

**IEEE Distribution Subcommittee
Meeting Minutes
July 19, 2017
Chicago, IL**

ADMINISTRATIVE

Chair Julio Romero Aguero called the IEEE Distribution Subcommittee meeting to order at 1:30 p.m. with 32 members/guests present. Jim Bouford was recognized for receiving the Distribution Award at the prior night's awards ceremony and a hardy round of applause was given. Introductions were then made. The 2017 JTSM minutes were reviewed. A motion to accept the minutes was made by Larry Conrad, seconded by Fred Friend and the vote to approve was passed.

CHAIR REPORT – Julio Romero Aguero, Distribution Subcommittee

- I have represented the Distribution Subcommittee in the following activities.
- I finished my term as Editor of IEEE Transactions on Power Delivery (TPWRD), assisting the Editor-in-Chief, Prof. Wilsun Xu from University of Alberta, in the review of distribution related papers. Our Vice Chair, Manuel Avendano, from ComEd has officially taken my place in the Editorial Board of TPWRD in representation of the IEEE Distribution Subcommittee. I encourage our membership to approach Manuel and volunteer to collaborate as a reviewer.
- I have finished my term as Chair of the IEEE Working Group on Distributed Resources Integration. The new Chair is Babak Enayati from National Grid.
- I have been serving in the IEEE PES Technical Policy Support Task Force. Tom Pierpoint from PHI and I are responsible for the Task Force activities in conferences, including organization of panel sessions and tutorials.
- I participated in the following activities in the 2017 IEEE ISGT Conference:
 - Moderator of Panel Session on Recent Trends and Developments in Grid Modernization
 - Panelist of Panel Session on Grid Edge Resilience and Control Technologies with Microgrids and Self-Healing Functions
 - Panelist of Panel Session on Opportunities and Challenges for PMU Implementation in Distribution Systems and Microgrids
- I will participate in the following activities at the 2017 IEEE PES General Meeting:
 - Moderator of Panel Session on Automation, Protection, Reliability and Voltage Engineering of Power Distribution Systems with DER – Joint activity of all Distribution Subcommittee Working Groups
 - Moderator of Industry Experiences and Trends in Grid Modernization
 - Panelist of Panel Session on Current R&D in Photovoltaics: Technology and Grid Integration
 - Panelist of Panel Session on Engineering and Planning - Energy Storage Roadmap

VICE CHAIR REPORT – Manuel Avendaño Mora, Distribution Subcommittee

I have represented the Distribution Subcommittee in the following activities.

- I am Technical Co-Chair of the IEEE PES T&D Conference and Exhibition
- I started my term as Editor of IEEE Transactions on Power Delivery (TPWRD), assisting the Editor-in-Chief, Prof. Wilsun Xu from University of Alberta, in the review of distribution related papers. Since 2/27/2017 I have been assigned seven (7) papers and two (2) letters. See table below summarizing my recommendation for all these manuscripts. I encourage our membership to volunteer as a reviewer.

No.	Paper/Letter	Topic	# Assigned	# Returned	Recommendation
1	Paper	Control method for voltage support in distribution networks	TBD	TBD	TBD
2	Paper	Field results for a real-time monitoring load estimation for service restoration	11	3	Revise and Resubmit
3	Paper	Distribution Self-healing	9	5	Revise and Resubmit
4	Paper	Method for testing distribution automation system	17	2	Awaiting Reviewer Scores
5	Paper	Method to minimize the number of surge arresters	10	4	Revise and Resubmit
6	Paper	Voltage control to increase hosting capacity	12	5	Reject - Do Not Resubmit
7	Paper	Protection of distribution systems w/DER using IEEE 802.16	12	4	Reject - Do Not Resubmit
8	Letter	Modeling for dynamic simulation of active distribution networks	7	3	Revise and Resubmit
9	Letter	Optimal voltage regulation in distribution systems	4	4	Reject - Do Not Resubmit

