Results, was given by Tony Thomas.

Task Force on Reliability Indices – John McDaniel

The Guide for Electric Power Distribution Reliability Indices 1366 was published May 31, 2012. There are definition changes in Section 3, with CEMI changed, and new indices CELID-s and CELID-T introduced. A paragraph on catastrophic events was added. The next ballot must be before 2022. However, minor changes like spelling corrections can be made.

Non-Gaussian Task Force – John McDaniel

This Task Force will further review the data sets that are made available to the TF to see whether or not they fit a log normal distribution. If they do not, how does this affect the bottom-line results? This Task Force will consider how to proceed with such data sets.

Reliability Reporting TF – Rodney Robinson/Val Werner

Val reviewed the progress of the P1782 guide and gave notice there is one week after this meeting to get final comments in before it starts the pre-ballot process. John McDaniel reviewed the pre-ballot procedures which must be done by Rodney as WG Chair.

Analysis Task Force – Heide Caswell

Heide recapped ideas given in her earlier presentation. The group discussed supply and control as well as ownership and data segregation. Where in the power delivery system are interruptions originating? It was stated that the transmission division is at the high side disconnect. A few more volunteers for the TF were recruited before the TF ended.

Tools Task Force – Ian Hoogendam

A panel session is planned for next summer's meeting in Vancouver. Tools categories include: Data Analysis, OMS, Spatial/Geographic related tools, threshold triggered notifications, circuit ranking methods. Ian reviewed several tools that had been discussed within the Task Force. Targeted survey questions may be sent out to look at how the tools are used and whether or not they improve reliability.

Julio Romero Aguero volunteered to write a paper on "How to do a Predictive Reliability Study." He then offered to chair a Predictive Reliability Study Task Force. There were concerns on overlap but Julio will check to make sure it doesn't duplicate other efforts.

Cost and Funding Task Force – Mark Konya

Josh Schellenberg gave a presentation on "Evaluating the Total Costs of Outages". This Task Force will develop methods and processes to use when calculating reliability benefits and costs.

P1366 and P1782 Tutorial Task Force – Val Werner

Val had discussed the purpose of this Task Force and requested volunteers. The volunteers included: Rich Christie, Heide Caswell, Dan Ward, Jim Cole, Greg Welch, Tom Menton, Dave Blankenheim, and Rodney Robinson.

SWITCHING AND OVERCURRENT PROTECTION – *Lee Taylor, Chair*

Due to illness of the Chair Lee Taylor (lee.taylor@duke-energy.com), Secretary Fred Friend (fafriend@aep.com) called the meeting to order with 17 members and 8 guests present. Introductions of WG members and visitors were made and the January 2012 meeting minutes were reviewed and approved without comment.

The Task Force discussed P1806 Guide to Placement of OH and UG Switching and Protection Equipment and made writing assignments due by November 30, 2012. The scope was changed to address the following: suggested placement of switching and overcurrent protection devices on non-network distribution circuits through 35 kV. The Guide will include paragraphs on momentary interruptions, recommended devices, criteria for determining how many devices are recommended, critical infrastructure and customers, business cases, and how outage causes and fault frequency affect device placement.

SMART DISTRIBUTION – *Georges Simard, Chair*

The meeting (Combo Session) was extremely well attended, with 79 participants representing electric utilities, consultants, academia, and industry present for the meeting. Georges Simard welcomed all attendees and officers. The minutes of the previous meeting were accepted without amendment, but participants were once again encouraged to review and verify the roundtable discussion notes from the prior meeting.

Georges Simard indicated that he will be stepping down as Chair of the SDWG following this meeting. Georges was commended for his significant accomplishments during his tenure as SDWG Chair. Georges proposed that Larry Clark (current Vice chair) take over as Chair, that Bob Uluski (current Secretary) take over Vice Chair duties, and that Fred Friend (AEP) become secretary of the group. There were no objections from the SDWG members present. Therefore, we propose these recommendations to the Distribution Subcommittee.

Work is continuing on the Smart Distribution Application Guide (P1854), which is being sponsored by SDWG. Shay Bahramirad of S&C Electric made a presentation to describe the current status of the document and to solicit additional volunteers to write and/or review sections of the document. A copy of Shay's presentation will be posted to the SDWG website.

The SDWG will propose two panel sessions on smart distribution for the 2013 GM in Vancouver: "Smart Distribution Control Center" (Chair: Larry Clark) and "Distribution Grid Analytics" (Chair: Georges Simard). SDWG proposes to once again sponsor a tutorial on smart distribution that (if accepted) will be conducted at the 2013 GM in Vancouver. The proposed tutorial, conducted by SDWG members, will reflect the significant advances in Smart

Distribution that have occurred since the tutorial was last conducted in 2011. If this proposal is accepted, Anil Pahwa will once again coordinate the tutorial activities.

