

IEEE Power and Energy Society Entity Annual Report

2019

Entity: Transmission & Distribution

Website: <http://sites.ieee.org/pes-td/>

Chair: Gary Chang

Vice-Chair: Surya Santoso

Secretary: Eriks Surmanis

Immediate Past Chair: Dan Sabin

1. Significant Accomplishments

There are 7 subcommittees and approximate 80 WGs/TFs under T&D Committee. Currently there are over a dozen standards are under revision or waiting for approval.

CAPACITOR SUBCOMMITTEE

- IEEE Std 1036, Guide for the Application of Shunt Power Capacitors has been out to Ballot. A last version has been submitted to RevCom. Publication expected in spring 2020.
- IEEE Std 1531-2013, Guide for the application specification for Harmonic Filters has been reballoted. Publication expected in spring 2020.
- IEEE Std 824 was submitted to Ballot and comments came back.
- IEEE Std 18: a new annex C has been added to the draft document about a special test on fuseless capacitor.

DISTRIBUTION SUBCOMMITTEE

- The IEEE P1885 Guide for Assessing, Measuring and Verifying Volt-Var Control Optimization on Distribution Systems – Ballot pool was formed. Will be going to ballot in 2020
- The Volt VAR Task Force within the Smart Distribution WG was elevated to its own working group
- IEEE 2845 (Trial Use Standard for Testing and Evaluating the Dielectric Performance of Celebratory Balloons in Contact with Overhead Power Distribution Lines Rated up to 38 kV System Voltage) – PAR approved in 2019 and expires in 2024.
- Creation of Distribution Resilience WG – Upgraded from a TF to a WG at the 2019 GM.
- Held a 2-hour panel session at the PES GM in Atlanta titled “Stray and Contact Voltage Case Studies”
- IEEE P1806 Guide for Reliability-Based Placement of Overhead and Underground Switching and Overcurrent Protection Equipment Up to and Including 38 kV, Ballot pool formed, going to ballot soon.

ENGINEERING IN THE SAFETY, MAINTENANCE AND OPERATION OF LINES (ESMOL) SUBCOMMITTEE

- IEEE P1071 Draft Application Guide for an Engineered Restoration Program for Failed Transmission Structures was balloted and approved.

- IEEE 1070 Guide for the Design and Testing of Transmission Modular Restoration Structure Components: PAR is expiring in 2022 and no major changes expected during the revision process.
- IEEE 1307 Standard for Fall Protection for Electric Utility Transmission and Distribution on Poles and Structures was balloted and approved in 2018.
- IEEE 1882 Draft Guide for Establishing, Benchmarking, and Maintaining a Working Program for Energized Transmission Lines is in the committee ballot process. IEEE ballot process initiation expected later this year.
- IEEE 516 Guide for Maintenance Methods on Energized Power Lines is in the IEEE balloting process.
- IEEE 957 Guide for Cleaning Insulators is in the committee ballot process. IEEE ballot process initiation expected later this year.
- IEEE 1654 IEEE Guide for RF Protection of Personnel Working in the Vicinity of Wireless Communications Antennas Attached to Electric Power Line Structures is in the committee ballot process. IEEE ballot process initiation expected later this year.
- The 14th IEEE International Conference on T&D Construction, Operation and Live-Line Maintenance - ESMO Conference was held June 24-27, 2019 in Columbus, OH. (www.ieee-esmo.com)

HVDC & FACTS SUBCOMMITTEE

The subcommittee participated in meetings with State Grid Corporation of China (SGCC) facilitated by the IEEE Standards Association related to the establishment of three working groups for new standards related to Unified Power Flow Controllers. These meetings resulted in the submission of three new PARs to IEEE SA:

- Working group provided associate editor and authors for HVDC themed issue of IEEE Power and Energy Magazine: “New Developments in High-Voltage DC”, May/June 2019
- Provided speakers for 3 PES webinars related to HVDC transmission
- Sponsored 4 panel sessions at the PES General Meeting
- IEEE Std. 2745.1: Guide for Technology of Unified Power Flow Controllers (UPFC) Multilevel Converter Part 1: Functions, was published.
- Submitted ne PAR of IEEE P2745.2 Guide for Technology of Unified Power Flow Controllers (UPFC)- Multilevel Converter Part 2: Terminology,
- Submitted ne PAR of IEEE P2745.3 Guide for Technology of Unified Power Flow Controllers (UPFC)-Multilevel Converter Part 2: Thyristor Bypass Switch

OVERHEAD LINES SUBCOMMITTEE

- The IEEE P644 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines was published in August 2019.
- The IEEE P1542 Guide for Installation, Maintenance, and Operation of Irrigation Equipment Located Near or Under Power Lines closed its balloting in October 2018 and has been submitted to RevCom.
- IEEE 656 Standard for the Measurement of Audible Noise from Overhead Transmission Lines was published.
- IEEE Std 1260-1996, Guide on the Prediction, Measurement, and Analysis of AM Broadcast Reradiation by Power Lines, is in revision was published.

