

IEEE Power and Energy Society Entity Annual Report

2020

Entity:	Substations Committee
Website:	https://cmte.ieee.org/pes-substations
Chair:	Joseph Gravelle
Vice-Chair:	Patrick Fitzgerald
Secretary:	Joe Warner
Immediate Past Chair:	Diane Watkins

a) Significant Accomplishments:

- a. Standards – Substations Committee currently manages 45 standards, of these, 30 were in active development in 2020, with the following deliverables:

- Publishing:

1. P1246 – Guide for Temporary Protective Grounding Systems Used in Substations
2. P1427 – Guide for Recommended Electrical Clearances and Insulation Levels in Air Insulated Electrical Power Substations
3. P1623 – Guide for Functional Specification of Medium Voltage (1 kV - 35 kV) Electronic Shunt Devices for Dynamic Voltage Compensation

- Balloting/recirculation:

1. P980 - Guide for Containment and Control of Oil Spills in Substations
2. P1402 - Guide for Physical Security of Electric Power Substations
3. PC37.122 - Standard for High Voltage Gas-Insulated Substations Rated Above 52 kV
4. PC37.122.3 - Guide for Sulphur Hexafluoride (SF6) Gas Handling for High-Voltage (over 1000 Vac) Equipment
5. PC37.122.7 - Guide for Field Testing of Gas-Insulated Substations Rated above 52 kV

- New PAR approval:

1. P693a - Recommended Practice for Seismic Design of Substations, Amendment: Alterations of Transformers, Transformer Bushings and Time Histories
2. P837 - Standard for Qualifying Permanent Connections Used in Substation Grounding
3. P1267 - Guide for Development of Specifications for Turnkey Substation Projects
4. P1527 - Recommended Practice for Seismic Design of Substation Buswork

b. Tutorials and Panels Summary

Tutorials and Panels were cancelled due to CV19.

c. Other Committee and Subcommittee Activities

- Subcommittee meetings were held at the JTCM in Jacksonville, FL in January
- Due to Covid-19, the annual meeting was postponed from June to November, then eventually canceled for 2020. Even with the cancellation, the Committee is in strong financial standing.
- Active groups met virtually on their own schedule.

b) Benefits to Industry and PES Members from the Committee Work:

The most notable activity of the Substations Committee is the revision and updating of standards and guides and initiating work on new standards. These standards are widely utilized and provide the most direct benefit to the industry

The Substations Committee also started a program to help support young professionals and experienced contributors by starting an assistance program that will allow members from these groups to get financial assistance for meeting registration and hotel accommodations to attend working group meetings.

c) Benefits to Volunteer Participants from the Committee Work:

Participants have benefited from their collaboration on technical problems with industry leaders and experts, discussing contemporary industry problems and concerns, and the satisfaction of creating standards and guides that are useful to the industry. Committee meetings have included presentations of experts in specific fields and debating of ideas and industry practices, including CIGRE member input. Substations Committee members have also benefited from their exposure to technical paper reviews and technical paper presentations.

Active participants also have opportunities to take on leadership roles and improving their leadership skills as well as mentoring skills working with teams with a variety of experience in technical and organizational activities.

Substations are considered strategic assets, and many components are now reaching the end of their original design life. Valuable information is exchanged on modern design approaches and explaining new technology, as well as the issues specific to new technology and suggested improvements for the electric power industry market; for example, Voltage-Source Converters (VSC) and alternative gases for insulation.

d) Recognition of Outstanding Performance:

- a. IEEE PES Technical Committee Working Group Recognition Award: Guide for Development of Specifications for Turnkey Substation Projects; Chair, Douglas Sharpe
- b. IEEE PES Technical Committee Working Group Chair Award: Designing a STATCOM/SVC – Harmonic Analysis from Input to Impact; TFII Chair within WGI4, David Langner
- c. IEEE PES Substations Committee Service Recognition Award:
 - Jorge Marquez-Sanchez, M0 Chair
 - Matt Vacha, S0 Chair
 - DJ Moreau, D0 Chair

- Matt Bauer, E0 Chair
- Scott Scharf, K0 Chair
- John Randolph, Cigré liaison
- Bruce Dietzman, NESC liaison

e) Coordination with Other Entities (PES Committees, CIGRE, standards, etc.):

a. CIGRE (George Becker)

- Grid of the Future™ postponed to 2021 by the USNC
- New Working Groups:
 1. B3.58 - Knowledge Transfer of Substation Engineering and Experiences
 2. JWG B1/B3/D1.79 -Recommendations for dielectric testing of HVDC gas insulated system cable sealing ends
 3. JWG B1/B3.74 -Recommendations for a performance guideline of Polymer Insulated Busbars
- New Tutorials
 1. Application of Non-SF6Gases or Gas-mixtures in Medium Voltage and High Voltage Gas-insulated Switchgear (Piet Knol, TB 802)
 2. NCIT Applications in HV Gas Insulated Switchgear (Robert Luescher, TB 814)

b. T&D (Jan Paramalingam)

- Joint work on 1613.1, liaison with I0

c. Energy Storage and Stationary Battery Committee (ESSB) (Joe Gravelle)

- WG D9 coordinated. ESSB successfully published IEEE Std 946.

d. NESC (David Guzman)

- Due to CV19, 2022 NEC was extended into 2023.

f) New Technologies of Interest to the Committee:

- a. Voltage Source Converters (VSC) for FACTS and HVDC
- b. SSSC and UPFC for FACTS
- c. Alternative Gases for SF6 for Gas Insulated Substations

g) 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	Officers from regions 8,9 and 10	Subcommittee officers from regions 8, 9 and 10	Subcommittee members from regions 8,9, and 10
329	0	2	12



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h) Problems and Concerns:

The main concern of the Substations Committee is the impact of COVID-19 on top of the decline for support of the Substations Committee membership participation.

We have been slow to adopt the new entity standards process but have an approved Entity standard P&P for the Substations Committee. When presented the next opportunity, the Substations Committee is ready to support.

Another major challenge facing the Substations Committee is retirement (impending and actual) of many contributors, and the need for recruitment of new Committee participants. Our focus on succession planning has alleviated this concern at the leadership level.

i) Significant Plans for the Next Period:

Hold an in-person meeting post-CV19.

Focus on supporting and promoting virtual meetings to complement in-person meetings.

Our working groups continue to update several standards documents.

We are also looking for ways to increase membership to the substations committee.

Submitted by: Joe Warner

A handwritten signature in black ink, appearing to be "Joe Warner", written over a horizontal line.

Date: 12-30-2020