- I participated in the following activities in the 2017 IEEE ISGT Conference:
 - Panelist of Panel Session ‘Recent Trends and Developments in Grid Modernization’
 - Panelist of Panel Session ‘Provision of Grid Services from Microgrids: Challenges, Opportunities, and Risks’
 - Panelist of Panel Session ‘Distribution System Operator (DSO) Cost Benefit Assessments’
- I participated in the following activities at the 2017 IEEE PES General Meeting:
 - Moderator of Panel Session ‘Regulating the Future of Microgrids’
 - Panelist of Panel Session ‘Industry Experiences and Trends in Grid Modernization’
 - Panelist of Panel Session ‘Update on DOE/IEEE T&D Initiatives’
 - Panelist of Student Faculty Industry Luncheon

WORKING GROUP REPORTS

DISTRIBUTION RELIABILITY – Val Werner, Chair

Tuesday & Wednesday, July 19-20, 2016

On July 18 & 19, 2017 the DRWG was convened, 54 individuals attended. Approval was made of the January 10-11, 2017 JTCM DRWG Meeting Minutes. Nine presentations were made, covering tools, outage investigation, reliability survey results, as well as benchmarking results for APPA, NRECA and IEEE. Task force updates were made for both IEEE 1366 and 1782, wherein they are largely stable, but beginning scoping of the updates were discussed. A panel session was identified for Outage Data Quality for the T&D Show next year in April, 2018. The panel will be chaired by John McDaniel, and volunteers included Val Werner, Heide Caswell, Lee Taylor (or other Duke member), Alex Hoffman and Tony Thomas. The Working Group recognized Jim Bouford, who was awarded the Distribution IEEE/PES Award for Excellence in Power Distribution Engineering. The sign-in sheet was circulated.

Note: All presentations are available on the DRWG website <http://grouper.ieee.org/groups/td/dist/sd/>

SWITCHING AND OVERCURRENT PROTECTION – Fred Friend, Chair

Fred Friend – Chair

Thomas Gwinn – Vice-Chair

Joe Viglietta – Secretary

1. Chair Fred Friend (fafriend@aep.com) called the meeting to order at 1:00 pm with 17 participants present and introductions were made.
2. Due to lack of ability to consistently attend the meetings, Casey Thompson has volunteered to relinquish his position. Thomas Gwinn volunteered to serve as Vice Chair. There was unanimous approval.
3. Review/approval of minutes – January 2017 Motion to approve by Val Werner, seconded by Rob Nathan, approved unanimously.
4. Joint Panel Session
 - a. Automation, Protection, Reliability and Voltage Engineering of Power Distribution Systems with DER
 - i. Thursday @ 8 am, G-308 Tiered Classroom
5. Reviewed IEEE Policy for Working Group Meetings No concerns about essential patent claims or working group meeting guideline issues were brought forward.
6. P1806 Guide for Reliability Based Placement of Overhead and Underground Switching and Overcurrent Protection Equipment Up to and Including 38 kV (PAR expires 2018)
 - a. Volunteers were assigned for review of sections of the guide.
 - i. The group discussed how reviewers are to make their changes. Send updates to all review leads; just your section. If you have a comment on a different section, contact the lead reviewer. Put P1806 as first part of e-mail subject line. Fred Friend will set up the first full review meeting toward the end of August.
 - b. Review document comments Draft 3.6 20170125
 - i. Reviewed and discussed the figures (Brett). May not want to use color. If reviewers would like to propose additional or changed symbols, produce them in their favorite software and include Brett in

the distribution. There is a selection of IEEE Distribution Test Feeder cases available for use.
<http://ewh.ieee.org/soc/pes/dsacom/testfeeders/index.html>

- ii. Discussion of reduction in interruption rates via lightning arresters, vegetation management, etc., as an alternative to protective devices. Also strategies for selecting devices based on interruption causes.
- iii. Review/ complete the reviewer list with commitment. Get proposed changes out with adequate time to make the August 31 review meaningful and productive.
- c. New assignments
 - i. Due by August 31, 2017
 - ii. Chair will copy into IEEE format
 - iii. Finalize draft before January meeting
 - iv. Ballot Spring 2018
7. New Business
 - a. Ideas for future panel sessions/ meeting topics
 - b. Larry Clark recommends a short discussion in Distribution Subcommittee meeting to discuss possibilities for panel sessions for GM18 with participation from multiple working groups. Like to have such a mechanism in place for ongoing use.
 - i. Ideas:
 1. Feeder protection overview – Rob Napfen, Tom Gwinn, need more.
 - c. General discussion of the penetration of automated restoration, settings changes, and communications into switching & overcurrent protection schemes.
 8. There was no time available for any roundtable discussion.
 9. The next meeting was announced:
 - a. January 7-11, 2018, Hyatt Regency Jacksonville, FL
 10. The meeting was adjourned