Two technical presentations were made during the meeting:

- “Coordinated Optimization in Distribution Operation” - Jiyuan Fan (GE Energy) – copy posted to website
- “Advances in power electronics and the implications for power distribution” (Michael Rigney, Gridco Systems). – copy not available

The meeting included a roundtable discussion in which participants had the opportunity to briefly describe their ongoing SD efforts and answer questions about their efforts and experiences. The results will be documented in the meeting minutes.

Distribution Management Systems (DMS) Task Force – Bob Uluski

The meeting was very well attended, with 43 participants representing electric utilities, consultants, academia, and industry present for the meeting. Bob Uluski welcomed all attendees and officers. The minutes of the previous meeting were accepted without amendment, but participants were once again encouraged to review and verify the roundtable discussion notes from the prior meeting.

The DMS TF officers introduced themselves. Bob Uluski of EPRI is chair, Marc Patterson of Idaho Power is vice chair, and John Sell of Alstom T&D is secretary. These officers were selected from volunteers that were solicited from the inaugural January meeting. The proposed officers were accepted without objection.

Bob Uluski presented the results of a DMS “state of the industry” survey that was recently conducted to determine the status of DMS deployment at over 50 electric distribution utilities around the world, applications being implemented, and key areas of interest pertaining to DMS. A copy of this presentation will be posted to the SDWG website.

The DMS TF is seeking to take a stand on the meaning of the term DMS. Marc Patterson led an open discussion to determine an appropriate definition of the term, starting with a few “straw man” definitions proposed by Bob Uluski and Vince Forte (National Grid). Group consensus was that the definition must stress decision support and control capabilities, interconnections and interoperability of distribution support and control systems, and near real-time performance. Marc will update the straw man definition and continue discussion at next meeting.

John Sell made a presentation entitled “Distribution Operation Training Simulators” which was then discussed by the members. A copy of John’s presentation will be posted to the SDWG website.

DMS TF members were encouraged to submit papers and ideas for panel on DMS topics. If possible, the DMS TF would like to have a panel “Change Management Needed for Effective

DMS Deployment”. The TF will attempt to solicit a minimum of 4 papers on this topic for the 2013 GM in Vancouver.

Volt/VAR Control & Optimization (VVTF) Task Force – Tom Rizy

This combo session was chaired by Herve Delmas (VVTF Vice Chair) in Tom Rizy’s absence due to family illness. The task force meeting was very well attended, with 57 participants representing electric utilities, consultants, academia, government and industry present for the meeting. Herve welcomed all attendees and officers.

VVTF is proposing to develop two major documents on the subject of VVC for electric distribution systems. One document will be either a recommended practice or guide that will establish uniform Measurement and Verification (M&V) methods to forecast the demand and energy savings for improved volt-VAR control. Tom Rizy is currently working to finalize a PAR to obtain authorization to proceed with this work. Bob Uluski presented the results of a VVTF survey to get additional input and solicit volunteer contributors. Twenty VVTF members volunteered to participate as section leaders, writers and reviewers.

Bob Uluski presented the results of a volt-VAR control survey that was sponsored by EPRI and the IEEE VVTF. A copy of this presentation will be posted to the VVTF website.

Pisitpol Chirapongsananurak of Texas A&M made a presentation entitled “Voltage Regulation in Distribution Circuits with Wind Power”. A copy of this presentation will be posted to the VVTF website.

The VVTF is seeking candidates for future panel and technical sessions such as for the 2013 PES General Meeting (PESGM) in Vancouver.

The meeting included a roundtable discussion in which participants had the opportunity to briefly describe their ongoing VVO efforts and answer questions about their efforts and experiences. The results will be documented in the meeting minutes.

VVTF is planning to meet next at the January 2013 IEEE PES Joint Technical Meeting in Memphis, TN.

DISTRIBUTED RESOURCES INTEGRATION – Bob Saint, Chair

There were 33 attendees at the meeting. Introductions were made and the Minutes from the January 2012 meeting were approved.

Mohammad Vaziri from California State University presented a paper titled “A Novel State Estimation Formulation for Distribution Grids with Renewable Energy Sources”.

It was decided that the Working Group will sponsor a Panel Session at the 2013 PES General Meeting on "Case Studies of Experiences with Distributed Resource Interconnections on Distribution Systems".

