

**Meeting Minutes**  
**WG 824: Series Capacitor Working Group**  
**of the**  
**Transmission and Distribution Committee**  
**Las Vegas, Nevada**  
**16-17 January 2006**

**Date:** January 16-17, 2006, 08:00-11:30 AM

**Place:** Westin Casaurina, Las Vegas, NV

**1. Introduction**

The meeting was called to order by Bruce English, Acting Chair of working group.

The following people were in attendance:

Name	Company	Member/Guest
Bill Chai	GE	M
Bruce English	GE	M
Ivan Horvat	ABB Capacitors	M
John Joyce	Siemens	M
Carlet Langford	Nevada Power Co.	M
Per Lindberg	ABB	M
Dan Luke	Cooper Power Systems	M
Mark McVey	Dominion Virginia Power	M
Jeff Nelson	TVA	M
R. Vittal Rebbapragada	PG&E	M
Richard Sevigny	TECAP, Inc.	M

**2. Previous Meeting Minutes**

The minutes from the June 14, 2005 San Francisco meeting were approved as submitted.

**3. Additional Agenda Items**

Introduction of the new website hosting for the series capacitor working group (<http://grouper.ieee.org/groups/td/cap/seriescap/>).

**4. PSRC Guide (K13) Document Discussion**

PSRC working group writing K13 document met in New Orleans January 9-10, 2006. Recent balloting action yielded 63 affirmative, 4 negative with comments, 3 negative without comments, and 9 abstentions. Per Lindberg recounted the meeting that he attended. Jeff Nelson remarked on scope of PAR of K13 document and Vittal Rebbapragada as well as John Joyce commented on the scope of PSRC and portions of document.

WG given a 1-year extension on PAR to address the issues. FSC WG action items discussed:

- a) Consolidate substantive negative comments. (Mark McVey)
- b) Form single document/email and send to Karl Mortensen, Gene Wolf, and Mack Grady (T&D leadership) so they can approach PSRC. (Mark McVey)
- c) Extend vision for a pair of complimentary documents, K13 plus Guide for Specification. (Bruce English)
- d) Attend next PSRC meeting May 15, 2006 in Albany, NY. (Bruce English)

Latest draft of document is 9.2a. Mark McVey will investigate why some negative comments (Mark McVey, Gerald Lee, and Vittal Rebbapragada at a minimum) didn't make it to the list. Also to investigate to see whose negative votes may not have made the count.

Mark McVey reported Tuesday morning on T&D administration committee meeting that they are supportive of our plan to approach PSRC on these issues.

## **5. Draft Guide for the Specification of Fixed Series Capacitor Banks for Transmission Systems**

Started by reviewing overall reorganization of document. Table of Contents rewritten to reflect an organization similar (almost identical) to IEEE 1031 (SVC Specification Guide).

Discussed RFP versus project level of engineering study work. Should include comment in Annex B.

Testing section—suggested organization/expansion:

- a) Production/routine
- b) Type/design
- c) Factory and/or site testing of P&C systems (e.g. RTDS use, or equivalent)
- d) Site pre-commissioning
- e) Commissioning
- f) Special testing (e.g. staged fault testing, switching tests)
- g) Suggestion for Annex B—focus on overall goals of testing:
  - i. Production: QA of individual manufactured components
  - ii. Design/type: equipment, as designed, will survive application
  - iii. Pre-commissioning & commissioning: equipment connected properly and functioning as expected
  - iv. P&C system functional testing: equipment operates as designed
  - v. Staged fault testing: accuracy of monitoring (e.g. DFR) and functionality of overall protection system.
  - vi. Testing overall: aids in overall understanding of operator's/user's engineers (training)

Bypass switch section, discussion of special application:

- a) TRV during bank insertion at high line currents.
- b) Close and latch requirements (fault plus capacitor discharge)
- c) (O) – C – OC Duty cycle (based on fault auto isolation sequences of transmission line protection systems)
- d) Interrupter versus L-G voltages and insulation
- e) Fault break versus load break (breaker versus load commutating switch)
- f) John Joyce and Vittal Rebbapragada volunteered to collaborate on some study work to investigate the TRV during insertion issue.

Scope of supply section reviewed.

- a) Add construction standards to user scope of supply (discussion on appropriate level of construction standards to supply during RFP stage versus project stage)
- b) Labour standards—outside scope of document? Check IEEE 1267-1999 to determine if that document may be strategically referenced to reduce scope of this document.
- c) Annex B discussion insert: boundary points between equipment scope of supply (e.g. anchor bolts)
- d) Add system study data necessary for supplier-required study work to user scope of supply.

Discussion of MOV ratings, RFQ-level of determination. User specify MJ versus supplier performing system study.

Homework assignments:

- a) Mark McVey, Section 8.1.
- b) Vittal Rebbapragada, Section 8.4.
- c) All members, review diagram drafted by Todd Campbell and Section 5 of guide and provide feedback.
- d) John Joyce, TPSC functionality discussion:
  - i. Overvoltage protection (c.f. MOV)
  - ii. Stability (c.f. "ride through" of external faults versus fast reinsertion)
  - iii. OV protection versus fast-bypass device versus hybrid: testing applicability
- e) Bruce English, incorporate insulation coordination into document.

**6. Old Business**

**7. New Business**

Summer meeting scheduled for June 19-23 in Montreal, Quebec.

**8. Meeting Adjourned**

Respectfully submitted,  
Bruce English, Acting Chair  
January 18, 2006