Web Site: <http://grouper.ieee.org/groups/td/dist/sop/>

SMART DISTRIBUTION – Larry Clark, Chair

Larry Clark called the meeting to order at 1:00 pm CST on July 17, 2017 in S-Arkansas and welcomed the Group that included 47 representatives of utilities, vendors, and academic institutes. The SDWG leadership, Larry Clark-Chair, Sal Martino-Vice Chair and Fred Friend-Secretary, were introduced. Larry reviewed the IEEE policies on patents, copyrights, etc. No essential patent claims were made. By show hands, a quorum of the SDWG voting members were present. Consequently, a quorum was established to proceed with the SDWG business. The minutes of the last meeting (New Orleans, LA, January 2017) were discussed including online availability and were subsequently approved unanimously.

Mani Venkata, chair of the DMS DA Award selection committee, reported that David Wade, EPB, is the 2017 DMS DA Award recipient. Mani commented that he is accepting nominations for the 2018 award. Mani briefly reviewed the nomination process. The Nomination deadline for the 2018 award is January 31, 2018. Nomination for the 2018 award will be submitted online at the PES Awards site.

Larry Clark reviewed the requirements for the development of an invited panel proposal for IEEE PES events. 2017. For the IEEE PES 2018 GM, invited panel proposals need to be typically submitted during 4th quarter. The proposal is to include the title, description (150 words maximum) and the moderator with the list of 4 panelists for the invited panel proposal. For the IEEE PES 2018 T&D Conference and Exhibition, the proposal submission deadline is August 7, 2017. For the IEEE PES 2018 General Meeting, the proposal submission deadline is November 6, 2017.

To update the P1854 guide progress, Larry Clark reported the ballot for P1854/D006 closed on May 12. Resolution is underway for the comments received during the ballot process. The ballot resolution process update was presented by Sal Martino, SDWG Vice Chair. By the numbers, there were 120 balloters. The Response Rate was 75%. The Approval Rate was 91%. A total of 477 comments were received. From the comment resolution process, the issue related to the use of the English grammar within the guide was brought forward for SDWG consideration. With participation from the IEEE-SA editorial staff, the following action plan was defined:

1. Ongoing comment (477) resolution process will continue to conclusion.
2. Aleks Paaso agreed to take the lead to get all the comment resolutions incorporated into the next redline draft of the document.
3. Thereafter, Aleks Paaso with assistance from David Gilmer will perform a grammar editing task to address the use of the English grammar issue.
4. Upon completion of the grammar editing task, the redline draft of the document will be submitted to the IEEE-SA.
5. In parallel with the foregoing, Mike Kipness agreed to assist Sal Martino with uploading the comment resolution spreadsheet (Excel document) to the IEEE-SA site.

Larry Clark reminded the SDWG that the DMS Task Force has been promoted to working group status. The DMS WG joined the Distribution System Operations Planning (DSOP) Subcommittee. DSOP reports to the Power System Operation, Planning and Economics (PSOPE) Technical Committee. The DMS Working Group meets at 4:00 pm CST on Tuesday, July 18, at 2017 GM in Chicago.

Robert Sherick, SCE, presented his presentation titled: 'Modernizing the California Grid'. Sal Martino, EPRI and SDWG Vice Chair, presented his presentation titled: 'How to Specify DA Switch from an Asset Point of View'.

The changed SDWG Scope was reviewed as result of the moving of DMS to the DSOP Subcommittee. The following bulleted list of tasks presented for the new SDWG Scope:

1. Distribution Automation focus along Distribution feeder
 - a. Distribution Line devices to be automated
 - b. Automation techniques, i.e. package versus assembly
 - c. Line sensing devices and techniques
 - d. Number of automated devices per feeder
 - e. Vendor solutions/offerings
 - f. Utility needs and assemblies
 - g. Emerging technologies for the automation of devices along the distribution feeder
 - h. Coordination of overlapping activities between SDWG, DMSWG and Volt Var Task Force.