The Group then reviewed Status of IEEE 1547 series of Standards: IEEE 1547 Amendment is starting soon to address voltage regulation, voltage ride through and frequency ride through; IEEE 1547.7 Impact Studies are nearing completion; IEEE 1547.8 enhances the use of IEEE 1547) and is a work in progress.

LIGHTNING PERFORMANCE OF DISTRIBUTION LINES – John McDaniel, Chair

The Working Group met on Tuesday, July 24, 2012. The main order of business dealt with where this WG would fall within the T&D Committee. The L&I SC no longer exists as the Insulator WG merged with the TP&C SC to form the OH Lines SC. The three options were: to remain a stand-alone group within T&D; split the transmission and distribution into separate groups and join existing subcommittees; or join the General Systems SC. The WG voted to join the General Systems SC for administrative purposes.

Bill Chisholm then made a presentation entitled: “USA soil resistivity maps based on suitability for Ground Penetrating Radar (GPR)”. This was based on work that was performed by the USDA. Soil resistivity can be based on the ability of GPR to penetrate the soil. This in turn can be turned into resistivity maps.

Officer rotations were then discussed. John McDaniel and Bill Chisholm have been officers in this group for over a decade. A couple of individuals did express some interest, but made no commitments.

VOLTAGES IN PRIVATELY AND PUBLICLY ACCESSIBLE LOCATIONS – Chuck DeNardo, Chair

The Working Group on Voltages at Publicly and Privately Accessible Locations (aka the Stray & Contact Voltage Working Group) met at the 2012 IEEE PES General Meeting from 2:00 p.m. until 5:00 p.m. on Monday July 23, 2012. There were approximately 40 people in attendance. The Minutes of the January 2012 meeting were reviewed and approved.

Larry Conrad (Chair of WG 1836) updated the group on attempts to require North American manufacturers to limit the harmonic currents generated by residential products. This was followed by a discussion of the need for, and usefulness of, a contact voltage detection database. A draft standardized data collection form was presented for discussion, and a task force was formed to investigate the possibility of a voluntary and anonymous reporting procedure. Stu Hanebuth volunteered to chair the task force which will present its findings at the January meeting in Memphis.

Jens Schoene and Matt Norwalk have begun work on a swimming pool investigation protocol. They presented their initial thoughts and will be soliciting feedback by e-mail prior to the next meeting. A web meeting on this topic was discussed but no decision on when it might occur was made. The group next had a discussion concerning the possibility of having a contact voltage Panel Session at the PES General Meeting in Vancouver next July. The group thought it a good idea and several people volunteered to participate. The chair agreed to find out if a panel session

would be possible and to make the necessary arrangements. The chair also gave a brief description of the Contact Voltage legislation just signed into law in Rhode Island. Jim Bouford closed the meeting with a continuing discussion of an acceptable exposure matrix. A revised draft matrix was presented.

WILDLIFE PROTECTORS – Caryn Riley, Chair

This Working Group is temporarily suspended.

LIAISON REPORTS

Insulated Conductors

Faulted Circuit Indicator Discussion Group B17D

No report is available.

Power System Communications -

Broadband over Power Line BPL

No report is available.

Power Systems Instrumentation and Measurement (PSIM)

Sensors for the Smart Grid

No report is available.

Power System Relaying Committee – Fred Friend

The meeting will be at the Hilton Portland in Portland, OR, 10-13 September 2012.

Complete meeting minutes are at the following link: <http://www.pes-psrc.org/Aminutes.html>

Working Group C2, chaired by Alex Apostolov, is preparing a report to the PSRC to identify the functions and data available in Protective Relaying Devices used at different functional levels and different applications within a Smart Grid.

Working Group D2, chaired by Gary Kobet, is revising and updating C37.104 – Guide for Automatic Reclosing of Line Circuit Breakers and AC Distribution and Transmission Lines.

Working Group D11, chaired by Fred Friend, is preparing a report to the PSRC describing the effect of Distribution Automation on Protective Relaying with plans for completion by September 2012.

Working Group D26, chaired by Joe Mooney, is revising and updating C37.114 – Fault Locating Guide with an expected completion in 2014.

Working Group H2, chaired by Mark Simon, is preparing a report to the PSRC describing protective relay applications that can make use of the communication infrastructure provided by the Smart Grid.

Working Group H10, chaired by Rick Cornelison, prepared a report to the PSRC describing a convention to uniquely identify (name) installed Intelligent Electronic Devices (IEDs) including measured and calculated quantities for the purpose of sharing data collected by these devices. (Has not been posted yet.)

