

IEEE Transmission & Distribution Committee

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IEEE POWER & ENERGY SOCIETY – ENTITY ANNUAL REPORT FOR 2017

OFFICERS

This list presents the officers for the IEEE PES Transmission & Distribution (T&D) Committee for 2017-2018:

- Chair: Daniel Sabin
- Vice Chair: Gary Chang
- Secretary: Surya Santoso
- Past Chair and Vice Chair for Awards and Recognition: John McDaniel
- Vice Chair, Standards: Michael Garrels
- Technical Committee Program Chair (TCPC): Eriks Surmanis
- Fellows Coordinator: Bill Chisholm

SIGNIFICANT ACCOMPLISHMENTS

STANDARDS, GUIDES AND REPORTS SUMMARY

CAPACITOR SUBCOMMITTEE

IEEE Std 1531-2013, Guide for Application & Specification of Harmonic Filters, is being revised. The new draft is complete and will be entering ballot in Spring 2018.

DISTRIBUTION SUBCOMMITTEE

The draft for IEEE P1806, Guide for Reliability Based Placement of Overhead and Underground Switching and Overcurrent Protection Equipment Up to and Including 38 kV, is complete. The draft will enter ballot in Spring 2018.

The IEEE P1854 Draft Guide for Smart Distribution Applications Guide was balloted in Spring 2017 and is in ballot resolution.

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 is currently in ballot comment resolution.

The revision to IEEE Std 1307-2004, Standard for Fall Protection of Utility Work, is currently in ballot resolution.

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:

- P2745.1 Guide for Technology of Unified Power Flow Controllers (UPFC)
Multilevel Converter Part 1: Functions
- P2745.2 Guide for Technology of Unified Power Flow Controllers (UPFC)
Multilevel Converter Part 2: Terminology
- 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 opened its ballot pool in January 2018.

The IEEE P1542 Guide for Installation, Maintenance, and Operation of Irrigation Equipment Located Near or Under Power Lines is close to completion and will go to ballot in Spring 2018

IEEE 656 Standard for the Measurement of Audible Noise from Overhead Transmission Lines is in ballot resolution stages.

IEEE Std 1260-1996, Guide on the Prediction, Measurement, and Analysis of AM Broadcast Reradiation by Power Lines, is in revision. Its draft is complete. Balloting will begin in Spring 2018.

IEEE 563, Guide on Conductor Self-Damping Measurements, is in revision. Balloting should begin later in 2018.

POWER QUALITY SUBCOMMITTEE

The draft of the revision of IEEE Std 1159 on Monitoring Electric Power Working Group is complete. Balloting should begin in late Spring 2018.

The draft of the revision of IEEE Std 1159.3 on Power Quality Data Interchange Format (PQDIF) is complete. Balloting should begin in Spring 2018.

The revision to IEEE 1250, Guide for Identifying and Improving Voltage Quality in Power Systems, is now in ballot resolution stage.

Many of the subcommittee members are organizing the IEEE International Conference on Harmonics and Quality of Power, which will be held in May 2018 in Ljubljana, Slovenia.

TUTORIALS AND PANEL SESSIONS

The T&D Committee organized the following panel sessions in 2017:

- New Challenges and Issues Related to Interharmonic Distortion Modeling and Simulation
- Economics and Operating Experience of HVDC and FACTS – Recent HVDC and FACTS Refurbishments, Installations, and Special Controls that Are the Economic Choice
- Update on DOE/IEEE T&D Initiatives
- Protection Design for Microgrids
- Electric Distribution Reliability Best Practices
- DC Grids: Technology Needs, Design Considerations, Operational Challenges, and Case Studies
- Industry Experiences and Trends in Grid Modernization

- Understanding and Dealing with High Harmonic Distortions: How Much is Too Much? System and Equipment Immunity & Limits
- Power Quality Issues with Solar Power Plants
- Smart Grid and Sags: Characterization and Need for New Indices
- Applications of Microgrids to Improve the Reliability, Resiliency, and Efficiency of Distribution Systems
- Flicker Standards – Applications and Advancements
- Integration of (VSC) HVDC in Existing Power Systems
- Automation, Protection, Reliability and Voltage Engineering of Power Distribution Systems with DER
- DER Integration and DER Management Systems

The T&D Committee organized one tutorial in 2017:

- Planning and Integration of Flexible HVDC Into Today's Grid

The T&D Committee is preparing twelve panel sessions for the 2018 IEEE PES Transmission & Distribution Conference & Exposition and more than a dozen for the 2018 IEEE PES General Meeting.

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 2017, 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 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.

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

RECOGNITION OF OUTSTANDING PERFORMANCE

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

- William Dickerson, for leadership in precision clock and synchrophasor technologies
- Xinzhou Dong, for contributions to traveling wave-based transmission line protection and fault location

- Janaka Ekanayake, for contributions to education in renewable energy integration and smart grid
- Bhuvanewari Gurumoorthy, for contributions to design and development of enhanced power quality converters

OTHER AWARDS

- The IEEE PES Award for Excellence in Power Distribution Engineering was presented to Jim Bouford.
- IEEE PES Douglas M. Staszkesky Distribution Automation Award was presented to David Wade.

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, CIGRE and CIGRE committees
- Liaisons with numerous NESC and ANSI committees.
- Liaisons with US National Committee for CIGRE via IEEE PES Distribution Subcommittee and IEEE PES Power Quality Subcommittee
- Liaison with NEMA via Capacitor Subcommittee

NEW TECHNOLOGIES OF INTEREST TO THE COMMITTEE

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.

The IEEE PQDIF file format specified by IEEE 1159.3 is being considered by IEEE Conformity Assessment Program (ICAP) for a new conformity committee.

SIGNIFICANT PLANS FOR THE NEXT PERIOD

The six subcommittees of the T&D Committee have brought more than a dozen standards to complete or near complete draft by the time of the 2018 IEEE Joint Technical Committee Meeting. Many of the working groups completing these standards have stated intentions to have these new drafts in ballot this spring. This gives potential for many new or revised standards to be completed in 2018.

The committee will be sponsoring three 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).

This report was submitted by Daniel Sabin to the IEEE PES Technical Council on January 31, 2018.