The next SDWG meeting is at 2018 IEEE PES JTCM in Jacksonville, FL on January 7-11, 2018.

Additional information available at: <http://grouper.ieee.org/groups/td/dist/da/>

Volt/VAR TF – Larry Conrad, Chair

The meeting was brought to order by Larry Conrad, Chairman, at 3:10 PM. Mike Simms, Vice Chair and John Sell, Secretary were also present. There were 31 attendees including board members.

Patent issues and were discussed by the Chairman. No objections were voiced on the topic of patent issues or collusion. The requirement to avoid any references to pricing and commercial information that could lead to potential collusion was communicated to the attendees.

Sign-in sheets were circulated to record attendees. The right to vote was discussed – attendance at 2 consecutive meetings is required to become a voting member and membership is maintained unless 2 consecutive meetings are missed. Roll call for voting members indicated 12 voting members in attendance. Attendees all briefly introduced themselves.

The minutes of the last VVCTF meeting and agenda for this meeting were distributed via email prior to the meeting. The minutes were approved by voice vote.

Mike Simms reviewed results of VVTF Interest Survey that was previously distributed to the group. Slides will be available on the web site. Action items: volunteers are needed to address each of four topics identified in the survey. Mike Simms has already volunteered address two topics and asked for 1,

The Chairman noted that HECO had to lower medium voltage during the day due to voltage rise on low voltage circuits caused by DG. It was noted anecdotally that the CVR factor may have risen on these circuits. A discussion was held on this topic to learn if anyone had a similar experience. Noted outliers were observed by participants, some were lower than expected. Question about impact of DG – solar dropped 20MW during period of trying to achieve 10MW. Discussion on more efficient PSs, electronic loads, etc. New ACs with integrated motor/drives example, follow speed signal thus maintain ~constant load. Discussions suggest possible move from CVR to voltage management via VVC. Discussion on CVR factors seen today – .5 was “sure”, .7 was “sometimes”, suggestion that it depends on time of day. Reduction of CVR factor due to new load types was expected and the open question is “How fast is this happening?”.

A discussion on the P1885 version 9 draft document. No written comments have been received yet on the distributed draft. As the PAR expires on December 31, 2017, there was a discussion on extending the PAR and how to do that. Suresh Gautam led a discussion that reviewed the recent changes to the document. There were substantial edits to the content and style as well as a reduction in the total amount of material.

There was a question on what type of input and comments were being sought. It was clarified that we’re not looking to completely revamp the document, but to review and improve it.

There was a question and discussion on normative vs. informative references.

Another question prompted discussion on how to select one of many methods in the guide to use. It was noted that some were vendor-specific, but the guide is not trying to indicate a preference but is describing possible methods.

A discussion was held on how often to validate the CVR factors used for analysis. Comments were based on significant changes in load type/composition, at least every year or two. It was noted that the type of business case should drive the frequency of CVR factor review. A suggestion was made that the guide should focus on how, not how often. Another comment was offered that the only point that we can make is not to expect CVR factor to be static over time. It was noted that the charts in the document don't have an uncertainty range around them and it was recommended that some mention of the uncertainty of CVR methods be included.

Another discussion was held on using AMI to validate CVR, also on the impact of DG. There were also discussions on the recommendations of where to put meters for verification. It was suggested that the document might consider the importance of the location of these measurements due to capacitor interaction, etc.

A discussion was held on topics that should be in the annex or eliminated from the document. It was also suggested that there be coordination between the 1884 and 1885 documents.

Action Items:

- Investigate CVR Trends
- Consider frequency of CVR verification and measurement locations issues
- Extension of PAR
- Resend the P1885 draft with comment form

The Chairman strongly encouraged attendees to review and comment on the document. It is desired to get the document to ballot as soon as possible.

Presentations were solicited for future VVCTF meetings. Suggestions were: Voltage control with DER present; Aleksi Paaso offered to discuss ComEd's full deployment of VVO; Thomas Wells of Navigant offered to discuss the statistical approach used by Navigant if their client provides permission.

A motion to adjourn was made and seconded at 4:35 PM.