Link to all PSRC publications: http://www.pes-psrc.org/Reports/APublications_new_format.htm

SCC 21 – Bob Saint

IEEE 1547 Amendment is starting soon to address voltage regulation, voltage ride through and frequency ride through; IEEE 1547.7 Impact Studies are nearing completion; IEEE 1547.8 enhances these of IEEE 1547) and is a work in progress.

STANDARDS

NESC – Rusty Soderberg

An NESC task force has been created to rewrite the strength and loadings section of the Code to include Load and Resistance Factor Design (LRFD) and make the sections more user friendly. If the changes come together in time this will be a change proposal for the 2017 Code. Distribution will be negatively impacted by a portion of this change since additional analyses and complexity will be added to the Code. I have joined the task force so that the distribution voice is heard. The NESC working group met here in San Diego on Monday to divide the strength and loading section among volunteers that will rewrite the sections. I volunteered for the Grades of Construction section, but will keep up on all the sections.

The next milestone in the NESC cycle is July 15, 2013, which is the date all change proposals are due for the 2017 Edition.

The 2012 NESC can be ordered from:

http://www.techstreet.com/standards/ieee/c2_2012?product_id=1786726

The 2012 NESC handbook can be ordered from:

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118145399.html>

NEC – Greg Obenchain

No report is available.

PANEL SESSIONS

Panel Sessions planned for 2013 are:

Distribution Reliability Tools, Ian Hoogendam; IEEE PES 2013 General Meeting
Smart Distribution Control Center, Larry Clark; IEEE PES 2013 General Meeting
Distribution Grid Analytics, Georges Simard; IEEE PES 2013 General Meeting
Case Studies of Experiences with Distributed Resource Interconnections on Distribution
Systems, Bob Saint; IEEE PES 2013 General Meeting

Contact Voltage, Chuck DeNardo; IEEE PES 2013 General Meeting
Change Management Needed for Effective DMS Deployment, Bob Uluski; IEEE PES
2013 General Meeting

SDWG proposes to once again sponsor a tutorial on smart distribution that (if accepted) will be conducted at the 2013 General Meeting in Vancouver.

PRESENTATIONS

Presentations from this meeting and those from previous meetings are posted at the Distribution Subcommittee website:

<http://grouper.ieee.org/groups/td/dist/presentations/>

Appendix: Current Membership Roster

Chair: McDaniel, J., Syracuse, NY
Vice Chair: Romero Aguero, J., Raleigh, NC
Secretary: Tobin, E., Everett, WA

Banting, J., Pewaukee, WI
Berkowitz, D., Monroe, WA
Bouford, J., Augusta, ME
Carroll, P. Milwaukee, WI
Caswell, H., Portland, OR
Christie, R., Seattle, WA
Clark, L., Birmingham, AL
Cole, J., Bozeman, MT
Conrad, L., Plainfield, IN
Crudele, D., Ballstonspier, NY
Delmas, H., Montreal, QC
DeNardo, C., Milwaukee, WI
Friend, F., Columbus, OH
Frost, K., Oakbrook Terrace, IL
Gilmer, D., Craig, CO
Goodfellow, J., Redmond, WA
Hayes, H., St. Louis, MO
Hisayasu, R., Bellevue, WA
Holt, A., Kansas City, MO
Hoogendan, I., Portland, OR
Khodaie, M., Albuquerque, NM
Lambert, F., Forest Park, GA
McDermott, T., Pittsburgh, PA
McGranaghan, M., Knoxville, TN
Obenchain, G., Washington, DC

Ochoa, L., Manchester, UK
Pahwa, A., Manhattan, KS
Patterson, M., Boise, ID
Rafferty, M/, Jacksonville, FL
Razon, A., Arlington, VA
Riley, C., Forest Park, GA
Rizy, T., Oak Ridge, TN
Robinson, R., Topeka, KS
Sabin, D., Knoxville, TN
Saint, B., Arlington, VA
Schott, S., Green Bay, WI
Siew, C., Burnaby, BC, Canada
Simard, G., Montreal, QC, Canada
Singh, E., Washington, DC
Smith, J., Phoenix, AZ
Soderberg, R., Jackson, MI
Taylor, L., Charlotte, NC
Thatcher, M., Kansas City, MO
Venkata, S.S., Oro Valley, AR
Viglietta, J., Philadelphia, PA
Walling, R., Schenectady, NY
Ward, D., Richmond, VA
Warren, C., Boston, MA
Welch, G., Raleigh, NC
Werner, V., Milwaukee, WI