

CHAIR

Joseph Gravelle
Xcel Energy
1414 W. Hamilton Avenue
Eau Claire, WI 54702
Phone: 715-737-4015

VICE CHAIR

Patrick Fitzgerald
AZZ
51 Alder Street
Medway, MA 02053
Phone: 774-854-0734

SECRETARY/TREASURER

Joe Warner
ABB
901 Main Campus Drive
Raleigh, NC
Phone: 919-856-2476

**D2 Working Group – IEEE 525 Cable Systems in Substations
2020 Fall Meeting – Virtual
Friday November 13, 12 am – 2 pm PST**

CHAIR

Xuan Wu
AEP
xwu@aep.com

VICE CHAIR

Prudhvi Bhattiprolu
AEP
pbhattiprolu@aep.com

SECRETARY

Martine-Denise Long
Buckeye Rural Electric
Cooperative
[us.martine-
denise.long@ieee.org](mailto:us.martine-denise.long@ieee.org)

TECHNICAL EDITOR

Vacant

DRAFT – I will clean this up once you review

Attendees:

1. DJ Moreau
2. Martine-Denise Long joined the meeting.
3. Shashikant Patel joined the meeting.
4. Mike Kipness (IEEE SA Staff) (Guest) joined the meeting.
5. KHAN, KAMRAN (SE GP T NP BIC R&D CL TC) joined the meeting.
6. Gaetz, Alan L. joined the meeting.
7. Dane.Barhoover joined the meeting.
8. W. Bruce Dietzman (Guest) joined the meeting.
9. Jorge Salinas (Oncor) (Guest) joined the meeting.
10. Ma, Chunming joined the meeting.
11. Neal Murray (Guest) joined the meeting.
12. Ross Murphy (Guest) joined the meeting.
13. Bhattiprolu, Prudhvi Anand (AEP) joined the meeting.
14. Arthur Graves (Guest) joined the meeting.
15. Campbell, Jim joined the meeting.
16. Xuan Wu (AEP) (Guest) joined the meeting.

Order of operations/discussion:

1. Everyone introduced themselves.
2. 7 of the 10 members were present, quorum achieved.
3. The patent slides were presented along with a call for acknowledgement of any
4. potentially essential patents and duty to inform. No responses were received. Mike Kipness mentioned the copyright policy: <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/ieee-sa-copyright-policy-2019.pdf>

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5. DJ reviewed the meeting notes from the 1/14/2020 meeting. Minutes were approved with no objections, no one abstained.
6. DJ announced that he is stepping down as Chair and introduced Xuan Wu as the new chair.
7. Alan announced that he is stepping down as vice chair, Prudhvi Bhattiprolu is nominated as Vice Chair. Prudhvi expressed his interest in the position. No comments.
8. Martine-Denise mentioned she is willing to step down as Secretary if anyone else is interested. No comments.
9. Reporting on subcommittee work:
 - a. #7 from 1/14/20 Meeting notes: Art Graves, Jorge Salinas, Ross Murphy, Chunming Ma - 1143 standard can add a reference to 1143 in the 525 standard. SC5 (William--Bill Byrd is Chair) - Fiber Optic Working Group, SC6 (John Fuller is Chair) - Wireline Subcommittee
 - b. 8 & 9 are combined from meeting notes – Art Graves prepared a document which is being reviewed by Ross Murphy, 525.1 draft revision. The document is the 1242 guide and providing recommendations to incorporate in the new 525 revision. Approach is to attach as an annex to 525 standard
 - i. Question was asked by Mike Kipness if it would be standalone or an attachment to 525? Standalone and supplement to 525 on type of cables
 - ii. Mike said without a PAR there should not be a new standard introduced
 1. Ross Murphy said Art provided a document of IEEE 1242 with highlighted points, communication received from Art on what he was thinking, not a draft
 - iii. Wu points out that there could be issues on specific cables being referenced in the guide and being tipped toward specific manufacturers
 1. Wu asked for information to be shared with him, the Vice Chair and Secretary
 2. Chunming Ma said the document is too rough to share