DISTRIBUTED RESOURCES INTEGRATION – Julio Romero- Aguero, Chair

~~ Not Yet Received~~

STRAY AND CONTACT VOLTAGE WORKING GROUP – Matt Norwalk, Chair

The Stray and Contact Voltage Working Group met at the 2017 IEEE PES Joint Technical Committee Meeting on the afternoon of Monday January 9th at the New Orleans Marriott. There were approximately 25 people in attendance. The officers for this meeting were Daniel Chen, Vice-Chair and Scott Kruse, Secretary.

Following review and approval of the Boston and November Skype meeting minutes, Mark Voigtsberger from UTGIS provided a presentation on improving the quality of manual voltage surveys. The group engaged in a lively discussion on the existing content of the guide as it related to Mark's presentation and it was decided that more information was needed on a measurement device discussed during this presentation. The next presentation was by Anthony Cedrone from ConEd on an urban case study for the guide. The group engaged in a discussion on the amount of information to be included in case studies and Anthony agreed to send out a template to the working group members for submissions within 3 weeks.

Stu Hannebuth then presented the draft table of contents that was finalized during our Skype meeting in November. The group voted unanimously to accept the new table of contents which reorganizes the guide in a more linear format. Stu then proposed the need for a new definition for voltage on an energized object that is not part of the electric system to avoid categorizing the problem as either stray or contact voltage before an investigation is performed. The group brainstormed possible terms and voted on "Exception Voltage".

The Chair then solicited Section Leads to begin the process of revising the guide at which time we broke into groups to prioritize the work in each section, including gaps in the existing content. The Section Leads then reported to the group their findings.

The Chair will work on posting the draft onto the IEEE iMeet Group Website which will be reorganized to the new table of contents. A web meeting will be setup in between the GM to have the Section Leads report on work on the document.

The meeting was adjourned at approximately 4:15pm.

A 3 hour time slot is requested for the General Meeting in Chicago.

LIAISON REPORTS

Insulated Conductors

No report is available

Power System Communications

No report is available.

Power Systems Instrumentation and Measurement (PSIM)

No report is available.

Power System Relaying Committee – Fred Friend

Meeting minutes can be viewed from the following link:

<http://www.pes-psrc.org/minutes/Aminutes.html>

Transformers Committee – Fred Friend

The latest Transformer Committee information is included in the publication: Liaison Report Transformers Jul2016 posted on the website.

STANDARDS

NESC – Rusty Soderberg

The 2017 National Electrical Safety Code was issued August 1, 2016, along with a new handbook. States that automatically adopt the Code will adopt it in February per Code language. The next Code milestone will be July 15, 2018, this is the day change proposals (CP's) are due for the 2022 Code.

The "Working Group on the NESC," a part of the Overhead Lines Subcommittee, met on Monday January, 9. Topics discussed included resiliency, work rules, prioritization of CP's, and the formation of task forces to address important NESC subjects. One of the more important items the NESC will be addressing is how new emerging disruptive technologies such as solar, microgrids, and communications antennas will be addressed. These are items not usually associated with electric networks in the past and therefore they are changing the way we look at the Code.

New NESC leadership was appointed on September 1, 2016, with Nelson Bingel (Osrose Utilities Services) assuming the role as chair, and Danna Liebhaber (Bonneville Power Administration) assuming the role as vice-chair.

One new Massive Open Online Course (MOOC) on "An Overview of the NESC" was launched in November with approximately 2500 participants enrolled. Additional E-Learning courses relating to different sections of the code are under development and will be available in the near future.

An NESC mobile app has been developed and will be available soon. The NESC website has also been redesigned. (<http://standards.ieee.org/about/nesc/index.html>)

An NESC Workshop was held on October 18-19, 2016 in San Antonio, TX, to provide a review of the 2017 changes, and kick off the NESC 2022 edition, with 132 attendees.

See <http://standards.ieee.org/events/nesc-workshop.html> for presentations and photos. A Subcommittee 5 Workshop was held the day after the workshop with invited experts to present data on wind and ice. John Miner presented a keynote at the NESC Workshop, *Sustaining the NESC Through Strategic Change*.