- IEEE 563, Guide on Conductor Self-Damping Measurements, is in revision. Balloting was complete.
- IEEE P1227, Guide for the Measurement of DC Electric-Field Strength and Ion Related Quantities is in revision. Balloting began in Spring 2019 (PAR expires 12/31/2023).
- IEEE P539, Standard Definitions of Terms Relating to Corona and Field Effects of Overhead Power Lines. Balloting began in Spring 2019. (PAR expires 12/31/2023).
- The following new PARs have been submitted:
 - IEEE P751 Guide for Wood Structures Used for Overhead Electric Transmission Lines
 - IEEE P1218 Trial-Use Guide for Maintenance of Wood Transmission and Distribution Line Structures
 - IEEE P2683 Guide to Strength Loss in Tubular Steel Poles
 - IEEE P2746 Guide for Evaluating AC Interference on Linear Facilities Co-Located Near Transmission Lines
 - IEEE P2772 Test Method for Energy Loss of Overhead Conductors
 - IEEE P2797 Guide for Forecast and Early Warning of Icing on Overhead Transmission Lines in Micro-topographic Areas
 - IEEE P2819 Measuring EMF in AC/DC Hybrid Areas
 - IEEE P2821 Guide for Unmanned Aerial Vehicle-based Patrol Inspection System for Transmission Lines
 - IEEE P2828 Guide for Measuring Method of Overhead Power Transmission Line Galloping Based on Monocular Video
 - IEEE P2833 Guide for Overhead Transmission Lines with Composite-Insulated-Crossarm Supports
 - IEEE PC135.100 Standard for Line Hardware on Overhead Line Construction

POWER QUALITY SUBCOMMITTEE

- IEEE Std 1159.3 on Power Quality Data Interchange Format (PQDIF) was published in February 2019.
- The draft of the revision of IEEE Std 1159 on Recommended Practice for Monitoring Electric Power Quality Working Group was published in June 2019.
- Working Group on Voltage Unbalance was formed in August 2019.
- Working Group on Power Quality Data Analytics has published Technical Report PES TR-73: “Electric Signatures of Power Equipment Failures” in December 2019.

WORKING GROUP ON LIGHTNING PERFORMANCE OF OVERHEAD LINES

- IEEE Std 1243 is under revision and the WG asked for a PAR Revision as the PAR expires at the end of 2019.
- A PAR request for the revision of IEEE Std 1410 was submitted.

2. Benefits to Industry and PES Members from the Committee Work

The scope of the Transmission and Distribution Committee is the treatment of all matters related to the design, theoretical and experimental performance, installation, and service operation of parts of electric power systems which serve to transmit electric energy between the generating sources and substations or customer points of common coupling through AC or DC lines. In 2019, the committee has provided benefit to industry by:

- Developing and managing standards and guides pertaining to capacitors, distribution systems, lightning, power quality, overhead lines and the design and integration of renewable energy.
- Providing tutorials and panel sessions on timely topics including power quality data analytics, wind and solar integration, microgrids, smart grid in transmission and distribution, and distributed energy resources.
- Providing industry with a venue for participating in cutting edge research and best practices dialogs; and participating in the standards making process with over twenty projects in progress or under consideration.

3. Benefits to Volunteer Participants from the Committee Work

The IEEE PES Transmission & Distribution Committee provides benefits to its volunteer participants in the following ways:

- Offering participants an opportunity to work with acknowledged leaders in shaping the T&D industry and informing on T&D issues
- Affording industry leadership role for volunteer participants
- Providing a forum for networking with peers from the T&D industry

4. Recognition of Outstanding Performance

The following members of the T&D Committee was elevated to IEEE Fellow this past year:

- Venkata Dinavahi - for contributions to real-time simulation of power systems with embedded power electronic converters
- Xiao-Ping Zhang - for contributions to modeling and control of high-voltage DC and AC transmission systems

Other Award winners include

- IEEE PES Award for Excellence in Power Distribution Engineering: Charles DeNardo
- Uno Lamm HVDC Award: Abhay Kumar (Jain)
- IEEE PES Nari Hingorani FACTS Award: Arindam Ghosh

5. Coordination with Other Entities (PES Committees, CIGRE, Standards, etc.)

- Smart Grid Coordinating Committee
- 1547.7 Working Group
- PES Emerging Technology Coordinating Committee
- PES Wind Integration Coordinating Committee
- Liaison with PSOPE Committee
- Liaisons with numerous IEC, CIRED and CIGRE committees
- Liaisons with numerous NESC and ANSI committees.
- Liaisons with US National Committee for CIRED via IEEE PES Distribution Subcommittee and IEEE PES Power Quality Subcommittee
- Liaison with NEMA via Capacitor Subcommittee
- Liaison with Power and Energy Magazine.

6. New Technologies of Interest to the Committee



Power & Energy Society®

There are several areas of new technology interest with the T&D Committee. Smart Grids continue to be of interest, especially smart meters and their requirements. Another area of interest to the committee is microgrids.

7. Global Involvement

PES is looking to increase involvement with members from Regions 8, 9 and 10 (Africa, Europe, Middle East, Latin America, Asia and Pacific). Please provide the following information.

Total Number of committee members 400~500	Officers from regions 8,9 and 10 1	Subcommittee officers from regions 8, 9 and 10 0	Subcommittee members from regions 8, 9, and 10 30
--	---------------------------------------	---	--

8. Significant Plans for the Next Period

The six subcommittees of the T&D Committee have brought several standards to complete or near complete draft by the time of the 2020 IEEE Joint Technical Committee Meeting. Many of the working groups completing these standards have stated intentions to have these new drafts in ballot in 2020. This gives potential for many new or revised standards to be completed in 2020.

The committee will be sponsoring two new IEEE guides on new technology related to Unified Power Flow Controller (UPFC) systems. This will give the committee a chance to participate in standards developed by the IEEE Entity process and to collaborate with IEEE members from State Grid Corporation of China (SGCC).

Submitted by: Gary Chang

Date: 2020-02-11