

**Capacitor Subcommittee  
of the  
IEEE PES Transmission and Distribution Committee  
2017 Joint Technical Committee Meeting Minutes  
New Orleans, Louisiana**

**Wednesday, January 11, 2017**

**I. General meeting introductions and acknowledgments**

The meeting was called to order by the Subcommittee Chairman Richard Sévigny.

Attendees introduced themselves. The following 17 people were in attendance:

<b><u>Name</u></b>	<b><u>Company</u></b>	<b><u>Member or Guest</u></b>
Bill Chai	GE - CPQP	Member
Biswajit Singh	ABB Inc.	Member
Gerard Winstanley	NEMA	Guest
Hua Liu	Southern California Edison	Member
Jan Paramalingam	Mitsubishi Electric	Member
Jeff Nelson	Tennessee Valley Authority	Member
Joe Meisner	American Electric Power	Member
Mark McVey	Dominion	Member
Mike Hulse	Bonneville Power	Vice Chairman
Othmane Alaoui*	ABB Inc.	Member
Paul Marken	GE Grid Solutions	Member
Richard Sévigny	Hydro-Québec	Chairman
Roy Alexander	RWA Engineering LLC	Member
Sarah Newton	American Transmission Company	Member
Stephen Ladd*	Duke Energy	Member
Tom Grebe	EnerNex	Webmaster
Vincent Deslauriers	ABB Inc.	Secretary

\* New Member or Guest, Welcome!

**II. Approval of minutes of previous meeting**

The minutes from the July 2017 Boston, MA General Meeting were reviewed. Minutes were unanimously approved as submitted by a motion from Vincent Deslauriers that was seconded by Joe Meisner.

### III. Membership review

The membership roster was sent around for review and correction. The updated roster has 0 new observers and 2 new active members. This subcommittee is open to new members and guests.

Membership roster can be found at: <http://grouper.ieee.org/groups/td/cap/>

### IV. Chairman's report

Richard had a T&D Administrative Subcommittee Meeting during the last IEEE PES General Meeting in Boston. Richard reported the main items discussed during the meeting i.e.:

- A. The T&D Committee has a new website (<http://sites.ieee.org/pes-td/>)
- B. The T&D Committee recommend that the Subcommittees go for rotation of the different officer roles (Chairman, Vice Chairman and Secretary). The Committee suggests a 3-year rotation that can be extended for another 3 years. A Quick reference guide for chairman has been published on the T&D Committee website (<http://sites.ieee.org/pes-td/resources/>)
- C. Agenda for the next Summer General Meeting had to be provided in advance. Richard provided it at the end of October as required.

### V. Liaison reports:

#### A. NEMA – Bill Chai

NEMA 8CP TC on Capacitors typically has one meeting a year between April and May which will hopefully be the case again this year but the TC may try to also meet during the next IEEE PES General Meeting in Chicago in July. On the agenda for the next meeting is the review of the comments made by the Shunt Capacitor Working Group on the next revision of the IEEE Std. 18.

#### B. IEC – Bill Chai

IEC TC 33 had a meeting last November in Mylan, Italy. The TC has a new secretary (Mr Maurizio Rabuffi). The Chairman (Ms HEBBALE Narasimhaiah Nagamani) showed up at the meeting this time. IEC standard 60143-1 and 60143-2 will remain unchanged till year 2020 and till year 2018 for 60143-3.

There is a push to establish a new program to identify Self-Healing capacitor equipment recruiting members from the TC33 working group. This work is usually done by MT18 and MT21 Maintenance Team. Based on Bill's say Self-Healing is not

a proven technology for HV capacitors and is used by only one manufacturer. Bill will voice that Self-Healing for high voltage application is not suitable for standard.

Biswajit Singh mentioned that there is also an interest for IEC to write an application guide for shunt capacitors. Mark McVey mentioned that he has offered his help to contribute to this new application guide.

The next TC 33 should be held in China or Brazil with Brazil preferred. There is not much going on for now on the standard.

**C. CIGRÉ – Bill Chai, Paul Marken, Mark McVey**

Mark mentioned that there is presently a CIGRÉ WG/SC B4 working around series capacitors. The WG already held 3 or 4 meetings and got the basis of the outline and system studies together. Paul added some details about the challenges related to running overcompensated line. He also mentioned that a lot of simulations have been done approaching the end of the simulations which is expected to happen in a year or so. There may be a publication coming out afterward that could be of interest for the people of this capacitor subcommittee.

## **VI. Working group reports:**

**A. W.G. on Capacitor Technical Papers – Tom Grebe**

From January 1<sup>st</sup> 2016 to January 1<sup>st</sup> 2017, 4 papers reviewed. 1 paper rejected, 1 paper revised and resubmitted, 2 accepted.

The three accepted paper manuscript titles are the following:

- i. Enhanced Fault Location Scheme for Double Wye Shunt Capacitor Banks.
- ii. Studies on Switching Transients and Calculations of Physical Fields in Power Capacitors.
- iii. Audible Noise Characteristics of Filter Capacitors Used in HVDC

**B. W.G. on Capacitor Bibliography – Richard Sevigny**

Nothing to report but add the 3 papers that were accepted

**C. Shunt Capacitor Working Group – Paul Marken**

The W.G. met on the 10<sup>th</sup> with 15 members and 4 guests. The working group had good discussions. Paul mentioned that W.G. has still time but should be able to go for balloting after the next meeting.