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- a. Art was passionate about it in August at their meeting, but he hasn't heard from him since
- b. He plans to keep the group updated
- iv. Mike asks if the document will be normative or informative? Ross answers normative
- c. Ross shares screen shows 1242 document showing cable construction of typical low voltage constructions – IEEE Guide for Specifying and Selecting Power, Control and Special-Purpose Cable for Petroleum and Chemical Plants
 - i. Wu asks what we think of something like this being included
 - 1. Jim Campbell thinks that the IEEE 1242 could be more general of a standard and could be referenced. Instead of supplementary make it one of the 525 annexes. Reference or add in section 4.3.1 of 525
 - 2. Ross thinks this would be more palatable.
 - ii. Wu agrees that it is a good reference document possibly add, pull out substation applicable cable types
 - iii. Mike points out the next submittal deadline is December 11, 2021
 - iv. **Action: Subcommittee (Chunming Ma, Ross Murphy)**
 - 1. Read through 1242, pick out applicable substation cables
 - 2. Ross, procedural question: can reference or take out the actual section? Mike, Referencing is fine, but to take out an actual section the Intellectual Property rights form will need to be submitted to IEEE. Mike will send link for the form: <https://standards.ieee.org/ipr/copyright-permissions-form.html>
 - 3. It was mentioned that taking out a section versus a reference may lose track of the changes that are made over time to that standard.
 - 4. Shashi mentioned when a substation is located near a Petroleum and Chemical plant this document needs to be referenced regardless

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10. Campbell shared on the status (#6 from notes) from the EPRI EMP study. Southern Company has been working with congress to slow down the government requiring military EMP hardening of substations would be too expensive typically for utilities. High-altitude electromagnetic pulse (HEMP) would cause a lot of widespread damage. Shielded cables on 115kV and above (Southern Companies high voltage). Looking at shielded going into the control house not being enough. Frequency ranges would require larger shield wire, reduction of the impact of the EMP on the substation cables. Hi-impedance inputs are a focus. Control building type (metal, concrete, wood). Looking at a specific switching substation in their study, 60 cables into the control building. Focus is on things that can be done to the control building materials to reduce the radiated EMP impact.
- a. Wu asks if the EPRI report to can be shared on the screen? Jim thinks so
 - b. Wu shares the Executive Summary – High-Altitude Electromagnetic Pulse and the Bulk Power System, Potential Impacts and Mitigation Strategies
 - c. Wu asks what is Jim envisioning for the use of this document? Jim responds that the hardening of the substation equipment may be impacted that would necessitate a section added to the standard of EMP hardening
 - d. **Action: Subcommittee (Jim Campbell, Jorge Salinas)** Look at adding a section on EMP hardening to the guide
 - i. Jim said he's trying to get his company to shield all control cable
 - ii. Prudhvi asks if fiber optic cables are being looked at? Jim said they are installing on an existing substation with breaker control cable replacement. Prudhvi says AEP has a small pilot project on installation
11. Derating of power cable in trenches and protection of transients on control cables (Bhattiprolu) will be covered at another meeting
12. Survey status (Moreau) – under review from IEEE Corporate. Mike has no additional comments.
13. Next meeting JTCM will be virtual AM (preliminary 8:30am-10:30am, EST?) January 12, 2021, date may be left up to the working group. Arthur Graves may have a conflict.



IEEE POWER & ENERGY SOCIETY / SUBSTATIONS COMMITTEE

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14. Shashikant Patel is going to be looking for a link for the meeting to submit to IEEE
15. Wu goes over the subcommittee assignments:
 - a. Asks for excel spreadsheet of SC5 & SC6 from Martine-Denise Long
 - b. Asks for information from Prudhvi to share in the next meeting on derating of power cable in trenches and protection of transients on control cables.
16. Motion to adjourn, Jim seconds

Meeting Adjourned at 2pm PST

Our website is: <http://sites.ieee.org/sagroups-525/>