(http://standards.ieee.org/events/2016_nesc_presentations/nesc_workshop_keynote_john_miner.pdf)

Nelson Bingel and Michael Johnston co-presented a paper at the NESC Workshop, *The NEC and NESC: Partners for a Safer Tomorrow*. (http://standards.ieee.org/about/nesc/nec_nesc_case_study.pdf). An NEC-NESC road map to develop the intersections, overlaps, and gaps for both codes is currently under development and will be shared with the leaderships of both codes so that appropriate working groups can be formed to address resulting items.

PANEL SESSIONS

Panel sessions for future meetings:

Proposed joint session with Distributed Resource Integration WG. Julio Romero Agüero will provide framework

Proposed joint session with Smart Distribution WG, Georges Simard will provide framework

Papers are due in November for 2017 General Meeting

PRESENTATIONS

Julio:

Industry changes are revolving around distributed resources. We need to collaborate between Working Groups(WG). One panel would be adding automation to distribution feeders for the 2017 general meeting. Should involve the following WGs:

- SMART
- Distribution Reliability
- Protection
- DRI
- Stray & Contact

2017 PES General Meeting

- Protection of Micro Grids
- DR Management Systems
- Microgrids

Additional panel sessions are available for the 2017 General Meeting.
Make plans for 2018 April T&D meeting

There was a suggestion to have Panel Sessions with an included lunch between regular meetings and/or panel sessions.

ISGT – Needs more panelists for April meeting.

NEW BUSINESS / ROUNDTABLE

1. P1656 Wildlife Protection Standard – coming up for renewal, Karen Riley was last Chair. Maybe someone from NEETRAC would be interested in chairing...
2. Discussion ensued about whether the DSC is involved with hardware or more into usage and analysis.
3. Dave Gilmer: Discussed why PQ should have remained in the DSC. Described the “balkanization” of distribution working groups. Julio called for PQ liaison volunteers.
4. Tyler Jones asked if any study of solar car general DR on reliability?..

- a. Julio said it may be good for some papers out of DRI or DRWG.
- 5. Send room requests to Julio by March!!

Motion to Adjourn: Dave Gilmer, seconded by John McDaniel..

PAR Number	Title	Working Group	Chair
P1695	Draft Guide to Understanding, Diagnosing and Mitigating Stray and Contact Voltage	Stray and Contact Voltage WG	Matt Norwalk
P1782	Guide for Collecting, Categorizing and Utilization of Information Related to Electric Power Distribution Interruption Events	Distribution Reliability WG	Val Werner
P1854	Guide for Smart Distribution Applications	Smart Distribution WG	Larry Clark
P1885	Guide for Assessing, Measuring and Verifying Volt-Var Control Optimization on Distribution Systems	Smart Distribution WG	Larry Clark
P1806	Guide for Reliability Based Placement of Overhead and Underground Switching and Overcurrent Protection Equipment	Switching and Overcurrent Protection WG	Fred Friend

Appendix: Current Membership Roster

Chair: Julio Romero Aguero, NC
Vice Chair: Manuel Avendano, IL
Secretary: Val Werner, WI

Avendano, M., Oakbrook Terrace, IL
 Beckwith, T., Largo, FL
 Bouford, J., Augusta, ME
 Caswell, H., Portland, OR
 Clark, L., Birmingham, AL
 Cole, J., Bozeman, MT
 Collar, A., Albany, NY
 Conrad, L., Plainfield, IN
 Fan, Z., Audubon, PA
 Flaherty, A., Everett, WA
 Friend, F., Columbus, OH
 Gilmer, D., Kerrville, TX
 Hayes, H., St Louis, MO
 Jones, T., Portland, OR
 Masoom, ., Schenectady, NY
 McDaniel, J., North Syracuse, NY

Miller, L., Kennewick, WA
Norwalk, M., Fullerton, CA
Robinson, R., Topeka, KS
Romero Aguero, J., Raleigh, NC
Rumrill, R., Burlingame, CA
Sabin, D., Beverly, MA
Smith, J., Phoenix, AZ
Soderberg, R., Jackson, MI
Venkata, M., Redmond, WA
Viglietta, J., Philadelphia, PA
Ward, ., Richmond, VA
Werner, ., Milwaukee, WI
Xiaodong, ., Dorchester, MA

DRAFT