Paul offered to also report about K13 W.G. (Capacitor protection). This W.G. is also about to ballot and Paul suggested that it would be good time for members of the Capacitor Subcommittee to give their inputs.

**D. T.F. on Low Voltage Shunt Capacitor Application – Steve Ashmore (Peter Goldstrass)**

Richard filled in for Steve Ashmore who was not able to attend and who was also supposed to fill in for Peter Goldstrass.

Steve Ashmore is now the official chairman and Peter will keep supporting Steve.

It was a short meeting and the T.F. decided to go for a Technical Report (TR) instead of going for a Standard. A skeleton of the different topics to be covered will be soon provided.

**E. W.G. on Standard for Series Capacitors – Mark McVey**

The W.G. met on the 9th with 13 members and 6 guests.

Three specific items were discussed. These items will be added to the std. 824 draft document and send out so it can be discussed during the next IEEE PES Summer meeting in Chicago in order to see if everybody in the W.G. is in agreement. The objective being to send out the document for balloting after the summer meeting. However there are still time available to resolve issues so the balloting may be postponed to after the next JTCM in January 2018 if needed.

**F. W.G. on the Application Guide for Shunt Capacitors (Std 1036) – Joe Meisner**

The W.G. met on the 10th with 20 attendees. It was a good meeting with enough time to be able to go through all the comments. There was work done on the continuous 110% contingencies matching what can be found in Std. 18 considering the real operating conditions. Such match that should also be handled to the W.G. covering the C37.99 standard.

Joe suggest that the Capacitor Subcommittee members should be participating in C37.99 standard.

**G. T.F. on Capacitor GMD Mitigation – Mark McVey**

The T.F. met on the 9<sup>th</sup> with 15 attendees.

There is an existing outline document that has been circulated previously and Mark mentioned that we will have a draft document.

We got a very wonderful presentation on GMD blocking device application from Sarah Newton (ATC) that got a lot of attention and attendees asked lot of questions. Thank you Sarah! Your presentation was much appreciated.

Mark says that no one seems interested to go for a PAR but a paper is appropriate. Regulator should attend to the next meeting of this T.F.

#### **H. T.F. on Capacitor Discharge Limitation Application – Roy Alexander**

Roy reviewed the recent work that was done. The T.F. members looked at the Discharge table again. Testing come along okay but no real change compare to the work done last year. Some more capacitor units should be supplied to Roy. The internally fused discharged topic was discussed and may be excluded from the scope of the T.F. because no testing was done on internally fused capacitors. More testing to come. Jeff Nelson suggested that a Technical Report (T.R.) be produced on this so the tables used are referenced and can be used in Std. 1036 and a recommendation made to Std. 18.

#### **I. Guide for Application & Specification of Harmonic Filter – Jan Paramalingam**

The W.G. met on the 9th with 14 members and 1 guests.

Action items from the meeting are:

- i. Clarifications on some comments will be needed.
- ii. IEC 60076-6 with specific regard to iron-core reactors manufacturing tolerances to be researched and commented on.
- iii. Include a new section on thermistor switches. (To be provided by Othmane Alaoui)
- iv. Make updates and corrections as discussed during meeting, including figures and annexes.

#### **VII. Old business:**

The request of joint venture with IEC for an application guide for shunt capacitors has died out at the last IEC TC 33 meeting.

## VIII. New business:

### A. Chair position for low voltage shunt capacitor application

Steve Ashmore to take over Peter Goldstrass as the chairman of the T.F. on Low Voltage Shunt Capacitor Application.

### B. Secretary position

Vincent Deslauriers nominated.

### C. Subcommittee Officer Rotation

No rotation as of now.

### D. Agenda for the next meeting

<u>Meeting Name</u>	<u>Day</u>	<u>Mo</u>	<u>Date</u>	<u>Start Time</u>	<u>End Time</u>
Series Capacitor WG	Mon	July	17	14:00	15:30
TF Capacitor GMD Mitigation	Mon	July	17	15:30	17:00
Shunt Capacitor WG	Tue	July	18	8:00	11:00
Shunt Capacitor App Guide P1036 WG	Tue	July	18	14:00	17:00
Capacitor Discharge Limitation Application Paper TF	Wed	July	19	8:00	10:00
Guide for Application & Specification of Harmonic Filter	Wed	July	19	10:00	12:00
Low Voltage Shunt Capacitor Application TF	Wed	July	19	13:30	15:30
Subcommittee Meeting	Wed	July	19	15:30	17:00

### E. Miscellaneous

- i. Jeff Nelson made a comment to let us know that he is not done yet with the Technical Report (TR) he is working on that will show the evolution of Std. 18 and Std. 1036 over the years. This is obviously related to his other duty with the T&D Committee. Jeff said that there is no dead line with a TR and that he should be able to complete this work sooner or later.
- ii. Capacitor subcommittee website – Tom Grebe  
Tom has updated the website to include the Awards.  
Tom proposes to create a section so W.G./T.F. can store information. Tom is asking the different chairpersons to send him the files and he will create the section and add the documents on the Capacitor subcommittee website

## IX. Future meetings:

- July, 2017 – PES General Meeting in Chicago, IL
- January 2018 – Jacksonville, FL

- August 2018 – Portland, OR
- January 2019 – Anaheim, CA

After Anaheim the rotation for the IEEE PES JTCMs should become Jacksonville/Anaheim/New Orleans.

Meeting is adjourned at 3:12 PM.

Minutes prepared by Vincent Deslauriers.